Chapter 1

POSTTRAUMATIC PSYCHOLOGICAL STRESS: INDIVIDUAL, GROUP, AND ORGANIZATIONAL PERSPECTIVES ON RESILIENCE AND GROWTH

DOUGLAS PATON, JOHN M. VOILANTI, AND LEIGH M. SMITH

On the occasion of every accident that befalls you, remember to turn to yourself and inquire what power you have to turn it to use.

Epictetus 60–120A.D.

INTRODUCTION

Despite a long history of focusing on the pathological outcomes that can accompany exposure to adverse events such as traumatic incidents and disasters, recent decades have witnessed a progressive realization that such outcomes are not inevitable. Attention in this regard has focused on why and how some people and groups, following exposure to hazardous or adverse situations, can regain prior levels of functioning, "bounce back" or adapt, and in some cases experience personal growth. In this text we use the term "resilience" to refer to the former and "growth" to describe the latter.

What is surprising about the revelations emerging from these more searching analyses of how people experience their encounters with adversity is not that psychological resilience and growth can result from exposure to even extreme adversity, but that, as evinced by the quote from Epictetus, it has taken so long for these possibilities to become subjects for rigorous scientific study. It would appear that this lesson of history has been neither learned

nor accommodated within the fabric of mainstream mental health research and practice.

The objective of this book is to begin the systematic analysis of variables and mechanisms that underpin resilience and growth in professions (e.g., law enforcement, fire service, health care, and emergency management) who face a high risk of regular and repetitive exposure to adverse or hazardous events (Paton & Violanti, 1996; Violanti & Paton, 1999; Violanti, Paton & Dunning, 2000). Given the inevitability of this exposure, we owe it to those who dedicate their lives to protecting and safeguarding others to facilitate, as far as possible, their capability to adapt to, or bounce back from, adverse experience and to maximize the likelihood that such exposure contributes to enriching their personal and professional lives. The first step in this process involves defining the core constructs.

RESILIENCE AND GROWTH

Resilience we define as the capacity of individuals, communities and organizations, and the systems that facilitate their performance to maintain relationships and balance between elements in the presence of significant disturbances because of a capability to draw on their resources and competencies to manage the demands, challenges, and changes encountered. Resilience describes a capability for "bouncing back" following exposure to adversity. Implicit within this definition is the notion that individuals, groups, and organizations can return to prior levels of functioning. We are also interested in adaptative processes that are marked by growth. Here we adopt Tedeschi and Calhoun's (Ch. 2) definition of posttraumatic growth (PTG) as a significant beneficial change in cognitive and emotional life beyond previous levels of adaptation, psychological functioning, or life awareness that occur in the aftermath of psychological traumas that challenge previously existing assumptions about self, others, and the future.

Although conceptually distinct, a relationship between resilience and growth can be envisaged. For example, Kumpfer (1999) described a resilience process model that links diverse personal, group, and environmental resources with the following outcomes: resilient reintegration (which corresponds to the definition of growth used earlier); homeostatic reintegration (which corresponds to the definition of resilience presented previously; maladaptive reintegration (which represents increased vulnerability); and dysfunctional reintegration. This suggests that, in addition to identifying resilience factors, we must also consider their relationship with adaptational and growth outcomes. Where possible, authors allude to this relationship in

their respective chapters, with the issue being dealt with in detail by Smith and Violanti (Ch. 13).

The need to distinguish between growth and distress outcomes represents another theme emerging from more critical analyses of how adverse events are experienced. For example, Hart and Wearing (1995) demonstrated that, following a review of their work on stress in police officers, that distress and well-being were separate, orthogonal constructs, each influenced by discrete sets of factors. While considerable effort has been expended on investigating the precursors of loss and pathological outcomes, less emphasis has been placed on resilience and growth in those regularly exposed, in a professional capacity, to adverse events. It is the predictable, regular, and repetitive aspect of the work experience of high-risk professions that makes understanding resilience and growth so important. If we can identify salient predictors of resilience and can articulate the mechanisms that link them to adaptive and growth outcomes, we will be in a better position to intervene to enhance this capacity prior to exposure to adverse events.

The Nature of Resilience

The first stage in this process involves describing the variables that have been demonstrated, or hypothesized, to facilitate resilience and growth, and evaluating their actual or potential contribution in this regard. In this book we consider this issue from dispositional, cognitive, group, and environmental perspectives (Fig. 1.1). Dispositional resilience reflects how personal characteristics (e.g., hardiness) affect adjustment. This concept is amenable to application in organizational contexts through selection and assessment. The cognitive component is concerned with the individual's sense of coherence and meaning. In organizations, training and development strategies, and the overarching culture of the organization, represent means for facilitating a capability to impose coherence and meaning on atypical, adverse experiences. Although emergency workers may work on their own, it is more likely that they will find themselves working in teams, usually with members of their own profession, but often with members of other professions. Consequently, we must examine the factors that influence group or team resilience. The final element, the environmental characteristics and practices required to foster and sustain resilience, can be cultivated through, for example, organizational design and management development strategies that create practices, procedures, and a culture that mitigate adverse consequences and maximize potential for adaptation and posttraumatic growth.

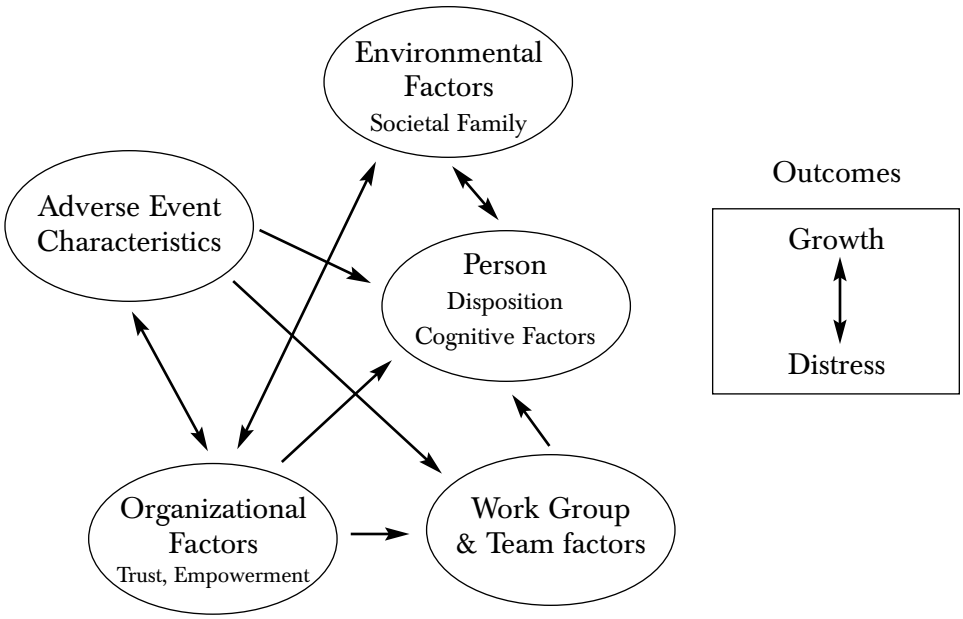

Figure 1.1. Adverse event characteristics interact with personal, group, and environmental resilience and vulnerability factors to influence growth and distress outcomes.

Although personality and cognitive factors have been readily accommodated within clinical models that tend to define traumatic stress reactions as resulting from the interaction between person and event, the possibility of organizational-level factors acting in a causal capacity has not enjoyed similar levels of attention in clinical models.

Recent work, however, is increasingly suggesting not only that the organizational environment can exercise a powerful influence on the manner in which emergencies and disasters are experienced, but it may be the most important. For example, Eränen, Millar, and Paton (1999) demonstrated that "perceptions of organizational climate" was the most important predictor of stress responses in search-and-rescue workers following the sinking of the Estonia ferry. Paton, Smith, Ramsay, and Akande (1999), following a multidimensional scaling analysis of the structural relationships between Impact of Event Scale items in firefighters, demonstrated that organizational characteristics superseded event characteristics as determinants of traumatic stress reactions. Paton (1994) described how workplace procedures affected resilience to adverse events in firefighters. Alexander and Wells (1991) concluded that a supportive managerial culture played a prominent role in facilitating resilience in police officers performing body recovery duties. Finally,

Hart and Wearing (1995) demonstrated that the dominant influence on both distress and well-being in police officers was organizational rather than operational.

Taken together, these studies demonstrate that organizational structure, procedures, and culture exercise a powerful influence on how adverse events are experienced and must, if we are to construct comprehensive models, be accommodated within resilience research and intervention agenda. Moreover, acknowledging these influences highlights the necessity for, and the feasibility of, intervening prior to exposure (e.g., through selection, training, organizational development), rather than waiting until after the event, as is currently the norm. In this way, intervention can be truly preventative, increase staff capability to bounce back from encounters with adversity, and facilitate the likelihood that such exposure will enrich their personal and professional lives.

Predictors of Resilience

We open with Tedeschi and Calhoun's discussion of posttraumatic growth (PTG): the change that occurs in people that transcends previous levels of functioning and involves movement beyond pretrauma levels of adaptation. They outline the conditions required for PTG to occur and emphasize that this is not an easy process; it being the struggle with the new reality in the aftermath of trauma that is crucial to producing PTG. Although accepting this possibility in no way precludes recognition of the fact that loss and distress can accompany exposure to adverse situations, Tedeschi and Calhoun's work point us in a direction that should enjoy far greater prominence within mental health research and intervention. The remainder of the text follows the pattern outlined earlier (Fig. 1.1) and focuses on reviewing individual, group, and organizational factors that can assist the process of regaining prior levels of functioning and that may engender the capability to "struggle with the new reality" in a way that facilitates growth outcomes.

How we experience adversity will be a function of what we, as individuals, bring with us in terms of our personality characteristics. Working within this perspective, Moran and Shakespeare-Finch (Ch. 3) adopt a trait approach to discussing the relationship between individual differences and resilience and growth. Specifically, they review the evidence for the five-factor model (Extraversion, Neuroticism, Openness, Agreeableness, Conscientiousness), and optimism, hope, and humor in this regard.

In Chapter 4, Maddi and Khoshaba introduce the construct of hardiness. Drawing on their long history of developmental and empirical work with this construct, from its origins to its current formulation, they demonstrate the

validity of the construct and its practical utility. In addition to core attitudes (control, commitment, challenge), coping, support, and health maintenance strategies are also discussed. In regard to the utility of the construct, they outline and evaluate hardiness training and discuss its application in several contexts, including its implications for emergency and military organizations.

Bartone (Ch. 5) continues the discussion of hardiness with specific reference to resilience in military contexts, including the relationship between hardiness and leadership behavior and practices. In addition to discussing the range of adverse circumstances that military personnel have to deal with, from combat to peacekeeping and policing roles, Bartone also reviews empirical evidence for the explanatory utility of the construct. Friedman and Higson-Smith (Ch. 8) also discuss the relationship between hardiness and resilience, focusing on how this construct has proved a useful device for understanding responses to adverse work experience in the South African police. Other personality and dispositional factors discussed include self-efficacy (Johnston & Paton, Ch. 10) and trust (Payne & Clark, Ch. 11).

A core construct in this field is that of coherence (Dunning, 1999). Pollock, Paton, Violanti, and Smith (Ch. 7) review the contribution of training to promoting a capability for adapting to adverse circumstances and rendering their nature and consequences meaningful. In Chapter 8, Friedman and Higson-Smith discuss the relationship between sense of coherence and social support and resilience in the South African police. Dunning (Ch. 9) links coherence with the concept of empathy to introduce a set of managerial practices that can be used to construct interventions that will assist emergency personnel to render atypical events coherent.

Even if individuals possess the dispositional capabilities to facilitate their resilient response to adverse experiences, it cannot be assumed that this will be sufficient to confer resilience on them when operating in a group or to confer collective benefit in a group or team context. Consequently, and given the importance of teamwork in emergency operations, we must consider team issues in their own right. Pollock, Paton, Smith, and Violanti (Ch. 6) discuss how team and group resilience can be developed prior to, during, and after emergency response.

The final aspect of resilience discussed in this book concerns the environment in which individuals and teams operate. Discussion of resilience at this level acknowledges that if individual and team resilience capabilities are to be sustained, it is vital that the environment provides an appropriate context for this to occur. Defining what this environment is a difficult task in itself. Here, environmental aspects of resilience are discussed from organizational, family, and, to a less extent, societal perspectives.

Friedman and Higson-Smith (Ch. 8) describe resilience in the face of chronic exposure to trauma against a backdrop of political and depressed

socioeconomic upheaval and uncertainty. They introduce a model, the twin peaks model, to provide a conceptual framework within which chronic exposure and its psychological consequences can be understood. They raise the important issue of distinguishing between positive and negative (apparent adaptation that conceals negative traumatic stress reactions) resilience. They discuss this in terms of "disenfranchised distress" that arises when the organizational climate censures emotional disclosure. This discussion highlights the need to guard against assuming that the absence of distress symptoms equates to adaptation.

Bartone (Ch. 5) and Dunning (Ch. 9) discuss issues relating to meaning making in organizations. Dunning discusses this in relation to managerial and cultural practices. Bartone focuses on the role of leadership behavior in creating a hardy culture, and how the leaders' own hardiness can be transferred to personnel via their behavior. From an organizational perspective, this implies that peer and leader behavior, and the culture it represents, influence how meaning and cohesion are imposed or encouraged. The ensuing behavior serves to entrench the values and beliefs that underpin resilience and provides a context conducive to the realization of the resilience potential derived from personality, dispositional, and cognitive predispositions.

Tedeschi and Calhoun (Ch. 2) raise the possibility that because growth occurs in situations where people are limited in choices available to them, the necessary willingness to explore opportunities may be linked to the degree to which employees are empowered. Following a discussion of the role of managerial behavior and organizational practices in the postevent environment, Johnston and Paton (Ch. 10) explore how incorporating empowerment practices within organizational culture and procedures can facilitate a capability for adaptive, resilient, and growth outcomes.

Payne and Clark (Ch. 11) discuss the relationship between trust and stress resilience. In addition to describing a conceptual model to assist understanding this relationship, they demonstrate the importance of trust as a facet of organizational culture in high-risk professions and how resilience may be influenced by the level of trust between emergency workers and those they are assisting.

Shakespeare-Finch, Paton, and Violanti (Ch. 12) continue the environmental theme by discussing a group that exists outside the boundaries of the organization in which individuals and teams ordinarily operate: the family. They discuss this group from two perspectives. First, they consider the family in regard to their role as a support resource. Second, they examine how family members themselves face unique demands that relate specifically to their status and the manner in which they experience traumatic or adverse events. Interestingly they note that the most significant negative influence on family systems functioning was not traumatic events but shift work: a factor

more aligned to routine operational work. They discuss these demands and their implications for facilitating an ability to adapt to adverse circumstances in the family of military and emergency services personnel performing peacekeeping and disaster relief duties, and in relation to the family members of police officers killed in the line of duty. The two perspectives discussed here are related. By promoting family resilience per se, their capability to act as a support resource for those directly involved will be enhanced.

Given the wealth of the factors of its nature and operation, it is essential that resilience be conceptualized as a multivariate process. If understanding of this phenomenon is to be advanced, it will be necessary to model the relationships between these variables and the mechanisms by which they are linked to growth. Smith and Violanti (Ch. 13) present such a model and discuss the methodological issues that must be considered in developing our conceptual understanding of the phenomenon of resilience and its relationship to positive and negative outcomes, and the issues involved in testing and evaluating the data collected.

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Chapter 2

ROUTES TO POSTTRAUMATIC GROWTH THROUGH COGNITIVE PROCESSING

RICHARD G. TEDESCHI AND LAWRENCE G. CALHOUN

INTRODUCTION

An area of psychotraumatology that has received growing attention during the past few years is posttraumatic growth. This is defined as a significant beneficial change in cognitive and emotional life beyond previous levels of adaptation, psychological functioning, or life awareness. These changes happen in the aftermath of psychological traumas that challenge previously existing assumptions about self, others, and future (Calhoun & Tedeschi, 1999; Tedeschi & Calhoun, 1995; Tedeschi, Park, & Calhoun, 1998).

In this chapter, we summarize some of the research and theory that has supported this concept then turn to a discussion of how trauma is cognitively processed into growth. We begin with some vivid descriptions of posttraumatic growth from people who have experienced it. The writer Reynolds Price described his paralysis from cancer this way:

> [Trauma forces a person] to be somebody else, the next viable you–a stripped-down whole other clear-eyed person, realistic as a sawed-off shotgun and thankful for air, not to speak of the human kindness you'll meet if you get normal luck. (1994, p. 183)

The following quotation is from an individual who was injured in an auto accident and paralyzed. He makes an even stronger statement about his trauma:

> This was the one thing that happened in my life that I needed to have happen, it was probably the best thing that ever happened to me. On the outside looking in that's pretty hard to swallow, I'm sure, but hey, that's the way I view it. If I hadn't experienced this and lived through it, I likely wouldn't be here today because of my lifestyle previously–I was on a real self-destructive path. If I had it to do all over again I would want it to happen the same way. I would not want it not to happen. (as quoted in Tedeschi & Calhoun, 1995, p. 1)

Of course many trauma survivors cannot value their trauma in this way, although they value its lessons. Consider Rabbi Harold Kushner's reflection on the death of his son.

> I am a more sensitive person, a more effective pastor, a more sympathetic counselor because of Aaron's life and death than I would ever have been without it. And I would give up all of those gains in a second if I could have my son back. If I could choose, I would forego all of the spiritual growth and depth which has come my way because of our experiences, and be what I was fifteen years ago, an average rabbi, an indifferent counselor, helping some people and unable to help others, and the father of a bright, happy boy. But I cannot choose. (as quoted in Viorst, 1986, p. 295)

These perspectives from persons surviving terrible trauma have in common the valuing of what has happened to them in the aftermath of trauma, that is, the growth they have experienced in their attempts to cope. It appears that few people intend to make this meaning, rather it is a by-product of their attempts at survival.

> The point is, however, that appreciating a disability, giving it value, need not require that it be preferred in and of itself; just that its ramifying meaning is valued. Consider how often there is a strong positive reaction to a person who refuses to succumb to the limitations of a disability and instead is challenged to overcome and achieve. It is then that the disability, being viewed within a broader life context of a dauntless human spirit, becomes appreciated for what it signifies. Nevertheless, because the notion of disability is typically viewed in isolation from any valued context, such positive embedding will probably remain elusive in the way most people generally orient themselves to the meaning of disability. (Wright, 1989, p. 528)

Terms and Constructs Related to Posttraumatic Growth

Other terms have been applied to the phenomenon of posttraumatic growth, including stren conversion (Finkel, 1974, 1975), positive psychological changes (Yalom & Lieberman, 1991), perceived benefits or construing

benefits (Calhoun & Tedeschi, 1991; McMillen, Zuravin, & Rideout, 1995; Tennen, Affleck, Urrows, Higgins, & Mendola, 1992), stress-related growth (Park, Cohen, & Murch, 1996), and thriving (O'Leary & Ickovics, 1995). Taylor and Brown (1988) have labeled similar outcomes as "positive illusions." Coping mechanisms of positive reinterpretation (Scheier, Weintraub, & Carver, 1986) drawing strength from adversity (McCrae, 1984), and transformational coping (Aldwin, 1994; Pargament, 1996) have also been described. The term "posttraumatic growth" appears to capture the essentials of this phenomenon better than others because

1. It occurs most distinctively in conditions of severe crisis rather than lower-level "stress";
2. It is often accompanied by transformative life changes that appear to go beyond "illusion";
3. It therefore is experienced as an outcome rather than a "coping mechanism"; and
4. It requires a shattering of fundamental schemas that "thriving" or "flourishing" does not imply.

There is also evidence indicating that reports of positive change can occur in persons who have not experienced major life crises (McFarland & Alvaro, 2000; Tedeschi & Calhoun, 1996). In one study (McFarland & Alvaro, 2000), undergraduate students who had experienced events that threatened their self-esteem (e.g., school-related stress, relationship loss) reported more positive changes in personal attributes than their acquaintances. The positive "changes" for the students who experienced the stressful events tended to occur through derogation of pre-event functioning. In a similar vein, we have also found that people experiencing no trauma also reported personal growth over time, but levels of growth associated with trauma were significantly higher (Tedeschi & Calhoun, 1996). In a study of breast cancer survivors and their husbands, both reported PTG and were also able to confirm their spouses' view of their PTG. Correlations between participants' posttraumatic growth inventory (PTGI) scores and their spouses' ratings were approximately $r = .50$ (Weiss, 2000). Similar, although smaller correlations between ratings of growth by stressed individuals and their acquaintances have been previously reported by Park et al. (1996). It appears from these studies that PTG is more than a self-enhancing bias.

One area of confusion for some may be the distinction between PTG and resilience. Resilience is usually considered to be an ability to bounce back from life difficulties and has often been studied in children who manage psychological health despite difficult circumstances (Garmezy, 1985; Rutter, 1987; Werner, 1989). In contrast, PTG refers to a change in people that goes beyond a return to previous functioning and involves a movement beyond

pretrauma levels of adaptation. PTG may be a construct that is more applicable to adolescents or adults than to young children, where the individual has an established set of schemas that are changed in the wake of trauma. However, there is likely to be some connection between posttraumatic growth and resilience, as well as concepts such as sense of coherence, and hardiness (Tedeschi & Calhoun, 1995). But sometimes the relationships may be less than meets the eye, as appears to be the case with optimism (Tedeschi & Calhoun, 1996).

Events Preceding Posttraumatic Growth

Many different kinds of traumatic events have been found to be catalysts for PTG. These include bereavement (Calhoun & Tedeschi, 1989-1990; Edmonds & Hooker, 1992; Hogan, Morse, & Tason, 1996; Lehman et al., 1993; Miles & Crandall, 1983; Nerken, 1993; Schwab, 1990), illnesses and disabilities (Tedeschi & Calhoun, 1988; Tennen, Affleck, et al., 1992), HIV infection (Schwartzberg, 1993), cancer (Collins, Taylor, & Skokan, 1990; Curbow, Somerfield, Baker, Wingard, & Legro, 1993), heart attacks (Laerum, Johnson, Smith, & Larsen, 1987), coping with the medical problems of children (Abbott & Meredith, 1986; Affleck, Tennen, & Gershman, 1985), transportation accidents (Joseph, Williams, & Yule, 1993), house fires (Thompson, 1985), rape and sexual abuse (Burt & Katz, 1987; Draucker, 1992; McMillan et al, 1995; Silver, Boon, & Stones, 1983; Veronen & Kilpatrick, 1983), combat (Elder & Clipp, 1989; Sledge, Boydstun & Rabe, 1980), and hostage taking (Cole, 1992; Sank, 1979). Rather than these traumas themselves, it appears that the struggle with the new reality in the aftermath of trauma is crucial in producing PTG. These struggles may transcend individuals and involve challenges to whole societies (Bloom, 1998; Karakasian, 1998; Tedeschi, 1999).

Domains of Posttraumatic Growth, and Their Paradoxes

Trauma-related life changes have been quantified by the posttraumatic growth inventory (PTGI), which measures five domains: greater appreciation of life; warmer, more intimate relationships with others; a greater sense of personal strength; recognition of new possibilities or paths for one's life; and spiritual development (Tedeschi & Calhoun, 1996). Each of these domains tends to have a paradoxical element to it. For example, in the situation where a person is more limited in what choices that person has in life, there may be a willingness to explore opportunities never before considered. At a time when one is vulnerable as never before, there is a sense of strength. Out of

spiritual doubt there can emerge a deeper faith. Merely labeling these domains and the dialectical thinking necessary to experience them does not do the subject justice, and this is an area that extends to recent interest in wisdom (Baltes, Staudinger, Maerchker, & Smith, 1995). More detailed descriptions of these experiences, often in the words of those involved, better captures the essence of posttraumatic growth (e.g., Calhoun & Tedeschi 1999; Neimeyer, in press; Snodgrass, 1998), and this may be a particularly productive area for qualitative research methods.

MODELS OF POSTTRAUMATIC GROWTH

Although the phenomenon of posttraumatic growth has been well established as occurring in perhaps 30 percent to 100 percent of survivors of various kinds of trauma, how this outcome is produced is not clear. O'Leary, Alday, and Ickovics (1998) summarized various models of change that could be useful in understanding this process. Among several of these models is found a common concern with how the usual homeostatic mechanisms of self-regulation can be abruptly altered, and a new pattern of functioning emerges (Aldwin, 1994; Carver & Scheier, 1998; Miller & C'deBaca, 1994).

Janoff-Bulman (1992) uses a schema-theory model to account for posttraumatic disruptions. She describes how the shattering of assumptive worlds by traumatic events leads to an accommodation of these surprising and unpleasant experiences into revised schemas that may be applied to self, others, and the future. In a similar vein, Calhoun and Tedeschi (1998) developed an integrative model of posttraumatic growth. It proposes that for posttraumatic growth to occur:

1. The traumatic event(s) must be severe enough to produce significant reconsideration of previously held assumptions;
2. The trauma survivor must find some ways of managing initial debilitating distress;
3. Disengagement from previous goals and assumptions must occur;
4. The distress must persist for some time, and;
5. And that supportive others can aid in PTG by providing a way to craft narratives about the changes that have occurred, and by offering perspectives that can be integrated into schema change. People who are extraverted seem to be somewhat more likely to be able to engage in this process and report posttraumatic growth (Tedeschi & Calhoun, 1996).

This may be because they can seek out others for support, self-disclose more easily, and therefore have more opportunities for schema change.

Rumination and Posttraumatic Growth

One aspect of this model draws on a wide-ranging literature in psychology and has some surprising implications. It is that rumination, repeated event-related thinking, should be associated with posttraumatic growth. This is surprising given the large body of evidence that demonstrates a relationship between certain types of rumination and negative affect and depression (e.g., Horowitz, 1986; Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998; Nolen-Hoeksema & Morrow, 1991). It has been pointed out that this evidence for the long-term drawbacks to rumination does not seem to square with the idea that it is involved in posttraumatic growth (Updegraff & Taylor, in press).

Because affective experiences of most trauma survivors appear to be qualitatively different from what is seen in clinical depression (Robinson & Fleming, 1992), we might expect that depressogenic rumination may be different from that associated with posttraumatic growth. Rumination's relationship with negative outcomes also may be due to the use of the term to apply exclusively to negative, self-punitive thinking (e.g., Nolen-Hoeksema, McBride, & Larson, 1997). In contrast, Martin and Tesser (1996) recognized "several varieties of recurrent thinking, including making sense, problem solving, reminiscence, and anticipation" (p. 192). They proposed a definition that incorporates the common features of rumination found in previous work. Martin and Tesser (1996) described rumination as thinking that is (1) conscious (2) revolves around an instrumental theme and (3) occurs without a direct cueing from the environment, but is easily and indirectly cued because it is connected with important goals, leading to recurrent thoughts. They categorized modes of ruminative thought as referring to the past, present, or future regarding negative or positive events.

In coping with trauma, people are concerned with the negative events with a discrepancy focus, that is, a preoccupation with how things are different and strange compared to what had been previously, and what was expected. The rumination can involve goal attainment or a discrepancy involving unattained goals or lack of fit between schemas and events that have occurred. Martin and Tesser (1996) categorized rumination about the past as "working through, " the present as "current concerns," and the future as "worry."

Negative Patterns of Rumination

Trauma survivors, therefore, can be said to engage in these three cognitive processes as they face the surprising posttrauma world, that is a world that has presented them with a discrepancy between important goals and possibility of attainment, and between previously held fundamental assumptions

about how life should progress, and the actual traumatic events of life that have been experienced. One type of negative rumination involves the discrepancy focus described by Martin and Tesser (1996). There is probably not a clear distinction between the discrepancy focus involving unattained goals and disrupted views of the world. Often, the shattering of assumptions involves giving up dearly held goals that survivors had assumed they would be able to attain, as when a mother of a stillborn child is forced to give up dreams and expectations for the child's life. This can lead to a "past" temporal orientation that is related to poorer outcomes (Holman & Silver, 1998).

A second type of negative ruminative activity may include self-punitive thoughts that are depressogenic, what Nolen-Hoeksema described as rumination (Nolen-Hoeksema, Parker, & Larson, 1994). Perhaps this kind of depressogenic rumination is not related to PTG, which results from quite different ruminative activity. For example, patients with multiple sclerosis reported finding substantial benefits in struggling with their illness, and this was related to seeking social support, positive reappraisal coping, anxiety, and anger, but not to depression (Mohr, et al., 1999).

Another kind of ruminative activity that seems to produce negative outcomes is regret and consideration of how the trauma could have been avoided (Greenberg, 1995). These "counterfactuals" may have a past temporal orientation and appear to be associated with negative affect. In their studies of counterfactual thinking among bereaved parents and patients with spinal cord injuries, Davis and Lehman (1995) found that survivors thought about how they could have prevented the tragedy even when causes of the traumas were clear, and did not involve their direct actions. Bereaved parents and patients with spinal cord injuries ascribed blame to themselves despite clear evidence of others' roles in causation. Thinking about such matters can persist for years and is related to the degree of distress caused by the event, neuroticism, and ruminative tendencies. Davis and Lehman (1995) concluded that counterfactual rumination is ultimately in the service of making sense of events in the light of shattered assumptions.

Moving From Negative to Positive Processing

There may be a series of ruminations that change in character as time passes after a traumatic event. First, there may be intrusive thoughts and images that are highly distressing. Next, there may be attampts to comprehend and manage the aftermath of trauma (Tedeschi & Calhoun, 1995). This "meaning as comprehensibility" may be distinguished from "meaning as significance" (Davis, Nolen-Hoeksema, & Larson 1998). With the significance comes the posttraumatic growth in the latter time frame after trauma. Much processing of the trauma and associated schemas must be accomplished

before this can happen, and there is evidence that degree of processing is associated with degree of benefit (Bower, Kemeny, Taylor, & Fahey, 1998).

Positive Patterns of Rumination

The negative cognitive processes set in motion by trauma are difficult to distinguish from "positive" ones, because the destruction wrought by life crises to higher-order goals and schemas allow for reconstruction based on new principles, recognition that trauma is a personal reality, and a definition of self as a survivor. Questions about identity and purpose lead many people to include as part of ruminative activity attempts to create some meaning in the aftermath of trauma. For example, a person who had athletic aspirations receives an injury that prematurely ends the athletic career. Those athletic goals remain unattained, and if they are goals that defined identity and purpose in life–higher-order goals–this loss can usher in rumination about "Who am I?" and "What will become of my life?" However, these questions can represent a rumination oriented toward the future, producing more healthy processing of the trauma into revised goals and schemas.

Talking About the Ruminations

It appears that in many cases rumination alone may not be enough to set in motion a tendency toward posttraumatic growth. Rumination can be productive if it is disclosed to empathic, patient others. Social constraint–inhibiting self-disclosure of intrusive thoughts–produces a strong relationship between these thoughts and depression (Lepore, Silver, Wortman, & Wayment, 1996). Nolen-Hoeksema and Davis (1999) reported, in their study of bereaved persons over eighteen months, that people with a ruminative coping style sought out more social support, although they at first were less comfortable talking than nonruminators. However, the ruminators ended up benefitting more from the support, helping them avoid becoming depressed. Reporting on the same data, Nolen-Hoeksema & Davis (1999) found that seeking social support produced posttraumatic growth in only 2 of her 4 waves of interviews over eighteen months, and that this may be because many persons sought support but did not find it. She included items on her social support index that might allow a look at the relationship between disclosure of ruminations to supportive others and the development of posttraumatic growth but did not report those data.

Social support may play a strong role in the development of posttraumatic growth when it involves mutual disclosure or mutual help, and the absence of such support and disclosure can have the opposite effect. Cordova,

Cunningham, Carlson, and Andrykowski (in press) reported that in breast cancer survivors who found that friends and family did not wish to hear about their illness, cognitive processing appeared to be inhibited. The less cognitive processing, the less PTG was reported by the survivors. Our perspective on this can be summed up as

> perhaps the greatest benefit of therapy in groups for PTG is the discussion of perspective, offering of beliefs, and the use of metaphor to explain experience. All of this is fertile ground for the revision of schemas that is essential to the experience of growth. (Calhoun & Tedeschi, 1999, p. 68)

SOME EMPIRICAL EVIDENCE FOR RUMINATION-GROWTH RELATIONSHIPS

Data we have collected in three recent studies provide some support for the hypothesized relationship between rumination and posttraumatic growth. In one study (Tedeschi, Calhoun, & Cooper, 2000), we examined reports of posttraumatic growth and rumination from a group of older adults who reported on experiences with major life crises. Growth associated with the two most stressful events experienced in life was related to frequency of rumination associated with all traumatic events experienced ($r = .49$, $p < 01$). In another study, (Calhoun, Cann, Tedeschi, & McMillan, 1999), we examined the relationship between recalled rumination either soon after a past traumatic event or recent rumination about the event and degree of PTG. The university students in this sample tended to report greater PTG when also reporting greater rumination soon after the event ($r = .32$, $p < .05$), but not recently.

In a third study (Calhoun, Tedeschi, Fulmer, & Harlan, 2000), we examined the relationship between different types of rumination in bereaved parents who participated in support groups. We used items from various inventories to assess five types of rumination in reports about parents' experiences soon after their childrens' deaths and more recently. Measures of intrusive thinking both soon after the child's death and more recently were unrelated to posttraumatic growth. Repetitive thinking in the immediate aftermath of the child's death was associated with PTG ($r = .38$, $p < .05$), but repetitive thinking recently was not. Deliberate meaning making soon after the death was related to PTG ($r = .48$, $p < .01$), but recent attempts at meaning making were not. Finally, attempts at positive reinterpretation, and benefit reminding were related to PTG when engaged in recently ($r = .36$, $p < .05$; $r = .44$, $p < .05$, respectively), but not soon after childrens' deaths. Furthermore, these data show that the different domains of PTG measured by the PTGI were differentially related to rumination. For example, personal strength was

the only domain related to repetitive thoughts soon after the childrens' deaths ($r = .48$, $p < .01$), while all domains except personal strength were related to attempts to make sense of what had happened soon after the deaths. Appreciation of life was most strongly related to recent attempts at positive reappraisal ($r = .55$, $p < .001$) and benefit reminding ($r = .55$, $p <$. 001), with new possibilities somewhat less so ($r = .46$, $p < .01$; $r = .36$, $p <$ .05, respectively), and with other domains being unrelated to these kinds of thinking. These data appear to demonstrate that understanding the type of cognitive processing, and when it occurs, may be crucial to understanding the route through rumination to PTG, and that different aspects of growth may be particularly sensitive to certain kinds of cognitive activity at certain periods of time after trauma.

How do we reconcile the reports of rumination related to depression and our findings of rumination related to PTG? PTG and distress are essentially separate dimensions, and growth experiences do not necessarily put an end to distress in trauma survivors (Calhoun & Tedeschi, 1998: Tedeschi & Calhoun, 1995). These distinctions are seen in a study by Cordova et al. (in press). Matching breast cancer survivors with healthy controls, the researchers found that cancer survivors and controls were no different in levels of depressive symptomotology, while the cancer survivors reported more PTG. Depression, intrusive thinking, and general personal well-being were all unrelated to PTG. Instead, PTG was related to perceived threat of the cancer experience and talking with others about it.

IMPLICATIONS FOR HELPERS

Those who intend to encourage the process of growth in trauma survivors should recognize that there are strong hints about how to proceed available in the research, even at this early stage. Understanding the relationships among various cognitive processes and the best outcomes for trauma survivors is important in helping professionals who work with such populations to discern the positive nature of the apparently painful ruminative activity of these persons.

Evidence to date indicates that initial homeostatic attempts to understand what has happened and later deliberate attempts to interpret the aftermath positively and bring the benefits to mind are reliably related to PTG. Active disclosure of cognitive processing to supportive others might be important in producing PTG. Lehman and colleagues have found that attempts on the part of people in the support networks of trauma survivors to suppress expression of rumination is perceived by survivors as not helpful (Lehman, Ellard, & Wortman, 1986; Lehman & Hemphill, 1990). Similarly, therapeu-

tic interventions with trauma survivors that are focused on rapid distress relief may prevent greater long-term gains (Calhoun & Tedeschi, 1999).

We have described in detail elsewhere how clinicians might go about facilitating PTG (Calhoun & Tedeschi, 1999). Generally, what we know about how the struggle with the aftermath of trauma is processed into growth suggests that it is most helpful to be patient with the process of goal disengagement; automatic, homeostatic cognitive processing; benefit finding; and later, benefit reminding. It may be useful to introduce the concept of growth arising from the struggle at some point in the process. This particular schema revision is not obvious to many survivors, while at the same time being crucial to jump-starting the entire cognitive processing involved in PTG. The possibility of PTG must be introduced somehow. For many survivors the most credible sources of this schema revision are veterans of similar circumstances. The timing and the wording of this possibility also is a delicate matter. The best timing may be at a point when distress is diminished but still present. Extremely high levels of distress interfere with cognitive processing, but the presence of distress may motivate the processing involved in PTG. Then, when the rumination about goal disengagement, meaning, and benefits is in progress, patient listening that allows the trauma survivor to be comfortable with this process rather than feel constrained will likely promote the best growth outcomes.

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Chapter 3

A TRAIT APPROACH TO POSTTRAUMA VULNERABILITY AND GROWTH

CARMEN MORAN AND JANE SHAKESPEARE-FINCH

INTRODUCTION

Over recent years, interest in the antecedents, experience, and consequences of traumatic incident exposure in emergency workers has shifted from a predominantly pathological focus to one that accommodates the potential for crisis to have positive consequences. Notwithstanding their regular exposure to adversity, most emergency service workers report being happy in their work (James, 1988; Robinson, 1993). Solomon et al. (1999) concurred, claiming positive changes to be endorsed more frequently than negative ones following work-related exposure to trauma and further suggested that trauma victims compartmentalize experiences so they do not act as a hindrance to subsequent growth. Positive changes following a traumatic event, referred to as thriving (O'Leary & Ickovics, cited in Ickovics & Park, 1998), stress-related growth (Ickovics & Park, 1998), or posttraumatic growth (Tedeschi & Calhoun, 1996), is increasingly attracting scientific interest. Positive outcomes following a traumatic event for individuals may in turn be positive for the organization, society, community, family, and so forth. This possibility does not preclude the experience being distressing or traumatic initially, but does acknowledge that the event can be a catalyst for positive changes.

This chapter discusses how knowledge of personality and dispositional factors can inform this debate. We begin by discussing the five-factor model (FFM) of personality (Costa & McCrae, 1992), optimism (Scheier, Carver, & Bridges, 1994), and hope (Snyder et al., 1991) and their relationship to positive or negative posttrauma outcomes.

THE FIVE-FACTOR MODEL (FFM)

Costa and McCrae (1994) asserted that regardless of inevitable changes affecting individuals throughout their lives, changes in the individual are based on an underpinning of robust dispositional traits. Therefore, an examination of dispositional traits and their role in posttrauma outcomes (Bowman, 1997) is a good place to begin.

The FFM is a hierarchical organization of orthogonal dimensions representing thirty specific facets that combine into five broad, well established personality traits (Costa & McCrae, 1992) that provide a comprehensive yet parsimonious avenue for the examination of individual differences (eg., Tennen & Affleck, 1998). The FFM is composed of Extraversion, Neuroticism, Openness, Agreeableness, and Conscientiousness dimensions (Costa & McCrae, 1992). All five dimensions have been found to account for significant variance in scores when investigating positive or negative outcomes following a traumatic event. However, Neuroticism and Extraversion have been reported to account for most of the diversity (Hyer et al., 1994; Tedeschi & Calhoun, 1996; Thompson & Solomon, 1991).

Extraversion

Extraversion is generally defined as the opposite of introversion. Individual's scoring high on Extraversion are typically sociable, energetic, cheerful, and assertive. Extraversion describes an individual's level of activity, with particular focus on the expression of positive emotions and social interaction. In terms of coping strategies, the extravert tends to seek social support and utilize positive appraisals, two coping resources that have been found to mitigate negative stress reactions (see Ch. 12). Therefore, individual's scoring high on Extraversion are more likely to use coping strategies that lead to higher levels of self-reported growth than their introverted counterparts.

Neuroticism

Neuroticism describes a tendency to experience negative affect and possesses associated cognitive traits. The factor contrasts adjustment or emotional stability with maladjustment or instability (Neuroticism). Individuals scoring high on Neuroticism are characterized by worry, anxiety, depression, inadequacy, and insecurity. Whereas low scores represent calm, composed, hardy, and self-satisfied individuals. Neuroticism is the most consistent predictor of negative posttrauma outcome and is strongly associated with pas-

sive and ineffective forms of coping (e.g., wishful thinking, emotion-focused coping, avoidance strategies, Costa & McCrae, 1994). Hence, those displaying high levels of Neuroticism are generally expected to be more susceptible to the negative effects of traumatic events.

Openness to Experience

Curious, imaginative, artistic, and flexible are some of the adjectives suited to the individual who is open. Open individuals are curious about the world at both introspective and external levels and are proposed to experience both positive and negative emotions more intensely than those who score low on this dimension. It is possible that the Openness factor is a unique construct within the model in that Openness may relate to problem solving as a personality trait rather than a distinct personality dimension (Ferguson & Patterson, 1998). Problem solving through challenge is related to Openness more strongly than the other factors in the FFM. In other words, Openness may be conceptually different from the other four factors. Notwithstanding, Openness has been found to positively correlate with PTG in trauma survivors (Tedeschi & Calhoun, 1996). The tendency to be open to both internal and external worlds may position individuals high on the Openness factor to score more highly on outcome measures designed to tap both positive and negative posttrauma outcomes than individuals who score lower levels of Openness.

Agreeableness

The agreeable individual displays empathy, courtesy, trust, and helpfulness and expects others to behave in a reciprocal manner. Agreeableness as a personality disposition is contrasted to antagonism. People scoring high on Agreeableness tend to seek social support and are less likely to use emotion-focused coping. Although the agreeable individual encourages social acceptance, it is unclear if they or the skeptical and competitive antagonist will display higher levels of psychological health following a traumatic event. Given the mediating effects of social support, it is possible that those scoring high on the Agreeableness factor would be more resilient to the effects of workplace traumatic events.

Conscientiousness

Finally, the conscientious individual is reliable, organized, persistent in pursuit of goals, as opposed to being careless, unreliable, and hedonistic.

Those scoring high on Conscientiousness are expected to do well in the work environment but need to be careful that their unswerving dedication does not manifest itself in compulsive behaviors (e.g., workaholism, Costa & McCrae, 1992). Although not a notable correlate of stress vulnerability in emergency service work, Conscientiousness has been demonstrated to significantly relate to positive changes in the wake of a traumatic event (Tedeschi & Calhoun, 1996).

AN INTEGRATIVE APPROACH TO THE FFM

To illustrate the efficacy of the FFM a univariate approach is often reported (e.g., high levels of Neuroticism are associated with high posttraumatic stress disorder [PTSD] symptomology). However, the FFM can also assess the covariation between factors. For example, individuals who score low in Neuroticism, high in Extroversion and high in Openness to experience are proposed to rely on deriving strength from adversity as a style of coping with threat and as such may be more resilient to the effects of a traumatic event (Watson & Hubbard, 1996). Those scoring high on Neuroticism and low on Extraversion, would be expected to use passive and ineffective forms of coping and hence be less resilient to trauma as their emotionally stable colleagues. Whereas individuals scoring high on both Extraversion and Neuroticism traits may find the potentially ineffective coping styles associated with Neuroticism are negated by the energy, sociability and optimism of the extravert.

Research on emergency service populations has examined elements of the FFM within a pathogenic framework with relatively consistent results. Thompson and Solomon (1991) studied police body recovery teams and found that officers were more extroverted and stable (lower Neuroticism) than norms for the general population. As discussed earlier, this combination of traits is expected to lead to effective forms of coping and, in turn, the potential for PTG. It is also possible that this finding reflects a self-selection bias in emergency service professionals.

On investigating the relationship between personality factors and posttrauma outcomes in civilian victims of a fatal air disaster Chung, Easthope, Chung & Clark-Carter (2000) reported Extraversion to be a reliable predictor of the Intrusion factor (unwanted thoughts regarding the event coming to mind [intruding] without conscious invitation) of the Impact of Events scale (Horovitz, 1993). Neuroticism was also found to be a good predictor of both avoidant behavior and intrusive thoughts; the higher the level of Neuroticism, the higher the level of intrusion. Their conclusions reiterate those of McFarlane (1989) and Thompson and Solomon (1991).

McFarlane (1989), in a series of longitudinal studies involving firefighters, found a past history of treatment for psychological disorders and levels of Neuroticism to be the best predictors of posttraumatic morbidity rather than the nature of the traumatic experience (exposure and losses sustained). Hyer et al. (1994) concurred, reporting Neuroticism to account for the majority of variance in PTSD scores in a clinical population.

Research examining the relationship between personality variables and posttraumatic growth is sparse. The most consistent finding is a positive correlation between personality characteristics such as optimism, hope, and extraversion and PTG (Tedeschi, Park, & Calhoun, 1998). Others have found positive relationships between PTG and religiousness/spirituality, social support, and experiencing positive life events during the same period as the traumatic event (Park, 1998).

Although not specifically examining emergency service workers, Tedeschi and Calhoun (1996) observed a relationship between PTG and scores on the FFM. Extraversion, Agreeableness, Openness, and Conscientiousness were all significantly positively correlated with the total PTGI score. Extraversion held the strongest relationship with growth, with significant correlations with all five of the PTGI factors and with the total PTGI score.

OPTIMISM

Dispositional optimism has been conceptualized as the bipolar opposite of pessimism. It refers to the tendency to expect the best possible outcome in a given situation. Although a facet of the FFM's Extraversion factor, some research suggests that dispositional optimism (Scheier et al.,1994) is beneficial for psychological and physical well being (e.g., Tennen & Affleck, 1998; Scheier & Carver, 1987; Scheier et al., 1994). Optimistic individuals are more likely than their pessimistic counterparts to adapt to stress by using problem-focused and action-oriented coping strategies. Furthermore, optimists are expected to seek social support and positively appraise traumatic events to report personal growth or positive changes after trauma (Carver, 1998). Hence, optimists are expected to fair better in the aftermath of a traumatic event.

HOPE

Hope as conceptualized by Snyder et al., (1991) is similar to optimism in that there is a generalized expectancy regarding positive outcomes. However

the constructs are related, not identical (Magaletta & Oliver, 1999). Hope includes a pathway to the desired outcome in addition to the belief that a positive outcome will occur. In other words, the expectation of a positive outcome is accompanied by the belief that it is obtainable. Just as a sense of hopelessness is expected to correlate with maladjustment to traumatic stressors, individuals demonstrating higher levels of hope are expected to adapt more effectively to trauma, arguably via coping processes like positive appraisals or humor. In a study of patients with fibromyalgia (a condition in which the individual is in constant and chronic pain), hope was significantly correlated with perceived positive changes (growth). It was suggested that the perceptions of positive changes were bought to the fore from living with the condition, rather than being either an optimist or a pessimist (Tennen & Affleck, 1998). Positive changes occurring as a result of the process, not in the aftermath of a crisis, highlights the incorporation of an avenue to change within the notion of hope.

An Indirect Pathway?

In addition to having a direct effect, personality variables may also, through coping process factors like positive appraisals and activities (Tedeschi et al., 1998), relate to PTG indirectly. Hence, coping as a mediating variable can be considered a transactional process between individuals and their environment, involving appraisals of whether a situation is a threat or challenge, and perceptions of what can be done to alter the situation or minimize the threat (Lazarus & Folkman, 1984; Park, 1998). Little research on coping and appraisal has focused on PTG as an outcome. According to Carver (1998), various stressor appraisals may be related to growth, for example, primary appraisals like controllability, expectations, or goals, and secondary appraisals such as the extent to which people think they can cope. Personal resources such as humor have also been implicated. It is to a discussion of humor that this chapter now turns.

HUMOR

Humor has been receiving increasing attention in emergency work, usually on the assumption that humor helps in the emergency environment and its aftermath. Because humor is a widely recognized, albeit largely untested, part of coping in the emergency context (Moran & Massam, 1997), it will be dealt with in some depth here. First, a review of theories of humor is examined to see what light they shed on coping. The concept of "sense of humor"

is examined to evaluate its viability as a personality construct and in terms of its relationship to coping in emergency environments.

Defining Humor in the Context of Coping

Like coping, there exists a lack of clarity regarding the meaning attributed to humor, and both may be regarded as an ability or as a trait. It may be considered a cognitive style or a set of behaviors. In the humor literature, "humor" may also refer to a stimulus, such as a joke or to a response, such as laughter, or to social processes, such as teasing or communication. The concept of sense of humor is often evoked when attempting to relate humor to coping. Most sense of humor scales construct humor as a positive characteristic. Sense of humor, however, is not a unitary concept.

Humor Theories

Incongruity theories have been highly influential. Incongruity usually refers to the unexpected association of two normally unrelated or even conflicting contexts (Koestler, 1964; Moran, 2001). Frequently, the definition of incongruity is extended to include the view that a state of tension builds up in one context, but when that context changes or is less threatening than expected, the tension is now unnecessary and is released as laughter. Incongruity is often also used to denote bizarre or absurd circumstances. Morreall (1998) uses incongruity to differentiate between the comic and the tragic "life is full of incongruities–disappointment, vice, mistakes, danger, and suffering . . . where the two views (tragic and comic) differ is in their attitudes toward these incongruities" (p. 353).

Kant described laughter as an affection that arises if a strained expectation is "suddenly reduced to nothing" (Kant, 1790, p. 538) Similarly, Koestler (1964) referred to humor in terms of a situation that results in "emotion deserted by thought that is discharged in laughter" (p. 256). Latta (1998) argued that these theories are not truly indicative of incongruity but are better conceptualized as cognitive-shift theories. That is, laughing at the realization of "nothing" is not the same as recognizing an incongruity. Thus, humor occurs when circumstances result in a cognitive shift from one context to another that undermines negative emotional excitation caused by the first context.

An incident described to Moran provides some support for Latta's view. Examining a house in the aftermath of a major fire, a firefighter was descending the stairs. He suddenly thought he was about to step on a baby's burnt body. He froze, briefly, in sadness and horror. As he bent to retrieve the

body he realized it was only a doll, then laughed and while laughing told others working nearby of his experience. In this case, the expected horror (baby's body) did not eventuate, and the potentially traumatic emotional reaction was superfluous and, it could be argued, was expelled as laughter. In Latta's (1998) terms, the firefighter's laughter on seeing the doll was brought on by the cognitive shift from horror to meaninglessness. The context changed as the burnt-out doll had no significant meaning compared with a baby's burnt body. This anecdote can be also related to incongruity theories. However, the focus in the firefighter's description was less on the contextual shift than the cognitive shift that accompanied it. (Note, seeing a burnt doll in another situation could cause a negative emotional response, e.g., where it might be perceived as a symbol of a traumatic incident.)

In this example the cognitive shift occurred in circumstances not initiated by the emergency worker. In other situations, humor may be deliberately initiated to evoke a cognitive shift, that is, to remove the focus away from the horror of the immediate task. O'Connell (1976) speculated that individual differences in sense of humor were related to differences in ability to perform rapid perceptual-cognitive switches. In the emergency context, workers frequently demonstrate the ability to switch off from negative aspects of the environment. For example, rescue workers involved in body retrieval joked about body parts presumably to reduce the negative reactions they would otherwise feel while they continued to carry, identify and bag body parts (McCarroll, Ursano, Wright, & Fullerton, 1993). There is growing empirical evidence for the efficacy of dispositional sense of humor as a moderating factor in reactions to life stress (Lefcourt & Thomas, 1998).

Moran and Massam (1999) examined mood changes using two measures of individual differences in humor, 'humor bias" and "coping humor." They speculated that humor bias, the tendency to detect humor-related stimuli, was associated with an ability to detect positive aspects in the environment, whereas traditional measures of dispositional coping humor was associated with ability to screen-out negative aspects of the environment. That is, different aspects of dispositional humor may help filter-in positive or filter-out negative information. The participant in this study were not emergency workers, thus the relevance of these speculations remains to be demonstrated in that context. Nevertheless, they echo in part the comments of emergency workers about using humor to filter our negative aspects of their work environment. Similarly, they resemble the tendency of emergency workers to find positive features even in extreme circumstances (Moran & Colless, 1995).

The second set of humor theories relevant here are the superiority theories. These argue that humor reflects a realization of some superiority in ourselves compared with others or compared with our former selves (Hobbes,

1640). The content of humor in large organizations tends to support superiority theories. Organizational humor frequently has a target (e.g., those higher up the hierarchy) and may be disparaging. There is no reason to expect that organizational humor will not spillover to the incident context occasionally.

The third set of humor theories considered here, the psychoanalytical, posit that humor is related to repressed emotions, fears, and anxieties. Laughter occurs when we are "permitted" access to the source of our repressed emotions in a manner nonthreatening to the ego. These theories predict people should laugh most at jokes related to unexpressed impulses. Accordingly, they predict that humor in emergency work will be associated with repression of the horror or feelings associated with traumatic stress. Morreall (1993) extended this interpretation to hysterical laughter which he viewed as a defensive mechanism arising in situations too difficult to cope with in other ways. Freud described humor as one of the highest forms of psychic defense, and considered it to be a healthy means of dealing with the world. Current psychoanalytic theories tend to differ from his view, regarding humor as a sign of avoidance and thus a harmful form of coping.

In contrast to the psychoanalytic view, most research indicates that people laugh at those things they commonly express. Indeed some theories of humor see it as a form of deliberate communication of people's concerns. It has been speculated that this is one of the functions of humor in emergency workers, namely, it signals a recognition of distress without the need for overt discussion (Moran & Massam, 1997).

Also relevant in the context of coping are the evolutionary theories that regard humor as a response that confers an advantage in situations requiring a conservation of stamina (Latta, 1998) or where a defensive strategy is required in "intolerable and inescapable conditions" (Porteous, 1988). These theories reflect the current bias in research towards positive definitions of humor.

Sense of Humor

These theories only partially illuminate humor as a coping strategy. The most commonly discussed aspect of humor is sense of humor. Here, sense of humor refers to a trait concept associated with an appreciation of humor that may be manifested across a range of behaviors from liking humor, to actively encouraging humor, to producing humor in the form of jokes or witticisms. Humor may also have a state component. For example, a person may laugh at the same stimulus in one context but not another, or on one day but not another. In emergency work, expression of humor is often constrained

by environmental factors and may have both state and trait components. Emergency workers who laugh in horrific scenarios or their aftermath with their colleagues may not necessarily laugh at them with other people present (McCarroll et al., 1993) or at home with their families (Rosenberg, 1991). The comparison of state versus trait components of sense of humor has not received a great deal emphasis in the coping-humor literature.

Humor and Coping

Empirical research on humor and coping is often health oriented and correlational in nature. Despite increasingly expressed beliefs that humor acts as a positive coping strategy, consistent research to support this conclusion is lacking. Much of the literature on humor and coping in emergency work is descriptive. Moran and Massam (1997) summarized this literature and concluded there is scope for some, but not all, humor to act as a positive coping strategy in emergency contexts. They suggested humor contributes to emergency workers' adjustment in difficult situations by enhancing communication, facilitating cognitive reframing and social support, and providing possible physical benefits. As with coping, links between humor and resilience is sparse. It seems reasonable to suggest humor on its own (Vance, Fernandez, & Biber, 1998) or in association with other personality factors (Martin, 1998) will be part of the set of variables that contribute to individual resilience to stress.

Humor and Personality

Although long regarded as important to any taxonomy of personality (Ruch, 1998), personality research has not given humor a high profile. The relationship between trait anxiety and humor remains uncertain. Level of anxiety appears to predict what people rate as funny. For example, aggressive humor may be related as less funny by high anxious participants, and this may be exacerbated by high-state anxiety conditions (Martin, 1998). The ability to recognize humor in a situation may be negatively related to anxiety (Cann, Holt, & Calhoun, 1999; Moran & Massam, 1999).

Sense of humor frequently correlates with optimism (Martin, 1998). Emergency workers tend to have optimistic expectations about stress and coping (Moran, 1999, Moran & Colless, 1995). Optimism in emergency work is sometimes described as hopefulness (Carr et al., 1997). Moran (1996) compared the relative effect of a humorous and hopeful stimulus on anxiety. She noted the humorous stimulus was more effective in reducing anxiety than the hopeful one, and the effect of the different stimuli was not related to respons-

es on a sense of humor scale. She did not measure dispositional optimism nor differentiate hope and optimism.

Humor and the FFM

Research on humor and its relationship to the FFM is limited. Svebak (1974) defined a high sense of humor as incorporating openness to nonsense and emotional permissiveness. Martin (1998) concluded that openness is related to what people find funny. People low on openness favor jokes that are unambiguous and structured. People high on conservatism prefer humor in which incongruity is resolved (Ruch, 1992) and extraverts were more likely to be rated as having a high sense of humor by their friends (Karamboulous, 1930). Using his own definition of extraversion, Eysenck (1943) found extraverts were more likely to prefer sexual and simple jokes. He concluded that extraverts do not have a better sense of humor than introverts, rather they just laughed at different things and in a different manner. More recently, Ruch and Deckers (1993) found extraversion was related to scores on a sense of humor scale, particularly items relating to laughing in social situations. They also note a positive, albeit weaker, correlation with psychoticism, suggesting caution before evaluating sense of humor as a simple and positive personality characteristic.

In a correlational study using two measures of humor (initiating humor and responding to humor) Lanning (1994) found that Initiating Humor was positively related to extraversion, with a weaker and negative loading on conscientiousness and neuroticism. Responding to humor was only weakly associated with agreeableness. Martin (1998) summarized the research relating humor and the FFM as follows: People high on sense on humor are also likely to score high on extraversion, openness, whereas agreeableness may be more related to type of humor (hostile vs. nonhostile). Given the importance of the FFM in assessing the personality profile of emergency workers, the value of studying humor and coping in emergency work becomes even more relevant.

Relevance of Humor Theories to Understanding Coping

Humor in the extreme circumstances of emergency work may not fit the established theories about humor and coping because it represents a very specific phenomenon. In emergency contexts, it is usually not appropriate to assume a sudden recognition of the meaninglessness of an event previously thought to be important. To the contrary, in many emergencies the importance of events, and the activities of workers, is undiminished by humor.

Emergency workers commonly explain their joking as a way of stopping interfering emotions, such as sadness. Humor thus may be a coping response that provides distraction from potentially traumatic circumstances by providing not just an alternative set of stimuli but an alternative set of responses that help emergency workers get on with their work.

A recent view of "wittiness" proposed by Feingold and Mazzella (1993) may be applicable to emergency work. Wittiness, they argued, comprises three components: humor motivation, humor cognition, and humor communication. Thus, individual differences in motivation to be funny and in ability to communicate humor gain centrality in this view. Experienced emergency workers may be highly motivated to use humor because past experience has shown it helps them deal with difficult situations (Rosenberg, 1991). In the emergency environment humor frequently involves "witty" remarks. Ability to be truly witty may be limited to one or two people, with others contribute by laughing or making friendly banter. We may need to distinguish between motivation to be funny and motivation to laugh.

Martin (1998) contended that sense of humor must be understood in terms of cognitive, emotional, and motivational dimensions. The cognitive dimension reflects individual differences in perception, creativity, and comprehension of potentially humorous material. The emotional dimension refers to individual differences in cheerfulness and playfulness. The motivational dimension reflects individual differences in intentional aspects of humor, such as disparagement versus social bonding. In this model, there is no a priori assumption that humor is a healthy and positive form of coping. Skevington and White (1998) illustrated how understanding motivation can affect our interpretation of the role of humor in stressful circumstances. They concluded that humor did not directly enhance coping. Rather, appearing normal made people feel better. Humor was used to manage an "impression of normality", and this made people feel better. Appearing normal can also be an important motive in the emergency context where, despite increased awareness of critical incident stress, workers strive to present a picture of the competent worker unaffected by the surrounding stressors.

Humor in emergency environments is often discussed in terms of "gallows humor" (e.g., Moran & Massam, 1997). A fuller discussion of humor and coping would require consideration of that content. Here, the emphasis has been on the individual using or responding to humor in ways that may mitigate the effects of exposure to critical incidents. It is likely, of course, that emergency workers use a variety of humor depending on context. Not all emergency work involves coping with stressful events.

CONCLUSION

Clearly the relationship between individual differences and coping in emergency work is multidimensional. It is less clear which traits are most important in underpinning good coping and PTG, although research in this area suggests two possibilities. First, the number of predictor traits may be small. Second, best predictor traits seem to be extraversion, emotional stability, and optimism, or variables closely associated with them. Although often cited in this context, the role of humor in coping has not been subject to rigorous empirical study. Humor may have a direct effect on coping, but it may also correlate with other traits, such as those of the FFM and thus only indirectly predict coping. Another possibility is that sense of humor indicates an ability to perform rapid cognitive shifts, rather than a trait, and this ability helps some emergency workers tune out from the traumatic aspects of their environment. Whether such diverse characteristics are catalysts for positive change is just one of the interesting questions that will direct further research into the positive aspects of coping and thriving under adverse conditions.

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Chapter 4

HARDINESS TRAINING FOR RESILIENCY AND LEADERSHIP

SALVATORE R. MADDI AND DEBORAH M. KHOSHABA

INTRODUCTION

Understanding resiliency, how to enhance it, and understanding why some people have an ability to thrive despite adversity have become important concerns in psychology (e.g., Hetherington & Blechman, 1996; Werner & Smith, 1982). In this context, emphasis has often been placed on social support (e.g., Dubow, Arnett, Smith, & Ippolito, 2001), and personality (e.g., Dumont & Provost, 1999; Maddi & Kobasa, 1984) variables. Studies have attempted to evaluate the effectiveness of social support programs already in place, such as group discussion of shared problems (e.g., Dub & Tisane, 1989), and the mentoring and peer relationships from significant others (e.g., Burke & Weir, 1978), with little agreement as to the relative value of particular approaches. Hardiness training is unusual among these approaches in offering a specific technology, conceptually and empirically developed to augment resiliency.

WHAT IS HARDINESS?

Hardiness has emerged from conceptualization, research, and practice as a particular pattern of attitudes and skills that facilitates turning adversity into opportunity, thereby enhancing performance and health (Maddi, 2001). The HardiAttitudes® (are the 3Cs of commitment, control, and challenge

(Kobasa, 1979; Maddi & Kobasa, 1984). People strong in commitment believe that there is more meaning and vitality to be found by involving themselves in what is going on around them, even when the going gets rough. Those strong in control believe that it is worthwhile to struggle and try, because that way they can often influence the outcomes going on around them Sinking into passivity and powerlessness, when things get difficult, seems like a waste of time to them. People strong in challenge believe that the most fulfilling life comes through the wisdom they get by continuing to learn from their experiences, whether these experiences are positive or negative. The protective thought that they are entitled to easy comfort and security seems foolish, because it stops them from the personal development involved in learning from the successes and failures associated with an active life.

Theoretically, the HardiAttitudes® are derived from existential psychology (Maddi, 1970, 1998). In the latter, one's life is conceptualized as the series of decisions made, whether or not one realizes one is doing that. Regardless of its content, each decision has an invariant form. You can choose either the future (that which is unfamiliar) or the past (that which is already known). Characteristically choosing the future facilitates growth and development, because one encounters new information and continues learning and deepening one's experience. In contrast, regularly choosing the past is the way of stagnation, and the avoidance of disruption from new experiences. Anyone strong in the commitment, control, and challenge beliefs would tend to choose for the future, rather than the past. In addition, when confronted with stressful circumstances, such a person would get involved, try to influence outcomes, and learn from the resulting experience. In contrast, someone low in hardiness would try to avoid the stressful circumstances, feeling too powerless and threatened to address them, leading to despair and meaninglessness (Maddi, 1970).

HardiAttitudes® acilitates resilience in two ways. The first involves being proactive in interactions with people and events. The second concerns the skills that facilitate turning adversity into opportunity (Khoshaba & Maddi, 2001a). The basic HardiSkill™ is HardiCoping,™ which facilitates problem-solving efforts, enhances understanding, and facilitates the performance of decisive actions to decrease the stressfulness of situations. In contrast, regressive coping involving denial and avoidance just perpetuates, if not augments, the stressfulness of situations. Also basic is the skill of HardiSupport,™ through which you give to, and receive from, significant others assistance and encouragement (rather than overprotection or competition). This activistic pattern of social support facilitates development through learning from experience. In contrast, the regressive patterns of overprotective or competitive social interactions with significant others tend to augment the stressfulness of situations.

The other skills involves HardiSelfCare,™ which serves to reconcile the level of mental and bodily arousal associated with stressful circumstances with the contemplative, deliberative work involved in the effective coping (HardiCoping™) and social support (HardiSupport™) interactions necessary to solve the problems and decrease stress. Accordingly, HardiSelfCare™ involves relaxation, nutrition, and physical activity patterns that maintain bodily and mental arousal in an optimal range.

How Was Hardiness Discovered?

Maddi (1970) argued that people who are regularly creative actually sought change, and that individual differences in reaction to stressful changes needed clarification. Pursuing this hypothesis, he and his research team began a twelve-year longitudinal research project, involving the yearly psychological and medical testing of 450 supervisors, managers, and decision makers, in 1975 at Illinois Bell Telephone (IBT). At that time, IBT's parent company, AT&T, was facing the impending governmental deregulation of the telecommunications industry.

In 1981, the courts ordered the deregulation and forced AT&T to cease being a monopoly by divesting itself of its member companies (including IBT). What followed is still regarded as the largest upheaval in corporate history. IBT went from 26,000 employees in 1981 to 14,000 in 1982. In the years following this upheaval, two thirds of the participants in our sample reported depressive and anxiety disorders, heart attacks and strokes, violence at home and in the workplace, divorces, and disability retirements. The other one third not only survived, but also thrived. If they stayed with IBT, they rose through the organization. If they left, they used their accumulated expertise to either start their own companies, or to get pivotal jobs in other telecommunications firms.

In answer to the question, what made the difference between thriving on or being defeated by stressful changes?, analysis of data for the six years prior to deregulation led to the discovery of hardiness. The managers who thrived showed the attitudes and skills of hardiness in far greater degree than did those who were defeated by the upheaval (Maddi & Kobasa, 1984). The overall findings of the IBT project are described in Figure 4.1. There is, of course, the accumulation of acute stresses (disruptive changes) and chronic stresses (continuing conflicts). If this accumulation of stresses is not reduced through coping efforts, it leads to a fight-or-flight reaction designed to meet the perceived, ongoing danger. In bodily terms, this strain activates the sympathetic nervous system and the arousal hormones, so that glycogen can be transported to the muscles, heart, and brain. In that supposedly emergency

process, the immune and digestive systems are suppressed. In mental terms, this arousal reaction involves tension, anxiety, irritability, sleep disturbance, and difficulty in concentrating and remembering. Decisions made under such arousal may be impulsive, rather than reasoned and logical. If the stresses are not reduced rapidly, the strain reaction depletes organismic resources, resulting in performance, conduct, mental, and/or physical breakdowns (Selye, 1956/1976) and increases vulnerability to adverse stress reactions.

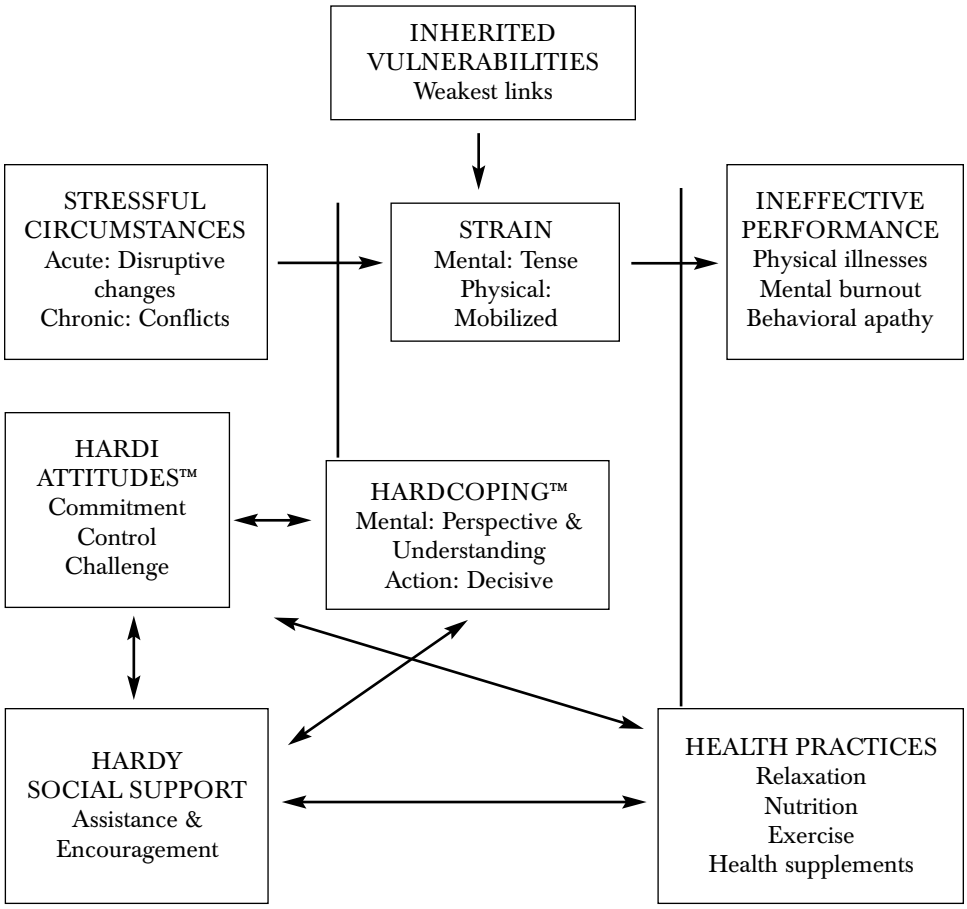

Figure 4.1 The hardiness model.

The means of avoiding this outcome is also described in Figure 4.1. The stronger the HardiAttitudes™ were, the more participants engaged in HardiCoping™ to decrease stress, HardiSelfCare™ to decrease strain, and HardiSupport™ to give and get the assistance and encouragement needed to

facilitate the entire process. In contrast, participants low in HardiAttitudes® tended to cope by denial and avoidance, to engage in stress eating coupled with no relaxation or exercise, and to interact with others by searching for overprotection while engaging in competition. They showed much more performance and health breakdown than did their hardier counterparts.

Hardiness Assessment

Since the IBT research program, some 1,000 research studies on HardiAttitudes® have been conducted. The latest version of this test, the Personal Views Survey, Third Edition-Revised (PVS III-R), consists of eighteen rating-scale items. The HardiSurvey III-R® (Khoshaba & Maddi, 2001b) appears both reliable and valid. Although the various scales can be utilized independently, the test also permits the combination of stress, strain, and regressive coping into a vulnerability index; the combination of HardiAttitudes®, HardiCoping™, and HardiSupport™ into a resistance index; and the comparison of the two indices into a performance and wellness estimate.

ANSWERING METHODOLOGICAL CRITICISMS

Soon after the development of the original version of the HardiAttitudes®, it became subject to two methodological criticisms. One argued that the challenge component was insufficiently related to the commitment and control components to justify considering the 3Cs as collectively defining the total HardiAttitudes® score (Funk & Houston, 1987). The other criticism contended that HardiAttitudes® are really nothing more than the opposite of negative affectivity, or neuroticism (Hull, Van Treuren, & Virnelli, 1987), and, as such, provided no new information.

As to the first criticism, there was a discrepancy between the results we obtained with the original Personal Views Survey (PVS) and those obtained by some other investigators. Specifically, the challenge scores we obtained were positively related to commitment and control scores, whereas those scores others were obtaining were not. An important clue in explaining this discrepancy was the fact that while we used working adults, other investigators were using undergraduate samples. This led us to realize that whereas some of the challenge items were indeed being interpreted by working adults as relevant to security threats versus opportunities to learn (as was theoretically intended), undergraduates were sometimes reacting to them as relevant to political liberalism versus conservatism instead.

Accordingly, the item content in the second HardiAttitudes® measure, the PVS II, was revised. This version consistently produced positively interrelated scores on commitment, control, and challenge among working adult, undergraduate (Maddi, 1997), and high school samples (Maddi & Hess, 1992). Factor analyses support the presence of three positively interrelated components in this measure (e.g., Bartone, 1989). Later revisions of the test, the PVS II (Maddi, 1997), and now the PVS III-R (Khoshaba & Maddi, 2001b), which have progressively retained the items from the PVS II that demonstrated the most reliability and validity, show the same pattern of consistent positive intercorrelations of the 3Cs. Clearly, this early criticism is no longer relevant.

The other criticism, concerning negative affectivity, has also been addressed. Conceptually, HardiAttitudes® need to be measured through self-report. A difficulty arises when dependent variables are also assessed by self-report. Then, relationships obtained may merely be reflecting the negative affectivity or neuroticism that generally underlies the person's self-report. This leads to difficulty in the interpretation of some early hardiness studies, which tended to utilize self-report measures of mental problems, such as depression and anxiety scales (e.g., Maddi, 1987), or physical problems, such as symptom checklists (e.g., Kobasa, Maddi, & Kahn, 1982).

Maddi and Khoshaba (1994) addressed the negative affectivity criticism. In their study, participants completed by self-report not only the PVS II (as a measure of HardiAttitudes®), but also the Minnesota Multiphasic Personality Inventory (MMPI; as a measure of mental symptoms), and the Symptom Check List-90 (the total score of which is an accepted measure of negative affectivity). First, only a modest negative relationship between the PVS II and SCL-90 total scores was recorded, suggesting that the two tests are measuring different things. Furthermore, in regression analyses, the PVS II and SCL-90 total scores were used as independent variables to predict the MMPI clinical scales. When the PVS II total score was purified of the effects of the SCL-90 total score, the former still showed a pattern of negative relationships with the MMPI clinical scales. This study supports our contention that the findings involving HardiAttitudes® are not merely a reflection of negative affectivity.

This conclusion is further supported by a recent study (Maddi, Khoshaba, Harvey, Lu, & Persico, 2001) in which the PVS III-R emerged as not merely negatively related to the neuroticism factor on the Revised NEO Personality Inventory, but also positively related to the four other factors of Extraversion, Openness, Conscientiousness, and Agreeableness (even though the five factors on this test were developed to be unrelated to each other).

Also relevant here are studies that did not involve self-reports of health or performance. As to health, Maddi (1999) found HardiAttitudes® to be high-

er among employees whose blood pressure was in the normal range compared to those with high blood pressure. It would be difficult to explain this relationship away as nothing more than negative affectivity. The same is true of many of the studies that follow.

Further Studies on Performance, Conduct, and Health

Similar results to those obtained at IBT have been reported for people working in other occupations. In particular, the higher their HardiAttitudes®, the more likely transit workers (Bartone, 1989), lawyers (Kobasa, 1982), military personnel (e.g., Bartone, 1999), and firefighters (Giatras, 2000) were to show better performance and remain freer of illness symptoms. Hardiness has also been linked to enhanced sports performance (Maddi & Hess, 1992) greater physical and mental activity in elderly people (Magnani, 1990), better quality of life in those with a serious illness (Okun, Zantra, & Robinson, 1988), reduced burnout in nurses working with dying patients (e.g., Keane, Ducette, & Adler, 1985; Topf, 1989;) and reduced culture shock in immigrants and employees on work missions abroad (Atella, 1993; Kuo & Tsai, 1986). Although more research is required, hardiness appears to protect against illness and conduct breakdowns (Maddi, Wadhwa, & Haier, 1996) and to facilitate effective performance.

Kobasa, Maddi, Puccetti, and Zola (1986) compared the effectiveness of HardiAttitudes®, social support, and physical exercise in their stress management effectiveness. Among managers all of whom were above the sample median in stresses, HardiAttitudes® were roughly twice as effective in decreasing the subsequent risk of illness than were social support and physical exercise. Of particular interest was the synergistic beneficial effect of these three stress-buffering variables. Managers with two stress buffers did somewhat better than those with only one. Those with all three stress buffers did better than those with only two. These results, along with others to be summarized later, led to hardiness being expanded to include not just the HardiAttitudes®, but HardiSkills™ as well.

Construct Validity Studies

To further validate that the PVS II does indeed tap into the theoretical dimensions of HardiAttitudes®, Maddi (1999) asked working adults wearing pagers to complete a short questionnaire concerning what they were doing, with whom, and how they felt about it, every time they were paged at random ten times during each of three consecutive days. They had completed the PVS II a month prior to their participation. The higher the

HardiAttitudes®, the more workers reported that their activities were enjoyable, interesting, important, and freely chosen and showed openness to experience and feelings of support from others. These findings support the construct validity of the PVS II as a measure of the HardiAttitudes® of commitment, control, and challenge.

Further evidence that HardiAttitudes® are associated with openness to experience and imaginativeness is now available (Maddi, Khoshaba, et al., 2001). In one sample, HardiAttitudes® held a negative relationship to repressive style as measured by the combination of manifest anxiety and social desirability that has become accepted. More important, another finding of this study is an absence of any relationship between HardiAttitudes® and socially desirable responding by itself. This indicates that scores on the hardiness test are probably not influenced by image maintenance efforts. In another sample, there are indications that HardiAttitudes® are positively related to imaginativeness as measured by the Unusual Uses Test, a well-known index of creative behavior.

Several studies now suggest that one way HardiAttitudes® protect against stress-related breakdowns is by leading to the problem-solving behaviors of HardiCoping™ (i.e., turning stressful circumstances into opportunities), rather than the self-limiting behaviors of regressive coping (i.e., protecting oneself from experiencing stresses by denial and avoidance). In an analysis of variance design, Maddi (1999) considered the effects of stressful event context, HardiAttitudes®, and the interaction of the two on HardiCoping™ and regressive coping. Although event context had a main effect, such that work stressors more regularly elicited HardiCoping™ than did personal life stressors, HardiAttitudes® had an interaction effect that accelerated this tendency. As to regressive coping, stressful event context was not a factor, but HardiAttitudes® generally decreased the likelihood of this self-limiting reaction. Maddi and Hightower (1999) compared the relative influence of HardiAttitudes® and optimism on HardiCoping™ and regressive coping. In comparison with optimism, HardiAttitudes® were a more powerful influence on coping in general, and especially in the avoidance of regressive coping.

The coping studies mentioned earlier are consistent with the conceptualization, depicted in Figure 4.1, that one function of HardiAttitudes® is to motivate the expression of HardiSkills®. Additionally relevant is a study (Weibe & McCallum, 1986) reporting a positive relationship between HardiAttitudes® and the self-care behavior of regular physical exercise, and sound nutrition. The other conceptualized function of HardiAttitudes® is to decrease the perceived stressfulness of circumstances. Consistent with this expectation, Rhodewalt and Zone (1989) reported that the greater the HardiAttitudes®, the stronger the tendency to perceive events or circumstances as less stressful. At the physiological level (see Fig. 4.1), the joint

appraisal and motivational effects of HardiAttitudes® should lessen the strain (fight or flight) reaction of persons experiencing stressful circumstances. Consistent with this expectation are studies (Allred & Smith, 1989; Contrada, 1989) showing a positive relationship between HardiAttitudes® and the vigorousness of the immune response. This is understandable given that a suppressed immune response is a side effect of the fight-or-flight reaction. Hence, hardiness, as expressed in perceiving circumstances as manageable rather than overwhelming and in coping with them decisively rather than by avoidance and denial, should minimize the magnitude and length of strain (fight-or-flight) reactions, thereby preserving vigorous immune functioning.

The other HardiSkill™ conceptualized (see Fig. 4.1) is the social support pattern of giving and getting assistance and encouragement. Kobasa and Puccetti (1983) reported an interaction between HardiAttitudes® and social support in buffering the otherwise debilitating effects of stressful circumstances. At IBT, managers high in both social support and HardiAttitudes® showed the lowest level of illness severity. However, managers with the combination of high social support and low HardiAttitudes® were the sickest in the sample. In this study, the stresses were typically in the workplace, and the social supports tended to involve family and nonwork friends. Perhaps managers high in HardiAttitudes® asked for or accepted, as social support, assistance and encouragement in doing the hard work of decisive, active (hardy) coping. In contrast, managers low in hardiness may have asked for or accepted, as social support, overprotection or even subtle competition, both of which would encourage regressive coping, while undermining HardiCoping™. More research is needed to be sure of this interpretation.arHH

HARDINESS TRAINING

In response to the cataclysmic effects of the telecommunications deregulation at IBT, the first version of HardiTraining®, was developed and offered to IBT managers on a volunteer basis (Maddi, 1987) and emphasized the findings of our initial IBT study (Khoshaba & Maddi, 1999). We selected a subsample of managers who were either very high or very low in HardiAttitudes®, as measured by the original PVS, and interviewed them blind as to their early history. Those with high PVS scores reported a stressful early life (e.g., many disruptive relocations, divorces among parents, other family disfunctionalities), but also that they had been selected as the hope of the family, fully accepted that role, and felt socially supported in their compensatory efforts.

Accordingly, our training program emphasized how to cope effectively with stressful circumstances, and to use the feedback obtained through these efforts to strengthen the HardiAttitudes®, The format of the training involved a series of sessions bringing together a small group of managers with a Certified Hardiness Trainer (CHT), the aim being to facilitate resolution of as many stressful circumstances as possible, in the context of a socially supportive environment.

The HardiCoping™ approach involved each manager making a comprehensive list of the acute and chronic stressful circumstances the manager was experiencing. Next, for each stressor in turn, the mental component of the approach was applied. The mental techniques used were situational reconstruction, an imaginative task for exploring how the stressor could become better or worse (Maddi, 1998); focusing (Gendlin, 1978), a way of identifying strong emotional reactions to the stressor; and compensatory self-improvement, a procedure for regaining momentum when the stressor is unchangeable (Maddi, 1998). These techniques were used by managers in the various combinations necessary for them to complete the mental component of HardiCoping™ by emerging with a broadened perspective (making the stressor more tolerable while examining what to do about it), and a deeper understanding (insights into how to resolve the stressor). Once the mental component was completed, the results obtained led to the action component. This involved developing a relevant action plan, complete with a goal, instrumental steps, and a time line. Then the plan was carried out, and the resulting feedback concerning stressor resolution was used to strengthen the HardiAttitudes®.

In the group sessions, managers would use the HardiCoping™ techniques to develop a way of dealing with each of their stressors in turn. They would also report on the effects of their efforts to carry out their action plans as homework in between sessions. Throughout, the CHT and group members provide the mutual assistance and encouragement that constitutes HardiSupport™.

The first study evaluating the effectiveness of HardiTraining® at IBT (Maddi, 1987) utilized a waiting-list control group design. By comparison with the waiting-list control group, the experimental group (who had received the training procedures described earlier) showed not only an increase in HardiAttitudes®, but also an increase in job satisfaction and social support, coupled with a decrease in anxiety, depression, suspiciousness, and blood pressure. When the waiting-list control group was subsequently given HardiTraining®, it showed the same pattern of changes as the experimental group. The changes observed persisted in both groups for the six months following training that were monitored.

A second study evaluating HardiTraining® at IBT (Maddi, Kahn, & Maddi, 1998) used comparison training groups rather than a waiting-list con-

trol. Specifically, the managers undergoing HardiTraining® were compared with others undergoing either a relaxation/meditation, or a passive listening condition. The relaxation/meditation condition utilized techniques commonly employed in stress management with working adults. The passive listening condition involved the trainer in facilitating, but not directing, the interaction among group members as they discussed with each other their stresses and what to do about them. Presented to group members as a valuable stress management tool, the passive listening condition constituted not only a social support, but also a placebo control. Three trainers participated in this study, and each of them trained groups in all three training conditions.

This study (Maddi, Kahn, et al., 1998) demonstrated that HardiTraining® was more effective in increasing HardiAttitudes® and job satisfaction, while decreasing anxiety, depression, and suspiciousness, than either relaxation/meditation or passive listening. Furthermore, relaxation/meditation and passive listening varied in their effectiveness on these variables, though in all instances, they were less effective that HardiTraining®. Moreover, no trainer effects emerged in this study, indicating that the results were not confounded by trainer capability differences either in particular conditions or across all conditions. Feedback from IBT staff regarding the training was highly positive (Maddi, 1987; Maddi & Kobasa, 1984).

The Evolution of Hardiness Training

As with hardiness assessment, hardiness training has become increasingly comprehensive. Now, there are five possible skill components to HardiTraining® (Khoshaba & Maddi, 2001a): HardiCoping™, HardiSupport™, HardiRelaxation™, HardiNutrition™, and HardiExercise™. HardiCoping™ I (see earlier) is the major component of the training. The other four training components have been added as research has shown their value in enhancing performance and health under stress. Specifically, HardiSupport™ involves social interaction exercises that formalize the conflict resolution effort and formalizes the mutual assistance and encouragement that were an informal aspects of the original version of HardiTraining®. The other three training components emphasize self-care practices to maintain optimal mind and body arousal for the facilitation of coping and social support efforts. In all five training components, the feedback obtained through carrying out the exercises in everyday life is used to deepen the HardiAttitudes®. In doing so, the trainee has the motivation to continue the process of transforming stresses into opportunities long after the training program is over. Research evaluating the effectiveness of the expanded version of HardiTraining® is now under way. One controlled study (Maddi,

Khoshaba, Jensen, et al., 2001) provided results that were supportive of HardiTraining®. Similar research at other colleges and organizations is currently under way.

The specificity and complexity of HardiTraining® requires that it is conducted by CHTs, who have been trained and licensed by the Hardiness Institute, Inc. In carrying out their work, these CHTs rely on the HardiTraining® workbook (Khoshaba & Maddi, 2001a), which contains examples, exercises, and evaluation criteria. Any combination or all five training components can be used, depending on the needs of the relevant individuals or organizations. The HardiSurvey III-R® can assist training needs analysis, and, by allowing a pre- and posttraining comparison, assess training effectiveness.

HARDINESS IN MILITARY AND SAFETY ORGANIZATIONS

Given the nature of their work, hardiness assessment and training would be especially valuable in military and safety (e.g., police, firefighting) organizations. Bartone (see Ch. 5) provides a comprehensive overview of work in this area. In emergency services organizations, Giatras (2000) showed that, among firefighters, hardiness was positively related to job satisfaction and negatively related to perceived job stresses. This suggests that hardy firefighters tolerate the alternately life-threatening and boring nature of their work more effectively because they see it as a valuable contribution to society.

These studies, collectively, suggest that military officers, and prospective officers, and emergency services personnel (like firefighters) may be able to orient toward their stressful work more positively through hardiness. An especially important implication of this is that officers with strong HardiAttitudes®, may be more effective leaders through helping their subordinates see meaning and purpose in their team activities (see Bartone, Ch. 5). A related beneficial effect of HardiAttitudes® on leaders is to motivate them to give assistance and encouragement to their subordinates. A role for hardiness in selection has also been identified. It is noteworthy that HardiAttitudes® are currently being used as one selection device for applicants to the U.S. Navy Seals, an organization well known for the extreme stressfulness of its training and work functions.

Whether or not hardiness assessment is used as a selection device, hardiness training would be a valuable part of personnel development in military and public safety organizations. HardiTraining® could easily be incorporated into existing training programs, at both entry levels and at promotion points.

CONCLUSIONS

Enhancing performance, conduct, and health despite mounting stressful situations is not merely a matter of inborn strengths, intelligence, or knowledge in the cognitive disciplines. It requires the resiliency ensured by the pattern of lifestyle (sometimes called emotional) attitudes and skills we call hardiness. Research has shown the important contribution hardiness makes in this context. Research and practice has supported the utility of hardiness in assessing personnel for hazardous work and for training them to work under these circumstances. It is timely for military and safety organizations to use these procedures in augmenting the resiliency of their personnel.

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Chapter 5

HARDINESS AS A RESILIENCY RESOURCE UNDER HIGH STRESS CONDITIONS

PAUL T. BARTONE

INTRODUCTION

Exposure to highly stressful events and conditions can lead to negative health consequences and performance decrements in human beings. Although not a new realization (witness World War II studies in combat psychiatry, such as the classic *Men Under Stress* by Grinker & Spiegel, 1945), the last twenty years or so has seen a burgeoning interest in the topic. At the same time, many research studies (and everyday observation) document widespread and often dramatic individual differences in how people respond to the same external stressful conditions. Some individuals appear to have a low exposure threshold for developing stress-related symptoms, including posttraumatic stress disorder (PTSD), while others are highly resilient. How can such individual differences in responding to high stress conditions be understood? This chapter offers one answer to this question by focusing on a potentially important resiliency resource known as personality hardiness.

A growing body of literature shows that persons high in hardiness, marked by a strong sense of commitment, control, and challenge, tend to remain healthy under stress compared to those low in hardiness. (Bartone, 1999; Bartone, Ursano, Wright, & Ingraham 1989; King, King, Fairbank, Keane, & Adams, 1998; Kobasa, 1979; Maddi, 1999; Soloman, Mikulincer, & Hobfall, 1986). We begin this chapter with a description of what hardiness is, tracing the concept to its roots in existential psychology. To clarify possible resiliency mechanisms of hardiness, some appreciation of the sources of stress impinging on people is also needed. To this end, the U.S. Army is considered

as a "case-study," an organization that routinely places its employees into various highly stressful conditions. I discuss the nature of stress in modern military operations, describing five main dimensions of psychological stress identified in Army units during deployments. These stressors are not unique to the Army but may be found in other occupations as well. Results from several Army research studies are summarized, showing that hardiness functions as a resiliency factor with respect to actual combat stressors in the Gulf War, and stressors encountered during peacekeeping operations and training exercises. Possible links between hardiness and stressors are discussed, and some strategies for increasing hardiness in organizations are considered. In this regard, special attention is paid to the potential for leaders to influence the kinds of responses and behaviors that characterize highly resilient, hardy individuals.

WHAT IS HARDINESS?

Although the term "hardiness" may be an unfamiliar one, it is not a new concept; hardiness is theoretically grounded in existential philosophy and psychology (Maddi, 2001). Hardiness can be thought of as a personality style or tendency, reasonably stable over time and across situations–that somehow confers resiliency on those who possess it. Like the hardy plant that survives extremes of temperature and other environmental conditions, the hardy person is resistant to the many various stressors and vicissitudes of life. The concept of hardiness is linked most closely to the existential philosophy of Heidegger (1962), as interpreted by existential psychologists Binswanger (1963), Boss (1963), Frankl (1960), and May (1958). In existential terms, hardiness reflects "authentic being" and involves how meaning gets constructed in life (even life that is sometimes painful), and having the courage to live life fully. It describes a global outlook that affects views of self, others, work, and the physical world as well (using Binswanger's terms, *umwelt*, the "around" world; *mitwelt*, the "with" or social world, and *eigenwelt*, the world of the self or me). Over thirty years ago, Maddi outlined this authentic (hardy) ideal personality type, contrasting it with the (nonhardy) "existential neurotic." He used the term "ideal identity" to describe the person who lives a vigorous and proactive life, with a strong sense of meaning and purpose, and an abiding belief in his or her own ability to influence things (Maddi, 1967). So although the term "hardiness" may be novel, the underlying concept is not.

STRESSORS IN MODERN MILITARY OPERATIONS

The military provides a useful organizational context in which to study human stress and resiliency. In the case of combat, the military exposes individuals to some of the most extreme forms of stress. However, combat-related stressors are not the only ones encountered by soldiers. In the post-Cold War era, military operations are different in several ways. The demand on U.S. military forces to deploy has increased dramatically, and they are performing a much broader range of missions. At the same time, the size of active-duty forces has shrunk substantially as a function of post-Cold War force reductions. The increased number and rapid pace of deployments in modern military operations has been characterized as high operations tempo, or "OPTEMPO." High OPTEMPO in turn is increasing the stress and strain on military forces, perhaps even contributing to growing recruitment and retention problems (Wong, 2000).

The U.S. military is currently grappling with the question of how to decrease stressors on soldiers, or at least make the stressors more manageable. Perhaps the most obvious way to reduce the stress associated with high OPTEMPO is to reduce the frequency and duration of deployments. Although a reasonable policy goal, it is not always possible given resource limitations and national commitments and priorities. This leads to the question: Given a chronically high tempo of operations, what can be done to reduce or counter associated stressors? What factors, at the individual as well as group levels, can be strengthened (or reduced) to facilitate healthy soldier responses to operational stress? To answer this question, a more detailed understanding of the nature of the stressors encountered by soldiers on modern military deployments is required. What is it about modern military deployments that makes them stressful for those involved?

Based on extensive interviews, observations, and surveys conducted with U.S. Army soldiers on various operations, five primary dimensions of psychological stress on deployment have been identified (Bartone, Adler, & Vaitkus, 1998): isolation, ambiguity, powerlessness, boredom, and danger. These dimensions can be described as follows:

1. Isolation: Soldiers are typically deployed to remote locations, far from home, separated from their families, without good communication methods, in a strange land and culture, and often surrounded by strangers in their own newly configured units. They feel isolated. Some of this sense of isolation comes from being physically distant from friends, family, and familiar things. Some of it derives from being in a new unit or task-force organization, recently formed for the sole purpose of performing a specific mission, and after which the unit will be disbanded (Bartone & Adler, 1999).

2. Ambiguity: Quite commonly, the mission itself (e.g., peacekeeping) and the "rules of engagement" are unclear, or there are multiple missions that are in conflict, or the mission is an ephemeral thing that changes over time. The role and purpose of the soldier and unit is also unclear. Confusion and mystery in the command structure adds to this uncertainty (soldiers wonder "who is in charge of what?"). Lack of understanding of host nation language and cultural practices, and how these affect our forces, further adds to uncertainty (what is acceptable and what is not?). This can also occur with respect to other national contingents in a multinational force. Operations conducted under United Nations' auspices entail additional U.N. governance structures and authorities, such as the U.N. High Commission for Refugees, adding to the ambiguity of who is responsible for what.
3. Powerlessness: Security and operational concerns often lead to movement restrictions; soldiers can't leave the base camp. Soldiers are also restricted from interacting with local citizenry, are often unable to do things they are used to doing (e.g., running for exercise, displaying the U.S. flag), and usually face rigid restrictions on dress and behavior. They have few choices. Movement and communication restrictions can also prevent soldiers from learning about the local culture, language, and resources, adding to their sense of powerlessness. They may observe other service branches or military contingents operating with different rules and privileges than themselves, yet have no recourse to redress or even discuss these different standards. For example, some nations give their soldiers substantial additional pay for serving in U.N. sponsored missions; U.S. soldiers receive only their normal pay. Soldiers may observe local people or refugees in need of assistance or help (e.g., wounded, sick, hungry) but not be allowed to help due to movement and contact restrictions and/or security concerns.
4. Boredom: Modern military missions frequently involve long periods of "staying in place," without much real work to do. As the weeks and months tick by, troops start to get bored. To some degree, this can be countered by providing more activities to participate in. However, the real problem of boredom on deployments is not simple lack of activity or entertainment; often enough, there are plenty of these available. Rather, this is a deeper, existential form of boredom that results from a lack of meaningful work or activities to engage in. Daily tasks often take on a repetitive dullness, and the overall mission can seem more and more senseless. This existential boredom is amplified by the sense that the deployment itself is an obstacle to doing what is really important, such as caring for one's family or making a substantive professional work contribution.

5. Danger: This factor represents the physical dangers or threats in the deployed environment that can result in injury or even death to the soldier. Danger comes from bullets, mines, bombs, or other hazards in the deployed setting, including accidents, disease, and environmental toxins. This source of stress may be direct, representing threats to oneself, or indirect, representing threats mainly to one's fellows. Exposure to severely injured or dead people, regardless of their relationship to the individual soldier, is also best considered part of this stress dimension.

Although these factors overlap to some degree, they represent distinct dimensions of stress on modern military operations. Together, they form a contextual recipe for what Maddi (1967) describes as the "existential neurosis." In this regard, the dimensions of powerlessness and boredom hold the potential to be especially destructive of psychological well-being. What tools, strategies, or coping mechanisms might increase stress resiliency, at both the individual and unit level? Some authors have argued that unit cohesion is a powerful influence on unit resiliency under stress (e.g., Ingraham & Manning, 1981), and that good leadership can also exert positive effects (Kirkland, Bartone, & Marlowe, 1993). In what follows, the focus shifts to examining the potential role of hardiness as a stress resiliency factor.

HARDINESS: A RESILIENCY FACTOR IN MILITARY GROUPS

In military groups, hardiness has been identified as a significant moderator of combat exposure stress in U.S. Gulf War soldiers (Bartone, 1993, 1999, 2000). Hardiness appears as a stress buffer in other military groups as well, including U.S. Army casualty assistance workers (Bartone et al., 1989); peacekeeping soldiers (Bartone, 1996);

Israeli soldiers in combat training (Florian, Mikulincer, & Taubman, 1995); Israeli officer candidates (Westman, 1990); and Norwegian Navy cadets (Bartone, Johnson, Eid, Laberg, & Brun not published). Figure 5.1 shows results from a study on hardiness, combat stress, and PTSD symptoms in a large sample ($N = 824$) of U.S. soldiers that deployed for the Gulf War (Bartone, 2000). The indicator of PTSD symptoms in this study was the familiar Impact of Events scale (Horowitz, Wilner, & Alvarez, 1979), which assesses both avoidance and intrusion symptoms.

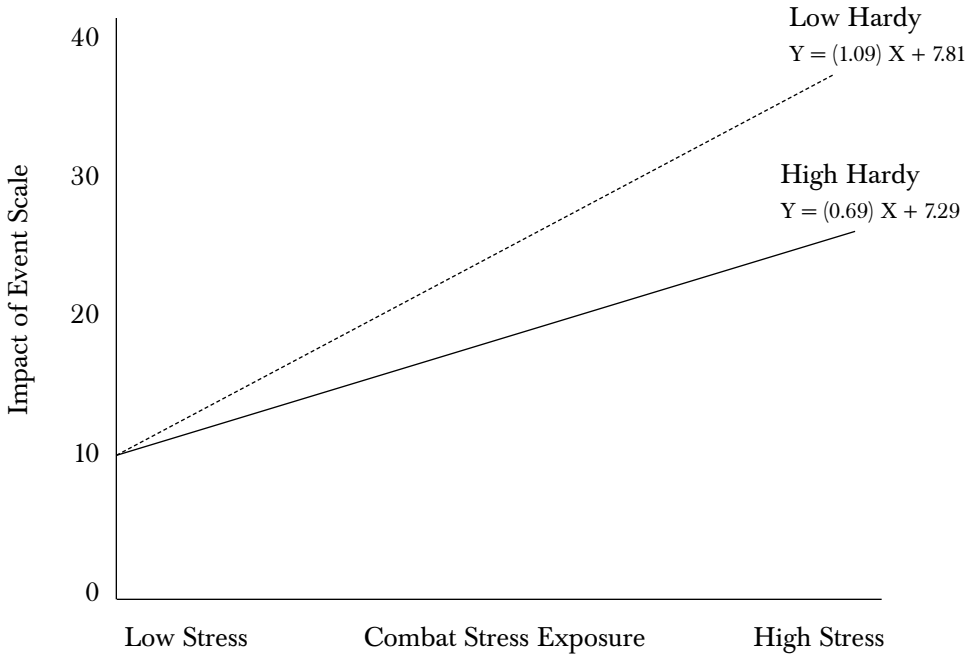

Figure 5.1. Gulf War Combat Stess Exposure (CSE) predicting IES scores for Low and High Hardy groups, active duty sample*.

*Display Hardy X CSE interaction ($p < 0.0001$) in regression model, $N = 824$ active duty, unstandardized betas used to map regression lines.

This figure shows a fairly robust interaction effect of hardiness with stress, wherein it is under high-stress conditions that the resiliency effects of hardiness are most apparent. In this study, high-hardy U.S. Army soldiers exposed to combat stress in the Gulf War showed significantly fewer traumatic stress symptoms. A similar study conducted with a sample of Army reserve forces showed the same effect, with high-hardy soldiers reporting fewer PTSD symptoms than low-hardy ones under high war-stress conditions (Bartone, 1999). Additional studies have documented this stress-resiliency function of hardiness. But how does hardiness operate to protect from stress, and how can we develop it?

How Hardiness Works, and How it Develops

In considering the question of how to develop hardiness, it is important first of all to have a clear notion of what hardiness is conceptually. However,

it is important to have some idea about how hardiness may operate as a stress-resiliency factor. A critical aspect of the hardiness resiliency mechanism probably involves the interpretations, or the meanings that people attach to events around them, as well as to their own place in the world of experiences. High-hardy people will typically interpret experience as (1) overall interesting and worthwhile, (2) something they can exert control over, and (3) challenging, presenting opportunities to learn and grow. Maddi (2001) conceived of hardiness as a generalized personality style that develops mainly as a function of early life experiences and parent-child interactions. If this is true, it might be assumed that hardiness levels are basically fixed beyond a certain point in human development, and cannot be trained or modified past that point. However, theoretical considerations as well as some recent research findings lend support to the notion that hardiness levels can be increased somewhat, even in adults. For example, using a structured intervention program, Maddi (1987) successfully increased hardiness levels in corporate managers, and at the same time found that their physiological responses to stress were attenuated and more healthy. Maddi and colleagues have followed up this work with a more refined "hardiness induction" program that appears to work quite well (Maddi & Khoshaba, 1984). A key feature of hardiness training involves facilitating the adoption and application of new strategies for interpreting and making sense of experiences, especially highly stressful ones.

In military units, and in other organizations, this "meaning-making" process is something that leaders can influence. Military units are by their nature group oriented and highly interdependent. The typical tasks and missions are group ones. In addition, the hierarchical authority structure puts leaders in a position to exercise substantial control and influence over subordinates. By the policies and priorities they establish, the directives they give, the advice and counsel they offer, the stories they tell, and perhaps most important the example they set, leaders may indeed alter the manner in which their subordinates interpret and make sense of their experiences.

Many authors have commented on the influence of group and organizational processes on how meaning is constructed at the individual level (e.g., Janis's "groupthink" [1982]; Weik's "sensemaking in organizations" [1995]. Even Allport (1985), the eminent U.S. personality psychologist, viewed individual meaning as often very much a social construction. It would seem that peers and leaders, indeed the entire unit or organizational culture, can influence how experiences get interpreted. Atella (1999) reported that as individuals are coached to adopt more "hardy" perspectives within organizations, the values associated with hardiness can infuse the organization. Maddi, Khoshaba, and Pammenter (1999) also focused attention on cultural values, policies, and structural factors in organizations (e.g., a team approach vs.

rigid hierarchies) that may lead the organization itself to behave in some ways like the hardy person does, for example with increased flexibility and resiliency when confronted with extreme demands and changing circumstances. Although not explicitly stated, these authors clearly imply that leaders and senior executives have important influence over the processes wherein hardiness gets increased in organizations.

Data from two recent studies with cadets training to be military officers lend some empirical support to the notion that leaders who are high in hardiness themselves may influence subordinates to think and behave in more hardy/resilient ways. The first study, with West Point cadets, showed simply that hardiness levels are related significantly to leader performance, as rated by several supervisors. To measure hardiness, this study used a 15-item scale that includes both positively and negatively keyed items and covers the three hardiness facets of commitment, control, and challenge (Bartone, 1995; Bartone et al., 1989). The hardiness scale was administered to a single West Point cohort during spring of their senior year (Bartone, 1998), with a response rate of 50 percent ($N = 435$). Cronbach's alpha coefficient for the total measure is .70 in this sample. In another group of $N = 105$ West Point college students, the three-week test-retest reliability coefficient was 0.78. Leader performance was assessed with "military development" (MD) grades, which are assigned to cadets at the end of each academic semester at West Point. These grades represent an average of leader performance ratings given by an officer supervisor, and the ratings of 2-3 cadet (upperclassmen) supervisors (U.S. Corps of Cadets, 1995). Multiple regression analysis predicting cumulative MD across four years (Multiple $R = .23$, $F(8, 1141) = 11.95$, $p < .001$) identified as significant predictors hardiness, transformational leadership, College Entrance Examination scores, social judgment, emotional stability (-), extraversion, and traditional values (Table 5.1).

TABLE 5.1
LEADERSHIP (MD) PREDICTORS, WEST POINT, FOUR YEARS TOTAL

Predictor	*Beta*	*T*	*p <*
Hardiness	.15	5.1	.000
Transformational Lead.	.11	3.9	.000
College Entrance Scores	.07	2.5	.01
Social Judgment	.07	2.3	.02
Emotional Stability	-.07	-2.2	.03
Extraversion	.07	2.0	.04
Traditional Values	.07	2.0	.04

Multiple Regression with backward elimination, mean substitution for missing data
Model: $F(8, 1141) = 11.95$, $p < .0001$; Multiple R = .23; Leader performance criterion measure is an average of military development grades earned across all four years.

In this model, personality hardiness emerges as the strongest predictor of MD grades for officer cadets. These results indicate that people who are higher in hardiness–a characteristic sense of commitment, control, and challenge–are more effective in positions of leadership in a military organization.[1] In a related study, hardiness emerged as an even stronger predictor of leader performance for female cadets (Bartone & Snook, 2000).

Findings from a study of Norwegian Navy cadets also suggest a "hardy leader" effect on the group. This study had several purposes, but a special interest was to identify factors that contributed to developing cohesion in squad-sized Navy officer cadet units undergoing an intense two-week training exercise. Results showed that the experience of the stressful exercise itself had a positive effect on team cohesion, and that this effect was greater if the groups were already familiar with each other before the exercise. However, we also found that hardiness and small unit leadership influenced cohesion levels in a positive direction, and that hardiness and leadership interacted in influencing cohesion (Bartone, Johnson, et al., in press). After the stressful exercise, the highest levels of team cohesion were found when unit leadership was rated as high, and hardiness levels were also high.

This study shows mainly that undergoing a stressful training exercise increases small unit cohesion, especially when group members are already familiar with one another. The study also identified potent effects of leadership at the small unit level on cohesion assessed just after the stressful exercise. This suggests that what leaders do, and how they are perceived by their subordinates, can have a team-building or cohesion-enhancing effect on the unit. An additional finding, that personality hardiness is associated with higher cohesion levels in the wake of a stressful group experience, suggests a possible mechanism for these effects: High-hardy leaders may influence the ways in which subordinates understand group challenges, facilitating positive interpretations that increase overall sense of commitment, control, and challenge, while also strengthening group cohesiveness.

Leaders Can Apply the Power of Hardiness

The ability of hardiness to buffer or transform stressful experiences seems to be related to the particular interpretations of such experiences typically made by the hardy person. If a stressful or painful experience can be framed

1. Transformational leadership style (Bass, 1998; Burns, 1978) enters the regression model as a significant independent predictor of leader performance. A correctional analysis reveals that transformational leadership is not significantly correlated with hardiness, although transformational leadership is moderately correlated with the hardiness facet of commitment. These are provocative findings that call for additional research. It is possible that those high in personality hardiness are more apt to develop a transformational leadership style, but that this will occur only under certain environmental or organizational conditions.

and made sense of within a broader perspective that holds that all of existence is essentially interesting, worthwhile, fun, a matter of one's own choice, and a chance to learn and grow, then the stressful experience can have beneficial psychological effects rather than harmful ones. In a small group context, leaders are in a unique position to shape how members of the group understand stressful experiences. The leader who, through example and discussion, communicates a positive construction or reconstruction of shared stressful experiences may exert an influence on the entire group in the direction of the leader's interpretation of experience. Thus, leaders who are high in hardiness will likely have a greater impact on their groups under high-stress conditions, when by their example as well as explanations they articulate to group members (including interpretive stories and parables), they encourage an interpretation of stressful events as interesting challenges that they are capable of meeting, and in any event can learn and benefit from. This process itself, as well as the positive result of the process (a shared understanding of the event as something worthwhile and beneficial), could be expected to also generate an increased sense of shared values, mutual respect, and cohesion. The research findings with Norwegian cadets showing hardiness and leadership interacting to explain postexercise cohesion levels lend support to this interpretation.

The Hardy Transformational Leader

As many have argued, people in groups construct a social reality for themselves that is largely a shared reality (Berger & Luckmann, 1966; Weik, 1995). Leaders are in a position to exercise special influence over those around them, and how events get constructed or interpreted, especially in groups and organizations where contact is more frequent and direct. This influence is greater when the leader is charismatic (highly competent, and generates strong emotional bonds with subordinates), and when leaders and their social groups find themselves in "crisis" or high stress situations.[2] Personality "hardiness" offers new insight into what it is that charismatic (or transformational) leaders (Bass, 1998) may be doing that leads to positive group constructions of social reality within their spheres of influence. In multiple ways, leaders who are charismatic and high in hardiness may communicate their ways of understanding and interpreting experience to their subordinates, leading them to make similar interpretations. Indeed, leaders may transmit their very ways of approaching experience, which is akin to increasing hardiness levels in their subordinates.

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2. Max Weber (1978), generally recognized as the originator of the "charismatic leadership" concept, points out that charismatic forms are more likely during periods of social crises or emergency.

Although there is research to support some aspects of the preceding argument regarding hardiness influence processes in groups, much of this awaits empirical confirmation. Nevertheless, to clarify how the leader influence process in particular might operate in certain organizational contexts, the following actual organizational case study is offered.

A CASE STUDY ON HARDY LEADER INFLUENCE

I had occasion to work with an Army Air Defense Artillery (Patriot Missile) Battalion in Saudi Arabia in 1995. My job was to conduct a study of deployment stress, morale, and cohesion within this unit, as part of an overall assessment of unit morale and adaptation in the area. The unit was engaged in a six-month long deterrence mission that U.S. forces have performed since the Gulf War ended. It was about five months into this particular deployment, and things were pretty dull for the troops there. As the research team interviewed and surveyed through the battalion, it was clear that morale was extremely low, as was cohesion. However, these indicators were dramatically different in one segment of the battalion, known as the Headquarters and Maintenance Company. In this one company, morale and cohesion were high. Given that all companies/batteries in this battalion were exposed to the same external conditions and mission-related stressors, the widely divergent scores were puzzling. How could the difference be explained?

When I talked to the company commander, he had a ready answer. Shortly after they arrived in theater, he had set the company to work on a major task that provided a common goal, and a tangible mission to work on while there. He discovered they were located next door to a large field that had been used as an equipment dump after the Gulf War. Tons of old military equipment and parts were buried in the sand, rusted and dirty. The commander set his unit to the task of excavating this field, and recovering, cleaning, and repairing as much equipment as possible over the course of their deployment. By the time we saw them at month five, they had retrieved over $1 million worth of equipment from the dump and recycled it back into the Army supply system. The walls of their company dayroom were covered with before-and-after photos, and soldiers throughout the unit spoke with great pride of their accomplishment.

This case nicely illustrates how a proactive, committed, hardy leader can influence an entire unit or organization in the direction of greater hardiness. The company commander took creative control, identified a meaningful mission for his unit, something that was challenging, that they could have

control over, and gave them a sense of commitment to a shared goal. He guided them through the planning and execution, leading by example throughout. The company commander also knew how to enhance the recognition and pride in accomplishment, posting pictures and progress reports, and making sure the unit received recognition from senior leaders and the media. This public recognition in turn clearly contributed to an enhanced sense of positive meaning for the troops.

So while other units in the same battalion were alienated, bored, and feeling a lack of control over their circumstances, this unit displayed increased unit morale and cohesion, commitment, control, and challenge under this company commander. By his policies, actions, and examples, all suggestive of a person high in hardiness himself, this leader managed to establish a unit climate that increased the opportunity and probability of hardy interpretations of experience throughout the unit, and the positive behaviors and feelings that result.

Although more research is certainly needed, we can now point to several things that leaders at all levels can do that are likely to increase hardy interpretations and behaviors throughout their organizations:

1. Lead by example: Model a hardy approach to life and work, demonstrating commitment, control, challenge, and the generalized view that stress is good, a way to learn and grow.
2. Encourage "hardy" (commitment, control, challenge) group sensemaking of experience in
   - How tasks, missions are planned, discussed, and executed.
   - How mistakes, failures, casualties are spoken about, interpreted, and
   - Debriefings, After-Action Reviews: focus on events and positive constructions.
3. Seek out (and create) meaningful/challenging group tasks and then capitalize on them through reflection and recognition (including media recognition).
4. Communicate and model respect and commitment to unit members, demonstrating deep commitment to the social world.

Conclusion

The military provides a useful organizational context in which to study stress and resiliency under stress. One factor of growing potential value as a stress-resiliency resource in organizations is "hardiness," especially to the extent hardiness represents interpretations of experience and related behaviors that can be influenced by leaders. Leaders in organizations such as the

military may be in a unique position to shape how stressful experiences are understood by members of the group. The leader who, through example and discussion, communicates a positive construction or reconstruction of shared stressful experiences, may exert considerable influence over the entire group in the direction of the leader's own interpretations of experience–toward more hardy construals. This leader-influence process is likely intensified under extreme conditions, such as periods of rapid organizational change, economic downturns, disasters, or war. For military units, the potential for leaders to infuse hardiness into the organization is also increased when units are deployed, or anytime the unit is exposed to the stressors of isolation, ambiguity, powerlessness, boredom, and danger. As a stress-resiliency resource of proven value at the individual level, hardiness now merits further exploration as a tool for stress-resiliency at group and organizational levels.

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Chapter 6

TEAM RESILIENCE

CLARE POLLOCK, DOUGLAS PATON, LEIGH M. SMITH, AND JOHN M. VIOLANTI

INTRODUCTION

When Qantas flight QF 1 overran the runway at Bangkok airport on the evening of 23 September 1999, the flight crew had demonstrated a lack of communication and coordination (Australian Transport Safety Bureau, 2001). The crew's inability to respond to an adverse event (an incorrect approach) with a clear, flexible series of decisions resulted in an event that had the potential for great loss of life. Poor coordination and communication between the flight deck, control tower, and the emergency services further exacerbated the crew's problems. In particular, when the aircraft's internal PA system failed on impact, the flight and cabin crew did not manage to come up with an alternative solution to their communication needs to fully understand the seriousness of the situation. This contributed to the final evacuation of passengers not commencing until twenty minutes after impact and not being completed until forty-three minutes after impact. That the event did not result in any loss of life or serious injury was more a matter of luck than good planning and response to the emergency.

Contrast this event with the response of emergency crews from five different organizations following the crash of three trains at Clapham, just outside London on 12 October 1988. The carnage that met the ambulance and fire crews was considerable, but their ability to handle the workload, to maintain communication, and change their plans as the event unfolded was praised in the resulting coronial inquiry (Hidden, 1989). Despite the loss of thirty-three lives, the response of the teams to this event exemplified crisis leadership, initiative, and adaptability. These two examples highlight the differing abilities of two groups to respond to an emergency event– in particu-

lar their ability to cope with an initial adverse event by developing an appropriate plan of action, communicating the plan to other team members, and putting the plan into action.

If a team responds to an adverse event in a coordinated and cohesive manner, adapts to changing demands rapidly and effectively, shows few stress reactions after the event, and subsequently learns from the experiences to facilitate subsequent performance, then it can be described as resilient. The Qantas crew and others involved in the accident did not, as a group, show resilience; whereas the teams involved in the Clapham accident did. In this chapter, we outline the factors that influence team resilience.

THE NATURE OF EMERGENCY TEAMS

Because the demands encountered when responding to mass emergencies transcend the capabilities of any one individual or agency, their effective management requires the collective and coordinated activities of response agency teams and, on many occasions, multidisciplinary teams. A multiagency response introduces its own set of demands. Many agencies involved in the disaster response will have little or no contact with one another under normal circumstances, making the interagency collaboration a challenging task. Having to deal with, for example, interagency conflict, will constitute an additional source of stress. Response effectiveness relies heavily on the activities of these agencies being integrated and their respective roles accommodated in a planned and systematic manner (Paton, Johnston, Houghton, & Smith, 1998).

Promoting team resilience entails isolating the mechanisms that promote the development of a cohesive, integrated team, including those with multidisciplinary membership, that acts to safeguard well-being, provide opportunities for growth, and which facilitates the management of complex and diverse demands.

Team resilience can be strengthened at three points. Before an emergency, groups can work together to forge a sense of cohesion, and to structure relationships in ways that facilitate crisis information sharing and decision making. During an emergency, team resilience is influenced by their ability to impose meaning on the event. After an emergency, positive coping and team development strategies will influence individual stress experiences and subsequent group performance. These opportunities for promoting resilience are open to all teams, but the multiagency and even ad hoc nature of teams involved in responding to emergencies is especially challenging.

PREPARATION FOR RESILIENCE

A group of people working toward a common goal, in a coordinated manner, can produce a superior level of functioning over that which would be expected of a number of individuals working independently. People can come to expect that they function more effectively within a team. According to Bandura (1997), "Groups showed belief in conjoint capabilities to organize and execute causes of action" (p. 476).

Yet, the benefits accruing from teams often remains unrealized because insufficient attention is given to their development and maintenance (Northcroft, Polzer, Neale, & Kramer, 1995). Team members are generally selected for their functional expertise. However, failure to accommodate the accompanying diversity in, for example, attitudes, professional philosophy, and personality can generate misunderstanding and mistrust among members (DiTomaso, Cordero, & Farris, 1996). In addition, a functionally selected membership can fuel conflict regarding procedures and goals (Northcroft et al., 1995). Although conflict and diverse views represent a strength of teams, their constructive use and their promotion as a resilience resource requires education, negotiation, and the management of team development and performance (Northcroft et al., 1995).

Group members need to develop a sense of trust (see Ch. 11) in each other. In the ad hoc teams that emerge when responding to disasters this involves 'swift trust' (Meyerson, Weick, & Kramer, 1996). There is no time for this trust to develop from a shared history, it develops through immediate actions and communication and allows the team to function as a unit, with each part of the system understanding its role. Without trust, teams focus on task demands, not teamwork (Kleinman & Serfaty, 1989), reducing their effectiveness to meet the emerging needs during a disaster (Orasanu, 1990). One crucial factor in team development and in promoting cohesion in multidisciplinary operation is social identity (Bettenhausen, 1991; Northcroft et al., 1995).

Sense of Identity

Social identity processes, particularly the stereotyping of in- and outgroups, can limit the ability of multiagency relationships to operate cohesively. Developing a coherent sense of identity is thus an important preparatory activity (Paton et al., 1998). Promoting effective and cohesive teamwork requires consideration of (1) how participants define group membership and how it influences cohesion; (2) patterns of interaction between group members in relation to institutional policies, structures, and culture, and the lan-

guage and terminology used; and (3) contextual factors such as understanding of integrated emergency management policies and practices, the status and power accorded to different members, and resource constraints (Paton et al., 1998). Resource constraints represent a common source of divisiveness in multidisciplinary groups, even in previously cohesive and effective teams (Northcroft et al., 1995). If external factors threaten their functioning, team integrity can be sustained by focusing on collective strategies for influencing funding, lobbying politicians, or submitting policy statements and plans to decision-making bodies. These points provide guidelines for multidisciplinary team development and underline the need for this process to be managed.

An individual's sense of meaning is known to influence resilience. Basoglu et al., (1997) found that people subjected to torture for political reasons were less likely to suffer from posttraumatic symptoms if they had been political activists prior to the torture, than if they had not (despite the political activists experiencing more severe torture than nonactivists). Political activists felt a greater sense of meaning in their experience and had some understanding of what to expect in the event of torture. This form of preparation for an adverse event can give individuals, and by extension teams, the skills, knowledge, confidence (Carver, 1998), and sense of purpose (Casella & Motta, 1990) that can inoculate the individual or team against severe stress reactions.

Team Structure and Management

The quality of multidisciplinary team management will influence their resilience. Flatter organizations have greater flexibility in times of emergency than their hierarchical counterparts. There are fewer levels of command to be negotiated before action can occur and less danger of messages being misinterpreted as they pass down the chain of command. Maddi, Khoshaba, & Pammenter (1999) showed that semiautonomous work teams promote more hardiness than hierarchical arrangements. In many emergency situations, there may be such a semiautonomous structure given the number of different agencies, the physical distance over which groups from these agencies may have to operate and the teams usual modus operandi to work as self-contained groups (e.g., fire crews). Although a semiautonomous team structure enhances flexibility, an advantage in emergency settings, it raises additional coordination and management issues.

Team structure and management affect emergency performance. Research into multidisciplinary teams has identified two models, the "collaborative team model" and the "metasystem consultation model" (Shute, 1997), that

deserve consideration here. The collaborative team model involves different professionals working as equals, contributing different perspectives to the decision-making process. The metasystem consultation model involves the "external" coordination of a collaborative team and the direction of team activities. One advantage of the latter is its ability to accommodate environmental (e.g., resource issues, interagency policy differences) constraints on team performance (Northcroft et al., 1995). Both models provide a framework for the kind of transitory team management required in the emergency or disaster operating environment.

RESILIENCE DURING AN EMERGENCY

Team resilience is a function of its ability to adapt to emergent and dynamic demands. Contrast this with a group that suffers from a sense of helplessness, are overwhelmed by the event, and may respond with inappropriate solutions.

Under stressful conditions a person's focus of attention is narrowed to the task considered most important (Hockey, 1986). This may impair performance when the operator's subjective ranking of importance does not match reality. For example, during the Three Mile Island nuclear incident, control room operators were inexperienced at handling the task that faced them and focused on the wrong aspect of the problem in the early stages of the emergency. This resulted in their failure to attend to a critical piece of information (Rubenstein & Mason, 1979). However, if an operator correctly prioritizes the tasks and focuses on the appropriate part of the problem, then stress may facilitate performance. Stress also reduces the amount of information that can be held in working memory (Mandler, 1979), limiting the range of options that can be considered stress. These two factors mean that people must adopt different decision-making approaches during high stress periods.

The study of naturalistic decision making has focused on the nature of decision making in complex and often pressured environments. Klein (1989) proposed that in emergency situations individuals make recognition-primed decisions (RPD). When faced with a problem, people recall a scenario that shares key features with the one at hand and apply the rules that were successful in that scenario. Real decision makers do not engage in exhaustive searches of options and the relative merits of different actions during an emergency. Decisions are made almost "intuitively". This style of decision making has been observed in firefighting (Burke & Hendry, 1997), emergency evacuation (Flin, Slaven, & Stewart, 1996), and aviation incidents (Orasanu, 1997). The key feature of all these environments is that time pres-

sure is perceived to be high. Indeed, as Orasanu (1997) pointed out, this only needs to be a perception, not reality. She identifies that the crew of the British Midland 757 that crashed at Kegworth in the United Kingdom in 1989 had acted "as-if" time pressure was high, even though their problem was first detected at 26,000 feet. When the crew detected a problem with an engine, they applied their rule of shutting down the engine, only to shut down the good engine, instead of the one that was failing. Had the crew recognized that they were not under time pressure to make a decision, they might have been better placed to more fully assess the situation and make the correct response. Success in recognition-based decision making is affected by individual and group experience in emergency situations. The ability to match current and prior situations will be greatly enhanced with more options to match. This experience can be gained in either real, or simulated exercises.

Emergencies often have periods of extreme pressure interspersed by periods of relative calm (Crego & Spinks, 1997). Effective teams use the periods of calm to gain awareness of the surrounding conditions and to communicate that information to each other (Entin & Serfaty, 1999; Stout, Cannon-Bowers, Salas, & Milanovich, 1999). This reduces the information-gathering needs during higher stress periods. Salas, Fowlkes, Stout, Milanovich, & Prince (1999) demonstrated that teams performed better in a simulated helicopter evacuation exercise if they had engaged in more planning and teamwork activities in the time leading up to the higher workload periods of the exercise. Similarly, Entin and Serfaty (1999) showed that effective teams switch their information-seeking strategy during periods of high workload. During the highest stress periods, teammates provide more unprompted information. For the decision maker in the group, information seeking can switch from being explicit (requesting information) to being implicit (being provided with information). For this implicit information-gathering process to be most effective, team members need to have a good understanding of what information is required by the decision maker at critical periods. This is in line with La Porte and Consolini's (1988) finding that highly reliable organizations are ones in which members are sensitive to other members' workloads.

Team Mental Models

As a consequence of the complexity of the disaster environment, (e.g., agency membership, their geographical location), decision effectiveness is a function of the extent to which those involved have a shared understanding of the response environment (including how events evolve over time). This determines the capability of emergency responders to utilize their collective

expertise, even if dispersed or contributing different perspectives, to problem definition and response planning (Granot, 1999; Paton et al., 1998), including how their expertise contributes to different parts of the same plan while working toward common goals (Paton & Flin, 1999), and being able to anticipate the needs of those with whom they are collaborating (Flin, 1996).

The development of the shared understanding required for implicit coordination and information sharing has been termed "shared mental model" (Entin, & Serfaty, 1999; Orasanu & Salas, 1993; Stout et al., 1999). However, Cooke, Salas, Cannon-Bowers & Stout (2000) argued that the term "team mental model" is more appropriate. A "shared" mental model may be ambiguously interpreted to mean either a model divided among a group (different member of a group hold different parts of the information), or one held by all members of a group (different members of the group have the same information). The focus on the term "team" also narrows the term to include those situations where a group is working toward a common goal. The term "team mental model" therefore more specifically relates to that information which is useful and necessary for team functioning. It is the team mental model that predicts the ability of the team to undertake implicit communication during a high workload event.

Team mental models can be developed during planning periods (Stout et al., 1999), lulls in the intensity of an event (Orasanu, 1990), or other periods of low workload. People who engage in more planning activities with other team members develop more similar mental models of the task, than those people who do not (Stout et al., 1999). Furthermore, the more similar the mental models of the team, the more their members will engage in unprompted information sharing during high workload periods, so enhancing team performance on the task (Stout et al., 1999).

A word of caution is justified here. If an inaccurate or incomplete model is evoked, decision effectiveness will decline. To reduce this risk, planning must involve an all-hazards approach, comprehensive discussions with key information providers, and ensure that simulations designed to facilitate shared understanding are based on comprehensive scenarios, involve key agencies, and are followed by critical evaluation (Paton & Flin, 1999). Evaluation is essential to analyze whether, and to what extent, participants revert to pre-existing organizational "frames of reference" when operating collectively under high stress conditions and whether and how these frames restrict, filter, or distort information flow and its utilization (Smallman & Weir, 1999).

In very large teams, a mental model shared by the whole team might be neither possible nor desirable. As Flin et al. (1996) pointed out, if everyone in a disaster response environment is required to have a shared understanding, the amount of preparation and initial communication necessary to pro-

duce the shared model might be counter-productive. It is essential to identify core individuals, or cooperating teams, who must develop a common model to facilitate and maintain coordination and cooperation.

Situational Awareness

Cooke et al. (2000) argued that a team's knowledge about an event consists of the team mental model and the team's situational awareness. Situational awareness refers to a person's perception of the current state of events: the what, where, and when of the event (Endsley, 1988, 1995). Many aircraft accidents have been attributed to a lack of situational awareness during in-flight emergencies. Crews have a dangerous tendency to focus on the presenting problem, such as conflicting information from cockpit instruments, and literally forget to "fly the plane" (Berman, 1995)

Good communications between team members promote good situational awareness (Jentsch, Barnett, Bowers, & Salas, 1999), as it facilitates the development of team mental models, but communication alone is not sufficient. Within a team, certain members will develop better situational awareness than others. Jentsch et al. (1999) in an analysis of over three hundred aviation incidents found that captains were more likely to lose situational awareness than copilots. This effect was exacerbated when the captain was the pilot flying the aircraft than when the first officer was the pilot. Hands-on involvement with the controls was counterproductive to developing good situation awareness. The extra workload involved in operating the controls outweighed any benefit the captain had from maintaining the "feel" of the aircraft. Jentsch et al. (1999) argued that this in part explains why 80 percent of aircraft accidents occur when the captain is flying the plane, rather than the first officer.

From Jentsch et al's. (1999) findings, the development of situational awareness requires the person in charge to have spare capacity to devote to understanding current conditions. The more effort people need to put into communication and action planning, the less likely they will be to develop a good picture of the situation. The metasystem model described earlier represents an appropriate basis for minimizing this risk.

There are clear implications from emergency team decision making, team mental model, and situational awareness research to suggest that training should reflect operational diversity and that specific collaborative exercises, simulations, discussions, and projects will be necessary to attain operational integration. How this might be achieved is discussed in detail in the next chapter.

POSTEMERGENCY RESILIENCE

When officers of the U.S. Bureau of Alcohol, Tobacco, and Firearms raided the compound of the Branch Davidian at Waco, Texas, they encountered one of the Bureau's most traumatic events. Yet, five years after the event only one officer has had to retire on medical grounds (Solomon & Mastin, 1999). The Bureau team had demonstrated considerable postemergency resilience.

Individuals' postevent coping depends on their ability to find a sense of meaning in the event and an ability to reconcile their reaction to the event with their belief structure, or, more positively, the belief structure can be changed to accommodate the event (Carver, 1998; Park, 1998). Carver argued that individuals' ability to view an adverse event as a challenge, as opposed to a threat, would influence their ability to thrive postevent. Teams may also display these coping mechanisms to greater or lesser extents. Cohesive teams, and those characterized by a strong sense of belonging, can constitute a natural coping resource, protect individuals from the negative stress reactions, and provide opportunities to review events and experiences in a manner that can facilitate personal and professional growth (Violanti & Paton, 1999).

Group Cohesion

Group cohesion can be enhanced through shared experience of adversity (Paton & Stephens, 1996). This sense of cohesion develops from a sense of shared fate, similar affective reactions, and a perceived similarity among those who have, collectively, faced adversity (Dynes, 1970). However, cohesion may be threatened when a disaster is especially destructive and the response rendered less effective than might have been anticipated. Under these conditions it may be difficult for an individual to find the positive characteristics in the group necessary to maintain a positive group identity. Under these circumstances, support networks may break down (Hartsough & Myers, 1985) and a negative group social identity develops (Paton, 1994; Shalev, 1994). Where positive differentiating features are lacking, individuals tend to dissociate themselves from the group, making it difficult to use others as a support resource. Opportunities to learn and develop within a cohesive social network may thus be limited. A sound understanding of the dynamics of the emergency response environment is required, together with its implications for team relationships under conditions of extreme adversity. Once these group dynamics have been articulated, it will be possible to develop strategies to contain or reverse them, so minimizing disruptions to support and ensuring that team membership will act to sustain resilience (Paton, 1994).

Social and Peer Support

Although generally considered to ameliorate stress reactions, the fact that support is neither given nor received in a neutral interpersonal environment, but occurs within a social context, means that several social cognitive factors influences whether it facilitates resilience or enhances vulnerability (Lyons, 1991; Paton & Stephens, 1996). Furthermore, it is inappropriate to assume that one source can provide for all support needs at different stages of recovery. For example, informational support may be viewed as intrusive if provided by significant others but not if offered by professionals, whereas emotional support appears to be most effective if offered by family and friends (Shin, Lehmann, & Wong, 1984; Thoits, 1986). Unless these influences are taken into account within the process of developing and administering social support resources, the effectiveness of this resource will be reduced. This means that team development process should include social and peer support practices (Paton, 1994, 1997; Williams, 1993).

Communal Coping

Lyons, Mickelson, Sullivan, and Coyne (1998) used the term "communal coping" to describe how a group working together can develop a stronger, more resilient response than can be achieved by individuals. They argue that communal coping requires group members' acceptance that the adverse event was a shared problem, that they talk about the problem and agree on cooperative action. Emergency teams can also utilize communal coping. In this context, acceptance of a shared problem would be reflected in a lack of blame regarding any perceived failings during the event within and between teams. Communication opportunities for emergency teams will occur in formal review sessions and in the informal day-to-day interactions between team members as they return to work. These sessions also offer opportunities to develop shared plans of action. These actions will only create the widest communal coping if the communications involve members of all teams involved. This is not to deny the reality of specific issues arising for each service. However, to acknowledge that people from many different areas worked together during the crisis and can work together after the crisis to develop an understanding of the experience and to better prepare for future crises will facilitate communal coping, resilience, and future, integrated performance.

Postevent Thriving

Realising the benefits of their collective activities for psychological growth requires an appreciation of the social-cognitive influences on response processes (MacLeod & Paton, 1999; Paton & Stephens, 1996) and the organizational factors that facilitate this outcome. Organizational climates that acknowledge and legitimize emotional expression, promote self-help activities, and facilitate imposing coherence on atypical events by encouraging interpreting professional experiences as learning opportunities can promote individual and team resilience (Gist & Woodall, 2000; Paton, Smith, & Violanti, 2000). Once established, this process should be supplemented with organizational development programs (including supervisory/management training) designed to sustain this momentum (Gist & Woodall, 2000).

More important, postevent reviews should facilitate participants' positive interpretation of their reactions (Dunning, 1999). While acknowledging members' pain and suffering, opportunities for growth and thriving from the experience can also be developed (Park, 1998). In this model, the focus is on creating a better understanding of what occurred, strengthening group cohesion of the group, and giving members a greater sense of meaning of their experiences.

Shakoor and Fister (2000) described how such communication can have positive effects in the aftermath of traumatic experiences. They report Shakoor's experiences running a group program with psychiatric staff in a Bosnian hospital following the war. During the forty hours of discussions with the group, members were able to develop insight into their personal response to the traumas they had experienced, to gain interpersonal learning about how each other had responded to the challenges, and to develop a clear sense of group cohesiveness. This resulted in a greater sense of hope for the future, the development of techniques to help each other when they appeared to be having a particular problem, and the overwhelming sense of perspective on their suffering.

CONCLUSIONS

The promotion of team resilience has been described here as occurring prior to an emergency (e.g., group identity and the establishment of team structure), during an event (e.g., developing a team mental model and situational awareness), and those that are influential in the postemergency period (e.g., social support). It is, of course, recognized that these factors can and will influence the team's resilience at different times. For example, in devel-

oping a team mental model, the interaction between different members of a team that might not otherwise interact in an exercise can produce a sense of group belonging, while also providing a frame of reference to enable individuals to communicate with each other about their expectations of the event. All these factors can be influenced to a greater or lesser extent by the nature and extent of training given to the teams before they encounter a disaster situation. The specific ways in which training can facilitate team resilience is addressed in the following chapter.

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Chapter 7

TRAINING FOR RESILIENCE

CLARE POLLOCK, DOUGLAS PATON, LEIGH SMITH AND JOHN VIOLANTI

INTRODUCTION

The previous chapter argued that teams, as well as individuals, can demonstrate resilience. Resilience can be facilitated through appropriate team structure and management, through team mental models that allow adaptive emergency decision making to take place, and through developmental processes that promote an ability to impose coherence and meaning atypical events. A key determinant of these factors is the implementation of training programs specifically designed to target the development of resilience. As Flin (1996) argued, training for resilience in emergencies is not just a matter of the individuals involved in the emergency knowing their own jobs. The Offshore Installation Manager in charge of the Piper Alpha oil rig may have had adequate training for the everyday aspects of his job, but he was poorly equipped with the skills and knowledge to make the kind of decisions required for a large-scale emergency.

A well-trained, experienced team can facilitate stress resilience because tasks can be delegated, second opinions sought, and plans and actions debated and reviewed from different perspectives (Paton & Flin, 1999). Achieving the benefits accruing from teamwork requires a sound analysis of team roles, training in team skills, a supportive work climate, and the use of appropriate management procedures (Brannick, Salas, & Prince, 1997).

TRAINING TO COPE

By their very nature, emergencies and disasters expose personnel to demands that are unusual, unexpected, suddenly occurring, and beyond the normal experience of most individuals. Their atypical nature can "shatter the assumptions" (Janoff-Bulman, 1992; 1997) that normally govern the person's sense of coherence and their ability to impose meaning and determine appropriate actions. The intensity of stress reactions, and the ability of emergency responders to understand their reactions and operate effectively in highly dynamic and ambiguous environments, may be influenced by the extent to which survivors were prepared for the experience and had realistic expectations, about their role and what they would be doing (Paton, 1994). Lack of preparation, suddenness of onset, unrealistic expectations and a tendency to deny or suppress feelings or the risks faced can heighten the subjective experience of loss of control and result in the process of re-establishing control becoming more difficult (Eränen & Liebkind, 1993). Under these circumstances, when faced with events that threaten psychological integrity, personnel become unable to draw on their previous learning, training, or experience to guide their response or to appreciate their reactions, increasing their vulnerability to traumatic stress reactions. A key factor in promoting resilience, that is, the ability to impose coherence and meaning on atypical experiences, is training (Driskell & Salas, 1996; Paton, 1994).

Training programs should be based on an all-hazards approach and designed to facilitate both technical and psychological preparedness and the development of a flexible and adaptable response capability (Driskell & Salas, 1996; Paton, 1994, 1997). In this context, training to promote stress resilience should address the need to enhance the capability of workers to render atypical operational events coherent and to understand and manage the psychological impact of emotionally distressing events on themselves and others. What evidence is there for training to be effective in this context?

In a study of the psychological impact of performing body recovery duties after the Piper Alpha oil rig disaster, Alexander and Wells (1991) concluded that preparing police officers for body recovery work, advising them of the personal, emotional, and psychological reactions the work was likely to elicit, and impressing on them the importance of their work for surviving families, contributed to increasing stress resilience. However, becuase it was not possible to isolate the effects of preparation from other managerial and support interventions, the specific contribution of training can only be inferred. Deahl, Gillham, Thomas, Searle, & Srinivasan (1994), working with Army War Graves Service personnel during the Gulf War, concluded that training for body-handling duties may have influenced psychological resilience,

though they could not offer a definite conclusion regarding the effectiveness of this preparation. They did find that previous "real-life" experience of handling human body remains was associated with lower psychological morbidity.

TRAINING FOR COMMUNICATION AND DECISION MAKING

A key determinant of coherence and meaning in disaster contexts involves accessing information in a timely manner and being able to use it to make decisions, often under considerable time and physical pressures. Communication problems can represent a significant stressor for personnel. While some problems reflect hazard activity (e.g., damage to communication infrastructure), others reflect inadequacies in crisis communication systems and/or the expertise available to use them (Paton et al., 1999; Paton, Johnston, Houghton, & Smith, 1998). Promoting resilience requires that training and simulation facilitate the development of a capability to specify information needs, co-ordinate activities with other groups, interpret it appropriately on receipt, and, if required, adapt it for different functions and end users over time (Paton et al., 1999). Training designed to facilitate this capability is widely used in the aviation industry.

Crew Resource Management

In the modern commercial aviation environment the team consists of two or three crew (pilots and possible a flight engineer) who are required to interact and perform effectively during both routine and emergency situations. In the 1970s and 1980s, it became apparent that many accidents had occurred when one member of the crew had a piece of crucial information but did not communicate it effectively to the person in the crew who most needed to know it. For example, on 25 January 1990 an Avianca Boeing 757 from Columbia ran out of fuel and crashed while on the second approach to JFK airport at New York City. The flight crew and several passengers were killed. The plane ran out of fuel after being placed in holding patterns for over one hour, missing the initial approach to land and then accepting a relatively long return approach path. Neither the captain nor first officer ever indicated in communications with the air traffic controller that fuel levels were critically low and that emergency priority to land was needed, yet it was evident from two events leading up to the crash that the flight engineer, at least, was aware of the situation. First, at one point when the steward entered the cockpit to inquire about the progress of the flight, the flight engineer pointed to

the near-empty fuel gauge and made a gesture of cutting his throat. Second, when the captain had missed the first approach and was in the process of going around for the second approach the flight engineer read out the instructions for executing a missed approach with minimal fuel on board from the operating manual, but at no time did he explicitly express any concern to the captain about their fuel state (Helmreich & Merritt, 1998).

The lack of clear communication about their emergency status both between the three members of flight crew and between the cockpit and air traffic control could be attributed to a number of factors, including an inability to admit to a problem (loss of face), the large power difference between the captain and his crew (Hofstede, 1980) or the perceived power difference between the Columbian flight crew and the U.S. air traffic controller (Helmreich & Merritt, 1998). Whatever the cause of the communication breakdown, examples such as this alerted aviation researchers to the need to specially train flight crew to use effective communication and action strategies in the cockpit, especially in emergencies.

The initial training programs targeted at improving communication were called Cockpit Resource Management programs or CRM (Jensen, 1981), although later they came to be know as Crew Resource Management programs when it was acknowledged that the communications needed to be extended outside the cockpit to the cabin crew, air traffic controllers, and possibly maintenance or emergency teams. CRM programs can take may differing guises, but they typically incorporate modules on effective communication, team building, stress and decision making (Jensen, 1995), and, increasingly, the impact of organizational, professional, and national culture on these capabilities (Helmreich & Merritt, 1998).

Despite the widespread acceptance and uptake of CRM programs in the aviation industry and the mandating of the programs by the International Civil Aviation Organization (Maurino, 1996), there has been little scientific validation of the programs to assess whether they change knowledge, skills, attitudes, or the performance of teams under stress.

Salas, Fowlkes, Stout, Milanovich, and Prince (1999) did report the result of a detailed investigation of the effect of CRM training on team functioning. They completed two studies in which they took helicopter crews through a specific CRM program designed around two models of teamwork skills: one developed specifically for naval teams by Prince and Salas (1993) and one developed from a review of teamwork skills over a variety of contexts by Cannon-Bowers, Tannenbaum, Salas, and Volpe (1995). The study measured pre- and posttraining teamwork performance in routine and emergency exercises, team member's knowledge of the principles taught, the attitudes of the crews to teamwork, and the reaction of the crews to the CRM course. The study showed significant improvements in knowledge of, attitudes to,

and performance of teamwork skills for both relatively novice and more experienced crews (although it should be noted that the improvements in attitudes in the experienced crews who received CRM over the control group only approached but did not reach significance). Salas et al.'s (1999) findings demonstrated that teamwork skills can be trained through programs such as CRM.

Team Mental Model Training

While the Salas et al.'s (1999) study assessed teamwork skills, other studies of team training for emergency performance have looked at the ability of training programs to influence the team's mental model. As the previous chapter argued, a good team mental model is needed to ensure that team members can switch to the more effective implicit communication styles needed during emergencies (Stout, Cannon-Bowers, Salas, & Milanovich, 1999).

One mechanism of achieving a team mental model is to use cross-training in the team training program. Volpe, Cannon-Bowers, Salas, and Spector (1995) tested the efficacy of a low level of cross-training on ad hoc teams performing an air combat task. Volpe et al. (1995) found that team members who had been given some exposure to the other team members' role (via an information session, without any actual experience in the other team members' role) demonstrated better teamwork coordination than those teams who received no cross-training.

Cannon-Bowers, Salas, Blickensderfer, and Bowers (1998) clarified the meaning of cross-training to distinguish between "positional clarification" (in which information is provided about other roles in the team, as in Volpe et al., 1995); "positional modeling" (in which information and some practice in the other positions is provided) and "positional rotation" (in which all team members spend a significant period of time performing another team member's jobs). Cannon-Bowers et al. (1998) argue that the degree of interdependence required to perform the task will require a higher level of cross-training. In their study Cannon-Bowers et al. looked at the efficacy of positional modeling for naval teams undergoing training. They found that those who received positional modeling training performed better on a naval tactical-decision task than those that had received an equal time in training, but without the cross-training component. This effect was evident under the high workload condition where there would be a specific advantage of having a good team mental model to facilitate implicit coordination.

Communication Training

Entin and Serfaty (1999) argue that cross-training alone can not fully achieve the adaptive decision-making strategies typically adopted by highly effective teams in the high workload/high stress conditions typically faced by emergency teams. Their training program (Team Adaptation and Coordination Training: TACT) specifically trained teams to switch to using implicit communication during periods of high workloads. They also trained team leaders to make use of periodic situation assessment reports to other team members and, to communicate their current assessment of events and their confidence in their assessment. Entin and Serfaty (1999) found that teams that received this form of training subsequently performed better on an antiwarfare simulation task than they had before training, and better than control teams that had received an equal amount of training, but of a form that did not teach adaptive decision-making strategies. In this study, better performance was defined as greater success on the primary task, better teamwork skills, and better communication in the high workload condition. It was interesting to note that the TACT-trained teams and the control teams engaged in the same amount of communication during the high workload tasks, but the TACT-trained teams showed a significantly higher proportion of anticipatory comments than the control-trained teams. Anticipatory comments are one form of implicit information provision that characterizes effective team communication in emergencies. Entin and Serfaty (1999) concluded that teams can be trained to adopt more adaptive communication strategies for use in emergency situations, and that these strategies produce more effective team performance.

ORGANIZATIONAL TRAINING

Gist and Woodall (2000) discussed a strategy based on an organizationally integrated, theoretically grounded approach to identifying issues affecting both organizational and individual resilience in the workplace. This approach concentrated on developing workplace dynamics, systems, and structures that held demonstrated capacity to develop, enhance, and maintain individual resilience factors. Their program involved a series of organizationally based strategies designed to promote maximum resiliency in individuals exposed to stressful occupational events. That strategy focused on the incorporation of information provision and support practices into existing organizational relationships, and on the development of specific skills and resources deigned to protect well-being. Moreover, they specifically advo-

cated empowerment (see Ch. 10) in daily activities and responses over remedial interventions.

The subsequent combination of these with postexposure strategies designed to minimize intrusion and visibility of the intervention while mobilizing and enhancing the capacity of existing roles and relationships to bolster buffering characteristics during times of uncommon duress constituted the basis of the program. This program contained a series of modules covering an overview of occupational stress, organizational strain, and personal reactivity; building healthy baseline behaviors; contributing to and working within an effective organizational climate; controlling critical incident stress through incident command system; and family, peer, and professional support systems. Participants critically reviewed the program and reported the program's objectives as highly salient to workplace goals and showed strong preference for its construction, strategies, and grounding (Gist & Woodall, 2000). The approach recommended matching modules to fit the needs of each individual organization and circumstance.

The work reported on by Gist and Woodall (2000) highlighted the benefits that can accrue from developing training programs within theoretical models designed to explain resilience. By drawing on established theory regarding processes used to render experience coherent and meaningful, it is possible to more objectively hypothesize about the elements required to facilitate resilience within a training program (Paton, 1994). Placing the development of programs within a sound theoretical framework will facilitate the identification of generic principles that can guide the development of programs designed to meet specific personnel and organizational needs and to prepare personnel for the working in the kinds of environments likely to be encountered.

Theories based on a cognitive/information-processing theme provide a sound basis for programs designed to facilitate the development of resilience (Janoff-Bulman, 1992; Janoff-Bulman & Franz, 1997. These authors argued that training and simulation can be used to construct mental models that facilitate an individual's psychological capability for making sense of the unique demands and psychological reactions associated with emergency and disaster work and the operating context within which its performance occurs. Although Gist and Woodall (2000) described how training could engender resilience in routine emergency service contexts, care must be exercised in assuming that this can automatically develop a capability to deal effectively with the demands of more extreme, atypical events.

EMERGENCY-SPECIFIC TRAINING

In addition to developing an appropriate knowledge and skill base (e.g., information analysis, decision making), training should address how atypical and dynamic disaster and emergency operating environments influence the applicability of expertise and the initiation and control of response activities. This has implications for the design of training simulations. For example, Paton (1994) demonstrated how expertise, developed in routine contexts, was ill suited to the disaster response role, but training, designed specifically to prepare for disaster work, reduced stress and enhanced performance effectiveness. According to this model, training program and simulation design require two inputs. One involves the detailed analysis of emergency response roles, tasks, and responsibilities to define the skills and knowledge required for effective response. The second involves considering how the disaster-operating context can render operational procedures and expectations inadequate or inappropriate to the needs of the disaster response.

The characteristics of the routine operating environment (e.g., clear role/task expectations, hierarchical reporting, and command structures) are incorporated into the mental models that guide response and become implicit, or "taken for granted," facets of routine operations. These mental models provide the psychological basis for imposing a sense of coherence on highly stressful, but regularly occurring, events. However, the importance of these mental models in determining well-being and performance effectiveness may go unrealized until they are faced with atypical operational demands (e.g., scale of infrastructure disruption, multiagency operating environments, rapid role change) that challenge these assumptions (Flin, 1996; Paton, 1994; Paton, et al., 1998).

Following this line Paton argued that the personal impact of a traumatic event will be a function of the extent to which these "professional" mental models (1) allow individuals to make sense of an atypical event and their reactions, and (2) facilitate the implementation of appropriate and effective responses. The appropriateness of these "professional" models for work undertaken in highly traumatic contexts will essentially be determined by their ability to assimilate the atypical demands encountered when responding to mass emergencies and disasters.

Putting Ideas into Practice

The effective utilization of mental models, and thus the well-being and performance effectiveness of those involved, is highly dependent on context and the similarity between the disaster context and that typifying routine

training and operating environments. Emergency service personnel may possess the appropriate technical skills to perform in high-risk situations, but differences between routine and disaster contexts (e.g., extent of the destruction or loss of life, leadership and coordination problems, environmental constraints on performance expectations) may render training, experience, or operational practices less applicable to the atypical and more extreme physical and personal demands of the disaster helping role. If these mental models are unable to assimilate and make sense of these event characteristics they will be less applicable. Consequently, workers' preparation for, and subsequent control over, the situation will fall short of their expectations, increasing stress vulnerability. To facilitate resilience, then, it will be necessary for training to develop mental models capable of imposing sufficient coherence on atypical and psychologically threatening events to allow them to operate effectively and to understand the normalcy of their reactions.

To test this idea, Paton (1994) compared the experiences of a group of volunteer disaster workers who had received training designed to increase their ability to impose coherence and meaning on disaster experiences with a group of firefighters who had received no special preparation for working in disaster contexts. The training received by the former concentrated less on specific content and more on enhancing a capability to render threatening, demanding, and ambiguous disaster situations, and the reactions they triggered, coherent. The idea underpinning this approach was that resilience could be increased by developing the mental models used to guide actions and understand reactions in a manner that would enhance the capability of these volunteers to assimilate disaster demands within their mental models, enhance adaptability, and to respond more effectively. Training included, for example: increasing awareness of the emotional and psychological consequences of disaster work; creating realistic performance expectations; increasing awareness of the nature of disaster operating environments; developing appropriate management, team, and support networks; and training and team building in adverse (e.g., outdoor survival) and simulated disaster work contexts. Paton (1994) found that this approach significantly increased their ability to impose a sense of coherence on disaster demands (e.g., inability to rescue victims, scale of destruction) that differ substantially from those encountered in routine work.

The application of schema theory raises some additional issues. The question of the extent to which existing elements in operational mental models or schemata can be adapted or have to be unlearned before new elements can be accommodated and used must be addressed. The possibility of pre-existing schemata being remobilized under conditions of high stress could undermine the value of training, particularly if realistic practice opportunities are limited. Reducing this risk would require overlearning and extensive prac-

tice in different situations. It is also important to develop procedures, and expectations, that accurately reflect the disaster operating context in which they will be applied (Paton, 1994). It is also possible that risk homeostasis (e.g., Adams, 1995) associated with training or normalization bias from responding to events that did not constitute a comprehensive test of performance capability (Paton et al., 1998) could undermine resilience by generating overestimates of performance capability and invulnerability. Simulations, and the process and outcome evaluations that accompany them, must take account of these possibilities and take the necessary steps to safeguard against their influence.

Training Needs Analysis and Simulation

Managing these issues has implications for training needs analysis (TNA). Not only must it consider atypical demands, disaster training needs analysis must also accommodate multiagency involvement and interaction to facilitate the development of knowledge, skills, systems, and procedures capable of supporting an integrated, team-based response (Paton et al., 1998). Although a capability for TNA may exist for routine operations, it will have to be developed specifically to identify those atypical demands and contextual factors that fall outside usual operating demands. Consequently, a broader range of analytical techniques than those used in routine contexts will be required, and the process will extend beyond organizational boundaries to include analysis of nonorganizational personnel who have experienced particular kinds of hazard activity. This ensures that the TNA process identifies the demand characteristics (Paton, 1997) and competencies (Flin, 1996; Paton et al., 1998) likely to be encountered and used when responding. These outputs also represent the demands and competencies that should be modelled in simulations.

Experience in dealing with major emergencies and disasters is limited by their infrequent nature. Developing effective training programs requires that we understand the nature of the demands faced by emergency responders and how this expertise is used to initiate and control response activities. Armed with this knowledge, we are in a position to develop and evaluate training simulations and exercises.

Specially designed simulations are increasingly being used to provide emergency personnel with opportunities to practice dealing with high-pressure situations in a safe and supportive environment. Simulations afford opportunities for emergency managers to develop and review technical and management skills, practice their use under realistic circumstances, receive feedback on their performance, increase awareness of stress reactions, and

facilitate rehearsal of strategies to minimize negative reactions (Flin, 1996; Moran, 1999; Paton et al., 1999). One issue in simulation training is whether it exposes participants to realistic levels of stress. Crego and Spinks (1997) compared the heart rates of police commanders in the MINERVA (Crego, 1995) simulator programmed for the Notting Hill Carnival in London and when they were in command of the real event and found them to be broadly similar.

The objective, critical, and comprehensive process, content, and performance evaluation should follow simulation exercises and the response to any event to provide an objective analysis of performance and training effectiveness, to identify issues that should be incorporated into future training, and to ensure that simulations provide accurate representations of the operating environment. For example, Crego and Spinks (1997) analyzed video recordings of the simulations and log sheets of the real event to determine the type of decision making commanders were using. They found that the response environment does not produce a constant level of demand, rather it has a phased quality, with periods of varying time pressure.

Simulation and Mental Models

Given the rarity of mass emergencies and disasters, simulations can afford opportunities to build an understanding of how mental models are formed, how they change as a person accumulates experience, and to identify the elements that promote effective performance and self-maintenance. Following this line of argument, it would be prudent to determine whether there are certain crucial elements that, if called into question, lead to a more rapid breakdown of conceptual frameworks and, consequently, increase the risk status of personnel on exposure to emergency and disaster demands. To constitute a resource capable of facilitating an ability to render atypical experiences coherent and to increase resilience (and possibly growth), training exercises and simulations must confront existing mental models and assumptions and seek ways in which these can be extended and developed. It is only when these assumptions and models are challenged in constructive ways that resilience and adaptability can be enhanced.

Operational mental model tend to be highly situation specific. If training focuses on one disaster scenario, workers may experience difficulty in generalizing lessons learned to others. Consequently, training and practice in a range of disaster contexts will be necessary to assist the process of generalizing understanding; promoting predictability, control, and adaptability; and ensuring that operational schemata will help maintain a state of well-being and performance effectiveness under a wide range of "high-risk" situations

(Paton, 1994). Training and preparatory strategies should address both specific content issues (e.g., technical skills), the event demands that constitute potential traumatic stressors, and the context within which performance will take place (e.g., long hours, lack of backup, performance difficulties). Because it is difficult to predict the kinds of events that disaster workers will be called on to deal with, training must address the needs that could emerge across a range of possible disasters. Training programs and simulations designed to facilitate resilience should focus on the disaster characteristics associated with triggering traumatic reactions (Hartsough & Myers, 1985; Myers, 1989; Paton, 1994), rather than specific types of disasters (e.g., earthquake, building collapse).

Training, supported by exercises and simulations for practicing skills and using knowledge in a wide range of realistic scenarios and conditions, provides opportunities to generalize understanding, and to promote predictability, control, adaptability, and effective performance under a range of circumstances (i.e., increase sense of coherence). Detailed process and context evaluation should follow training exercises. These should be conducted by an outsider or by an officer with the independence or rank to be sufficiently critical.

CONCLUSION

Training for resilience in emergency teams means understanding the unique nature of the disaster environment and designing training to capture the specific demands placed on individuals and teams when they enter this environment. The nature of training required to protect individuals and teams in inherently chaotic and unpredictable scenarios requires that people not only have a thorough understanding of the technicalities of their own role, but the requirements of other members in the emergency team. Team members need to be trained to switch to emergency-appropriate communication and decision-making styles, and to recognize that this is a highly adaptive approach to take when forced to make decisions under high-stress disaster situations. Training for emergency response needs high-fidelity simulations that re-create not only the predicted events of an emergency, but pushes the team to make decisions under the high-stress conditions that are likely to typify their experience in the field. Training should allow individuals and teams to develop the skills, knowledge, and attitudes necessary to enable them to function resiliently.

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Chapter 8

BUILDING PSYCHOLOGICAL RESILIENCE: LEARNING FROM THE SOUTH AFRICAN POLICE SERVICE

MERLE FRIEDMAN AND CRAIG HIGSON-SMITH

INTRODUCTION

Building the fortitude of fighting men has traditionally been the business of the military (Grossman, 1998). However, in recent years growing concern about the stress experienced by police officers has prompted a range of studies aimed at understanding and, if possible, coming to terms with this problem. Williams (1987) postulated that although there are remarkable similarities between the types of stressors and responses of police officers and Vietnam veterans, there is also one crucial difference: "for cops, the 'war' never ends–they are out there 24 hours a day, 7 days a week to 'protect and serve' " (p. 267). The police officer will not however always undergo the high level of sustained stress that the combat soldier does, but rather repeated episodes of major or minor traumas over a prolonged period of time (McCafferty, Domingo & McCafferty, 1990).

Despite their regular exposure to traumatic events, many police officers cope with the ongoing traumatic exposure that their occupations demand. Effective and ineffective coping strategy use in police officials has become a focus of concern. One of the enduring coping strategies that has long-term effects on the belief systems of police personnel is assimilation into the police role, a necessary and important part of becoming a successful professional. Violanti (1992) described how this role assimilation has both personal and social features and results in cognitive inflexibility and diminished use of other roles, both of which may increase the potential for PTSD. Violanti

(1992) reported that in trainees in a high-impact training situation, the coping strategies of distancing and planned problem solving significantly reduced distress. Escape/avoidance and self-control coping did not work in the police situation and significantly increased distress. However, merely reducing stressors and increasing people's capacity to cope may not be sufficient, especially when occupational demands result in regular and predictable exposure to threatening situations. For people who risk serious injury and death on a daily basis, the capacity to resist the negative effects of traumatic exposure is invaluable.

Individuals' responses to any event differ enormously. While some people are temporarily overwhelmed by traumatic experiences and are forced to put a great deal of energy into coping, others seem not to be affected at all. For some people, therefore, it seems that psychological resilience comes naturally. These individuals may, however, hold the key to psychologists being able to develop programs to assist their less naturally resilient colleagues. The label applied by Strumpfer (1995) to research on psychological resilience is *fortegenesis* (literally, the origins of strength). His work is an extension of the work of Antonovsky's (1979) work on *salutogenesis*, literally, the origins of health.

CHALLENGES TO POLICING IN SOUTH AFRICA

The past twenty years of South Africa's history have witnessed a rapid increase in levels of violent crime in the country. The reasons for this are multiple and complex but include the abuse of the police force as an instrument of political power under the apartheid government, the fragmented and often partisan structures of multiple policing organizations, and high levels of anger and frustration springing from years of oppression. Added to this are poor economic growth, high levels of poverty, widespread unemployment, and a proliferation of firearms.

The fact that the old South African Police Force was used as an instrument of political oppression is fundamental to an understanding of the enormous social and psychological challenges facing police officers in South Africa today. The following excerpts taken from reports on the work of the Truth and Reconciliation Commission illustrate the extent and nature of police involvement in apartheid atrocities.

Former Vlakplaas commander Eugene De Kock and sixty-four other amnesty applicants and twenty-seven other implicated policemen as well as Askaris, are to appear before the Amnesty Committee. The incidents for which the policemen are applying range from the killing of Vlakplaas

Askaris whose loyalties were being questioned as to the abduction and murder of African National Congress (ANC) activists in cross-border raids to Swaziland (TRC MEDIA RELEASE, August 26, 1999).

Further examples of amnesty applications from police officers involve abduction, kidnapping, interrogation, torture and murder of youths belonging to the ANC, and the murder of an informer. Also granted amnesty was another member of the Security Police, Phillip Johannes Loots, for conspiring to murder Jerry Thibedi, a high-ranking official of Congress of South African Trade Unions (COSATU) in Mamelodi and Soshanguve townships. The police believed that Thibedi played a prominent role in the consumer and school boycotts to undermine the government. The Committee found that Loots's acts were associated with a political objective (TRC media release, September 23, 1999).

Given this history, it is hardly surprising that South Africa's policemen and women are exposed to so many violent acts. In a recent documentary on policing around the world, South Africa is referred to as the most violent country not at war in the world (Cop World, 1999). In the year 2000 alone more than three hundred South African police men and women were murdered, in many cases for their weapons.

In addition to this extremely difficult history, the new South African Police Service (SAPS) is struggling to transform itself into a professionally and racially integrated service to the community. The creation of this new institution has involved ongoing restructuring and stressful change. Members of the SAPS are still regarded as the enemy in many communities, even when they are members of that community. Many police officials in these communities change into civilian clothing before they go home so as not to become a targets for criminals' guns, or of community members because of past police action. This of course is additional to the often-voiced complaints of poor management practices, appallingly low pay, the threat of retrenchment, and very poor working conditions.

The consequences for police are very clear and fast becoming the source of great public concern. For example, in 1997 there were twelve suicides for every 10,000 police officials in South Africa. In Gauteng Province for 1999, there were 93 per 100,000 and in 2000 there were 153 per 100,000 (statistics provided by National Suicide Prevention Committee, SAPS). In virtually all these cases (95%) service firearms were used, and in nearly 17 percent of cases the officer took someone else's life before committing suicide. The typical police suicide in South Africa is twenty-eight years old.

Behavioral addiction to high-risk situations and its long-term effect on the life of police officials have been described by Paton, Violanti, & Schmukler, (1999). These and other posttraumatic-stress-related effects may not reach levels commensurate with a diagnosis of PTSD but will nevertheless likely

have long-lasting and complicating implications for the lives of police personnel. Other studies have consistently demonstrated high levels of substance abuse, alcoholism, domestic violence, divorce, depression, and corruption in this population (Violanti & Paton, 1999).

THE SEARCH FOR SOLUTIONS

In this context, the discussion of psychological resilience to traumatic stress becomes particularly important. People exposed to ongoing trauma have different needs to those exposed to a single event, or for whom a period of repeated traumatic exposure is at an end, such as military veterans. Police officers may experience traumatic events on a daily basis for their entire careers, particularly in South Africa. Several theoretical constructs have been linked to psychological resilience and deserve some discusion here. These constructs include hardiness (Kobasa, 1982) and sense of coherence (Antonovsky, 1987), denial, dissociation, and social support.

Hardiness and Sense of Coherence

Hardiness (Kobasa, 1982) is defined as a personality construct that moderates the effects of stress on individuals. Commitment, control, and challenge characterize the hardy personality (see Ch. 4). Hardiness (Kobasa, 1982) has been found to provide a buffer against PTSD in veteran populations. King et al. (1998) found that hardiness mediated the relationship between war-zone stressors and PTSD in a sample of Vietnam veterans. In a further study of Vietnam veterans, findings endorsed hardiness as an interpersonal resource that promotes long-term well-being in the face of negative life events (Salgado, Suvak, et al. 2000).

Sense of coherence (SOC) is a related concept, introduced by Antonovsky (1987) in an attempt to explain how people stay well, despite having to deal with high levels of stress. He described SOC as a dispositional orientation presumed to engender and enhance health, and as a cognitive and emotional appraisal style, which is associated with effective coping, health-enhancing behaviors and social adjustment. It reflects a perception of the world, which mitigates life stress. The three components of SOC are comprehensibility, manageability, and meaningfulness.

Comprehensibility is described as when:

> One perceives the stimuli that confront one as making cognitive sense, as information that is ordered, consistent, structured, and clear, rather than as noise–

> chaotic, disordered, random, accidental, inexplicable. The person expects that the stimuli he or she will encounter in the future will be predictable or when they do come as surprises, they will be orderable and explicable. (Antonovsky, 1987, p. 7).

Manageability he described as, "the extent to which one perceives that resources are at one's disposal which are adequate to meet the demands posed by the stimuli that bombard one" (Antonovsky, 1987, p. 7). Meaningfulness is:

> [T]he extent to which one feels that life makes sense emotionally, that at least some of the problems and demands posed by living are worth investing energy in, are worthy of commitment and engagement, are challenges that are "welcome" rather than burdens that one would much rather do without (Antonovsky, 1987, p. 8).

Dunning (1999) proposed that a salutogenic model that serves as a postintervention strategy to reduce police trauma.

Denial

Bresnitz (1983) described denial as a defense mechanism through which a person attempts to protect him- or herself from painful or frightening information related to external reality. Several studies of PTSD in police officers following shooting incidents have found that their macho self-image and police culture results in the common use of denial or psychic distancing as a mechanism for coping with traumatic stress (Gersons, 1989; Maniolas & Hyatt-Williams, 1993; Williams, 1987).

Dissociation and Psychic Numbing

Dissociation has been defined as "the compartmentalization of experience, identity, memory, perception, and motor function" (Spiegel, 1994, p. ix). Emotional numbing, which has sometimes been regarded as a part of dissociation (Spiegel, 1994) is described as loss of interest, detachment from others, and lack of emotional responsiveness (Feeny, Zoellner, Fitzgibbons, & Foa, 2000). Initial emotional numbing, two weeks after an assault, has been found to be predictive of PTSD, and predictive of PTSD severity three months later (Feeny et al., 2000).

Social Support

The relationships between the availability of social support, the capacity to access that support, and the response to traumatic events has a long history of study in literature. Recent studies that examined the role of social support in policing include that of Stephens and Long (1999) in the New Zealand Police, and Harvey-Lintz and Tidwell (1997) in the Los Angeles Police Department following the 1992 civil unrest in that city. Both studies demonstrate that the availability of support, together with the capacity and willingness to seek out support, reduce levels of traumatic stress.

RESILIENCE IN THE SOUTH AFRICAN POLICE SERVICES

To better understand the relationships among traumatic exposure, emotional distress, coping and resilience, a two-part study was undertaken in partnership between the Psychological Services of the SAPS, and the South African Institute for Traumatic Stress. The first part of the study comprises a survey of 966 members of the SAPS working in Gauteng Province of South Africa. The second is a qualitative analysis of focus groups run with those members identified by their commanding officers as having a history of being successful at work and at home. This represents an attempt to understand what makes for resilience in the face of high levels of traumatic exposure experienced in the line of duty. For the purposes of this chapter, we focus on the first part of the study, the results of the survey that are applicable to the broad range of members of the SAPS, and not merely to a select few who are particularly resilient.

Participants completed a battery of instruments designed to assess their level of traumatic exposure both in the line of duty and in their private lives. The battery also assessed their level of organizational and work stress, their levels of traumatic stress symptomatology, levels of dissociation, and factors relating to psychological resilience including sense of coherence and the degree and kinds of social support available to them.

Participants are drawn from a diversity of units within the SAPS, come from a wide range of backgrounds, and differ widely in experience and rank. Major language groups include Afrikaans (33%), English (7%), North Sotho (14%), South Sotho (10%), Tswana (13%), and Zulu (14%). The vast majority (85%) of the total sample was male, and 61 percent of the sample were African and 34 percent White. (Although the inclusion of skin color may seem arbitrary to many readers, South Africa's particular history of institutionalized oppression of dark skinned by light-skinned people makes this distinction indispensable to the current analyses.)

The survey enabled researchers to accurately quantify the type and amount of traumatic exposure experienced by members of the SAPS. Staggeringly high levels of exposure support the more general statistics mentioned earlier. Table 8.1 describes the percentage of the sample who reported a selected range of potentially traumatic events once, twice to five times, six to nine times and ten or more times.

TABLE 8.1
THE FREQUENCY OF EXPOSURE AND REPEAT EXPOSURE TO VARIOUS TRAUMATIC EVENTS REPORTED BY THE SAPS.

	Frequency of Exposure in Past Year on Duty (%)			
Event	*1*	*2 - 5*	*6 - 9*	*10 +*
Present when member killed intentionally	5	3	1	5
Present when member killed accidentally	4	3	1	3
Seriously assaulted	4	4	1	4
Shot at	6	4	2	5
Trapped in life threatening situation	5	10	2	4
Seen someone dying	6	10	3	13
Encountered body of recently deceased	5	10	5	26
Encountered sexually assaulted child	6	13	4	13
Suicide scene	7	12	4	17

Equally unsurprising are the high levels of symptomatology associated with posttraumatic stress (PTS). The sample was presented with the Impact of Events scale-revised (IES-R) (Weiss & Marmar, 1997) that lists the various symptoms associated with posttraumatic stress and related disorders and requires that the respondent answer whether he or she experiences that symptom "never," "occasionally," "sometimes," or "often." For the purposes of this analysis only, a response of "sometimes" or "often" was counted as the person experiencing that symptom. Respondents who reported less than ten symptoms (out of a total of twenty-one) were placed in the "Low PTS" group. Those who reported between ten and fifteen symptoms were placed in the "High PTS" group, and subjects who reported sixteen or more symptoms formed the "Extremely High PTS" group. Table 8.2 illustrates that more than half the sample fall into the "High" and "Very High" groups.

TABLE 8.2
THE DISTRIBUTION OF SYMPTOMS; CLASSIFIED AS LOW, HIGH, AND VERY HIGH POSTTRAUMATIC STRESS

PTS Group	*%*
Low PTS (less than 10 symptoms)	46
High PTS (10 to 15 symptoms)	29
Very High PTS (more than 16 symptoms)	25

These high levels of PTS symptomatology are compatible with those found by Kopel and Friedman (1999) in an earlier study of members of the Internal Stability Unit of the SAPS, the unit which was exposed to extremely high levels of violence in the late 1980s as the South African political situation became increasingly violent in the buildup to the removal of the apartheid government.

Although it might be expected that levels of exposure and therefore PTS symptomatology would be predicted by length of service in the SAPS, this turns out not to be the case. Because the sample contains many police officers with widely varied job descriptions, including those who staff client service desks in police stations, the relationship between length of service and traumatic exposure is not as simple as might be imagined. It is clear, however, that the level of PTS symptomatology is significantly related to the amount of exposure in the line of duty ($df = 2$, $F = 9.86$, $p = 0.000$).

One of the first lessons that every mental health provider working with traumatic stress learns is that people respond differently to the same events, and that it is fairly difficult to predict who will cope and who will not. Put another way, even when we know the details of the immediate traumatic exposure, the traumatic history, and the coping skills of a client, we are often unable to predict that client's response to a particular traumatic event. This suggests that there is some other ingredient to emotional health in the face of traumatic exposure that we have yet to fully understand. This "other ingredient" is psychological resilience.

UNDERSTANDING PSYCHOLOGICAL RESILIENCE

When individuals are exposed to repeated traumatic events, such as is the reality for SAPS officers, the question of resilience is more salient than it is in the general population. A small group of officers begins to emerge, who, with the same backgrounds and training as their colleagues, working in the same environment and exposed to the same traumatic stressors, somehow

remain psychologically healthy. What psychological process enables a person to adapt to, or to become inured to, the horror of human suffering, and what is the cost of such resilience?

The twin peaks effect (Fig. 8.1) (Friedman 1996, 2000) describes the natural attempts made to cope with such exposure in those for whom repetitive exposure to trauma is a regularly occurring hazard. It attempts to explain some of the problems with such attempts and points to possible interventions that may be more helpful both in the short and long term.

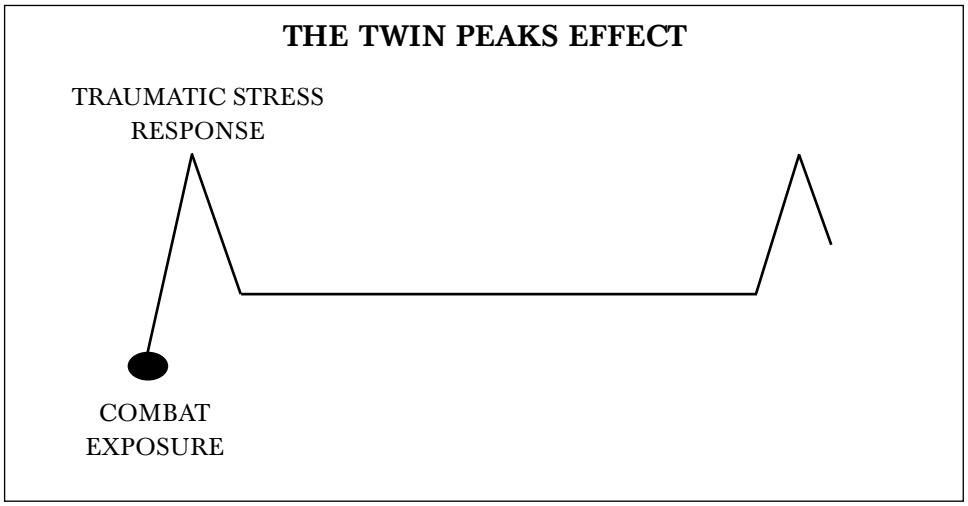

Figure 8.1 The twin peaks effect.

This model was derived from a need to organize the information about exposure to continuous or multiple trauma. In South Africa there has been ongoing violence for many years. "Post" traumatic stress disorder assumes that the traumatic event is over and does not address this situation. Neither does complex PTSD as it also assumes that the traumatic events, although multiple, are in the past. Being faced with situations in which the trauma is ongoing, and in which the person must return to a threatening and violent environment, requires a different understanding and, it is suggested, a different kind of intervention to that posttrauma.

The model, derived in large part from military research where ongoing exposure is expected, is an attempt to illuminate this issue. Findings from the military literature indicate that there are two points at which a group of soldiers are likely to become psychologically incapacitated. The first point is soon after first exposure to the traumatic stressors of battle and is currently known as "acute combat stress" (Shaw, 1987; Swank & Marchand, 1946). Soldiers suffering from acute combat stress are often unable to return to bat-

tle. Thereafter, the remaining soldiers become increasingly battle wise, remain highly efficient, and are able to function well even with continuous exposure for an average of sixty days. Following this period there is a second point of fallout, which has been called "combat fatigue." Thus, in following the progress of a group, there are two peaks of traumatic response connected by a period of resilience to exposure. This is illustrated in Figure 8.1.

The question then arises as to what characterizes the period of resilience between the two peaks, and what processes enable some soldiers (and possibly police officers) to attain and sustain this state. Police officers describe themselves as having become "used to" traumatic exposure, a phrase reminiscent of Laufer's (1988) "routinized traumatization of war." Are these people truly resilient as they seem to believe, or are they merely delaying the onset of the emotional consequences of their traumatic exposure?

Negative Resilience

Friedman (1996) argued that the period between the two peaks represented a period of "negative resilience" (apparent adaptation that conceals negative reactions) characterized by dissociation, numbing, and denial. Although this kind of resilience associated with military combat lasts approximately sixty days, the time frame associated with policing, and the different type and level of exposure, is extended considerably. In the French police, the time between joining the police force and successful suicide attempts, an indication of officers reaching the second peak, has been estimated to be approximately sixteen years (The Guardian, 17 March, 1966). In the SAPS, it has been suggested that this period of "negative resilience" lasts approximately three to four years (Wiese, 1998, Personal communication with SAPS Psychological Services).

Disenfranchised Distress

Negative resilience is considered to be the result of "disenfranchised distress" (Friedman, 1996), a reflection of the organizational climate common to armies, police forces, and multiple other agencies, where emotional expression is censured, particularly where the emotions being expressed are fear, horror, helplessness, and distress. Disenfranchised distress is derived from the notion of disenfranchised grief (Doka, 1989) and may be defined as distress experienced but not allowed (Friedman 1996). Disenfranchised grief is strong distress experienced by an individual over an event that he or she feels it is not permissible to grieve.

Thus, when people are prevented from expressing their feelings concerning a traumatic experience they may develop an apparent resilience, which

lasts for an unspecified period of time depending on the severity and frequency of ongoing traumatic exposure. At some later stage, often years later, for many if not most something will happen that will destroy that "resilience," and the now-seasoned soldier or police officer will move into the second peak. This is often termed burnout, combat fatigue, or PTSD and is the time that the officer is boarded, hospitalized, attempts suicide or family murder, or may even run amok.

Disenfranchised distress and its effect on negative resilience are thought to be dependent on a number of well-documented psychological processes, namely denial and numbing or dissociation. If this is true it is possible to make a range of predictions about negatively resilient people to test the model. However, this process is defined as negative resilience rather than positive based on the following concerns:

- It is very difficult to deny and numb selectively. This process is usually a blanket defense the results of which tend to become part of the personality often termed the "tough cop."
- In order to keep the resilience in the face of multiple traumas, police officials often resort to using substances such as alcohol or drugs. When asked why they drink, the response often is "to stop feeling the feelings."
- If denial and numbing/dissociation implies that one does not care and one does not feel, then, it is suggested, that corruption is a very easy next step.

This kind of resilience often does not last forever and is likely to result in the second peak or burnout/PTSD. As it turns out all these are true of the SAPS and other police forces worldwide. Blackmore (1978) worked with 2,300 police officers in the United States and found that 37 percent were experiencing severe marital difficulties, 36 percent had serious health problems, and 33 percent were struggling with addictions, largely to alcohol. This study also revealed that suicide was six times more common among police than the general population, and that divorce was twice as common.

Thus a more generalized model of the twin peaks effect allowing for the fact that negative resilience is not absolute, and that there are warning signs of the eventual collapse in the form increasing symptoms of traumatic stress over time (Kopel & Friedman 1999), of increased alcohol and drug abuse, reduced ability to negotiate personal and work relationships, and so on. This model is described in Figure 8.2.

This model (Fig. 8.2) suggests that a large proportion of the SAPS, although they might appear to be psychologically healthy are actually not so, an hypothesis supported by the high levels of PTS symptomatology reported earlier. However, when asked to identify SAPS members who display

none of the signs of PTS nor of negative resilience, commanding officers had little difficulty selecting such people. This would suggest that although rare, "positive resilience" is also possible. Positive resilience can be thought of as the capacity to endure, and adapt to, repeated exposure to potentially traumatic events and retain the capacity to live a well-rounded and healthy life and maintain healthy relationships.

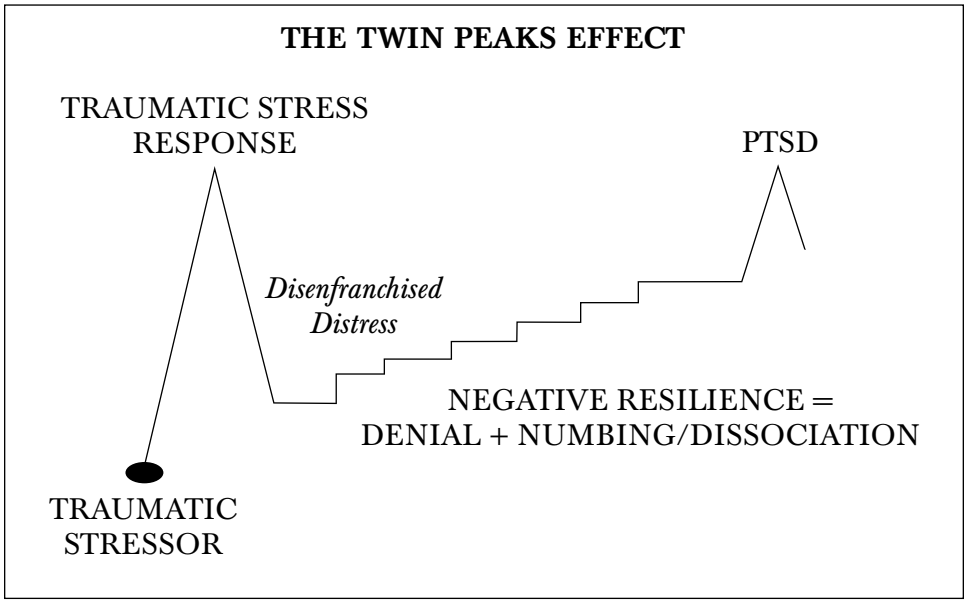

Figure 8.2. The twin peaks model and negative Resilience.

Positive Resilience

Factors in the current study that are negatively associated with both PTS symptomatology and dissociation are social support and all three of the sense of coherence scales, namely meaningfulness, manageability, and comprehensibility. Occupational stress and dissatisfaction is positively associated with both PTS symptomatology and dissociation. These relationships are summarized in Table 8.3.

This suggests that social support, meaningfulness, manageability, and comprehensibility, among other things, are all characteristic of positive resilience, and that high levels of occupational stress and dissatisfaction erode such resilience.

TABLE 8.3
CORRELATION MATRIX FOR SUPPORT, COHERENCE, AND OCCUPATIONAL STRESS AND PTS SYMPTOMS AND DISSOCIATION

	PTS Symptomatology	*Dissocation*
Social Support	-0.196 **	-0.167 **
Meaningfulness	-0.205 **	-0.331 **
Manageability	-0.294 **	-0.373 **
Comprehensibility	-0.272 **	-0.348 **
Occupational Stress	0.246 **	0.135 **

(** $p < .001$)

As we look toward discovering the magical key that will unlock the process of building positive resilience to facilitate the capacity to deal with repetitive traumatic exposure, we know that this is neither simple nor easy. We also know that the police systems into which young men and women enter with such hope and vision change them and sometimes destroy them through overwhelming exposure to difficult events. It is therefore our responsibility to those in whom we lay our trust not to desist from trying to understand the processes that will enable them to live happier and more healthy lives.

In this study and in others related to this we are beginning to discover some of the risk and protective factors. The major risk factor appears to be occupational stress, and the most significant feature is promoting positive resilience, the aspects of sense of coherence and social support.

An interesting and challenging feature of the research literature is in the area of dissociation and the possibilities that evolve from using this capacity adaptively to "Switch" the emotional responsiveness off when exposure to trauma is expected and "Switch" emotional responsiveness on again when the exposure is over. The capacity for "Switching" off is a well-recognized one for many police officers. The ability to "switch" on again appears to be in the domain of the few who have developed this feature that makes for positive resilience. This is the area that we hope to focus on in the future development of this study.

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Chapter 9

SENSE OF COHERENCE IN MANAGING TRAUMA WORKERS

CHRIS DUNNING

INTRODUCTION

Employers and managers of workers responding to trauma have long accepted the fact that mental injuries might result from such deployment (Dunning & Silva, 1980; Paton & Violanti, 1996; Violanti & Paton, 1999). The duty to prevent and ameliorate such mental injuries has led to the implementation of a few intervention strategies in organizations of high risk for employee traumatization in the performance of occupational responsibilities. Numerous police, fire, rescue, disaster, emergency medical, crime, and accident mitigation services have established policies and some programs to mitigate work-related trauma. If one focuses on the official goals for which psychological interventions were intended to prevent, mitigate, and/or ameliorate distress and trauma among those whose professional duty requires them to serve an occupational or voluntary role in disaster, crime, accident, war, or violence response, they would include the following:

1. Maintaining optimal individual, group, and organizational performance of ascribed duties and services during and after trauma response.
2. Maintaining a reasonable standard of care to prevent or reduce the severity of work-related injuries sustained in the performance of official duties as mandated by various governmental statutory and administrative codes, collective bargaining agreements, professional standards, and common practice in the field.

3. Provide support for rehabilitation and remediation subsequent to a work related injury to return the worker to duty, other employment, or disability as prescribed by contract, insurance agreement, or workers' compensation law.

No administrator wants to intentionally contribute to the stress, trauma, or ineffectiveness of the workers, especially after the harrowing experience of a traumatic event. Concern for trauma mitigation and worker safety remains of utmost importance in the management of trauma workers. Understanding how to react and proceed with both informal and formal responses to trauma management has resulted in the establishment of intervention models for trauma experience as the standard of practice in most trauma mitigation organizations.

PREVAILING INTERVENTION MODES: PRE- AND POSTEVENT

Two types of intervention have been practiced, although far from routinely, to address the issue of the possibility of stress and trauma induced by occupational response to events that have been known to precipitate situations in which workers subsequently were negatively affected from moderate impairment to psychological disorder. One approach assumes that training, either routinized tactical training or stress inoculation will:

1. Act as a preventive measure to expose the worker to the horror and gruesomeness of potential work situations before the fact, thus desensitizing the real-life experience;
2. Allow workers to enter into "automatic" mode to act without thinking while blocking out the potentially traumatizing factors that might be present in the situation; and
3. Instill a set of beliefs and expectations about the occurrence of certain reactions in order to normalize and validate their experience, thus supporting acceptance and pursuit of treatment.

The other, defusing and debriefing, suggests that exposure to an event that meets predefined standards of trauma requires that all workers involved require professional psychological intervention, generally in the form of a group process. Anecdotal and empirical evidence suggests that response to such an approach ranges from aggravation and anger at employers for being compelled to participate, even at a voluntary level, to a neutral response, to indications that participation may result in greater severity and chronicity of

symptoms (Bisson & Deahl, 1994; Carlier, Uchelen, van Lamberts, & Gersons, 1998).

WHAT ELSE MIGHT WORK?

Barnes and Thagard (1997) introduced their paradigm of the need for coherence in comprehending, integrating, and living with trying circumstances by discussing what we know about the efficacy of psychological interventions. They pointed out that Dawes (1994) surveyed the empirical evidence concerning the effectiveness of psychotherapy and determined that although therapy does help people, the training and approach of the therapist has no statistically significant influence on the success of the therapy. Length of therapy is also unrelated to success. Dawes (1994) concluded, however, that "empathic" therapists are more effective, although he failed to provide an account of what constitutes empathy. It signifies the ability to comprehend another's state without actually experiencing it. Empathy refers to the attempt to comprehend either positive or negative states of another (Barnes & Thagard, 1997). One might surmise that individuals who do not seek out the services of psychotherapists might have found empathic support in other quarters. Common sense tells us that it is preferable to experience empathic feedback than that which is critical or rejecting. Victims have long railed against the secondary wounding experienced by contact with professionals who appear to lack empathic understanding of the victims' experience or circumstances.

Empathy

In empathy, the self is the vehicle for understanding, and it never loses its identity. Sympathy, on the other hand, is concerned with communion rather than accuracy, and self-awareness is reduced rather than enhanced. That is why being told "I know how you feel" causes us to rankle and respond "No, you don't!." According to Thagard (1997), in empathy one substitutes oneself for the other person; in sympathy one substitutes others for oneself. His explanation is that to know what something would be like for the other person is empathy. To know what it would be like to be that person is sympathy. In empathy, one acts "as if" one were the other person. The object of empathy is understanding. The object of sympathy is the other person's well being. Empathy is a way of knowing; sympathy a way of relating (Chismar, 1988; Wispe, 1987, 1991).

Extending our concept of empathy to cognition, Oatley (1992) presented a theory of emotion that incorporates the phenomenological and physiological aspects of emotions and emphasizes their cognitive aspects. He contends that the basic human emotions are all intimately connected with goals. For example, happiness occurs when individuals are accomplishing their goals, sadness occurs as the result of failure to accomplish goals, and anger is directed at whatever blocks the accomplishment of goals. The relations between goals and emotions can be put to work in seeing how empathy operates analogically (Thagard, 2000). Empathy requires that there be a systematic correspondence between the situations of the empathizer and the other, so that processes of analogical mapping, which may be conscious or unconscious, are required. In order to imagine ourselves in another's shoes, it is necessary to use the materials of our own experience, which most supervisors and managers have as a result of their occupational experience. Therefore, it is possible, in fact advantageous, for managers to be empathic. To accomplish this, they must develop analogous beliefs, principles, and experiences. Of the greatest importance for the empathy to be perceived is the selecting which bits of experience to use. Thagard (1999) in Ethical Coherence characterized coherence as maximization of satisfaction of positive and negative constraints. To ascertain what might maximize satisfaction, it is necessary to understand the personality of those in protective service employment. All occupations have belief systems about their skills and abilities. These beliefs and their evaluation of level of competence provide the measure against which protective service employees evaluate performance. In essence, protective service workers believe that their occupational role is:

Prevention
Protection
Intervention
Mitigation
Remediation/Recovery
Investigation
Resolution/Retreat/Redesign

Protective service employees must believe that their actions served to have a substantially beneficial impact on the situations to which they responded. Questioning of the efficacy of their response, either by public, media, superiors, or the workers themselves creates the potential for the secondary wounding that so often leads the traumatized to ruminate over their actions and behaviors in the event. The "if only" questions, whether internally expressed or to which they might subsequently become externally subject to review, become the shattered assumptions that Janoff-Bulman (1992) informs us is integral to the development of trauma.

Coupling the experience of empathy with its potential to serve as a feedback loop, we have created what Yehuda and McFarlane (1997) characterize as the "transition state" that occurs immediately after experiencing a traumatic event. They cite peritraumatic dissociation during the event, neurobiology of the individual, and Transition State as being important to the determination of the development of trauma. The ecology of the traumatic event has long been recognized as important to the recovery of the traumatized, but what have not been adequately explored are the cognitions associated with feedback in traumatic stress studies. Although we have acknowledged that events such as disclosure of sexual abuse may be more traumatic to the child than the act itself; that being taken from the home may be more traumatic that the physical abuse; or that the medical examination or court testimony may be more traumatic than the rape, what has not been adequately documented is the effect that reaction, interpretation, and empathy expressed by others may have on those experiencing a traumatic event. Victims often speak of the devastation caused by "secondary wounding" as they perceive others to ascribe blame, withhold validation, denigrate severity of experience, or otherwise contribute to the victim's sense of shame and injury. Police officers, for example, have cited the gun review board or internal affairs inquiry as being far more traumatic than the experience of the shooting.

Yet, Cronen (1995) suggested that it is possible to manage the transitional state by attention to the contribution made by human action and communication to others who have communally shared a negative experience. In coordinated management of meaning, those having contact with people seeking meaning are encouraged to establish a context for the experience. That means placing the event within occupational and organizational principles, beliefs and schemas, and history. The focus on communication is to:

- Identify relationships between stories, not to focus on individual acts or reactions;
- Describe antecedents, acts, and consequences;
- Ientify moral forces acting within and subsequent to the event;
- Describing person position;
- Describe patterns of consciousness and recall;
- Describe patterns of emotion;
- Analyze subsequent actions and forces.

What is often cited as the worst situation to be in after a traumatic event is to be in the dark. Not knowing how actions are interpreted, how decisions are analyzed, or what might come next is just as traumatic for the worker. To

be isolated, separated from one's work cohort, or to receive no communication from superiors adds to the stress and perception of trauma for the worker.

SENSE OF COHERENCE

Antonovsky (1991) specifically focused on this period of time subsequent to the traumatic event in his research on the management of cognition on trauma recovery, both physically and mentally. He put forward the concept of sense of coherence (SOC) to identify what mental state and future orientation best resulted in recovery. In his conception, stress mitigation and mediation could be found in psychosocial and cultural influences on human adaptation (Horsburgh, 2000). Antonovsky (1990a) argued that it was time to move beyond individual diseases and their unique etiology to search for common phenomena that enhance individual's ability to adapt. It is these "generalized resistance resources" that serve the individual to recover. In his theory of salutogenesis, Antonovsky (1993) posits sense of coherence, or focus on comprehensibility, manageability, and meaningful as important ingredients to trauma recovery, physically and mentally.

Philosophers have described three types of theory that can be appropriately labeled coherence theories (Firth 1964; Linde, 1993). These are: (1) the coherence theory of truth; (2) the coherence theory of concepts; and (3) the coherence theory of justification.

The coherence theories suggest that truth, our concepts, and the need for justification all contribute to a scheme: a system of meanings that cohere to create the new reality. In their coherence, these beliefs, assumptions, and concepts contribute to new guiding principles for the future, direct repercussions for previous acts and contribute to the cognitions concerning the present.

Dudek and Koniarek (2000) studied relationships between levels of PTSD symptoms and the SOC in firefighters along the dimensions of comprehensibility, manageability, and meaning. Of 464 firefighters interviewed to assess symptoms and the presence/absence of PTSD, they found the higher level of PTSD symptoms was associated with the lower level of the SOC. A small group (3.9%) of participants who experienced traumatic events met *DSM-IV* diagnostic criteria for PTSD. The SOC of these people was significantly lower than that of others, suggesting the need for management of sense of cohesion to mitigate or mediate trauma. But who should act to support the trauma worker in developing comprehensibility, manageability, and meaning to perpetuate a SOC? Should this be accomplished by an empath-

ic mental health professional? Or can such support be afforded by others? Antonovsky (1987) defined the SOC as a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that:

1. The stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explicable;
2. The resources are available to one to meet the demands posed by these stimuli; and
3. These demands are challenges, worthy of investment and engagement.

It would seem such a task could be performed by trauma, emergency, government, rescue, medical, disaster, and public safety managers.

Is SOC within the realm of the competence and purview of managers? Comprehensibility, the cognitive component, refers to the extent to which individuals perceive the stimuli that confront them as making cognitive sense, as information that is ordered, consistent, structured, and clear, rather than as noisy, chaotic, disordered, random, accidental, and unpredictable. Perceiving events as comprehensible does not mean that the events are necessarily benign, nor does it mean that they are completely predictable. Manageability, the instrumental component, is the extent to which people perceive that resources are at their disposal that are adequate to meet the demands posed by the stimuli. This is not to imply that resources must be directly under one's control. Control of resources may rest with supervisors. Finally, meaningfulness, the motivational component, refers to the degree of commitment one has to various life domains. It is the emotional counterpart to comprehensibility in that it denotes emotional investment in life. Meaningfulness provides the sense that certain areas of life matter, that they are challenges worthy of time and effort (Korotkov, 1998). What managers need is a paradigm and a construct to legitimize managing SOC as part of their duties.

ORGANIZATIONAL SENSE OF COHERENCE

Administrators are much more likely to embrace a new concept if it emerges from a trusted or valued source. In this case, a new organizational concept gaining attention in business management due to the complexity of managing organizations in the posttechnological decade is that of coherence. Coherent actions are those actions that make sense to the necessary others in our organizations. Incoherent actions do not. Coherent actions are ones that

not only happen without discord, but which do not summon anxiety when viewed in retrospect. What makes actions coherent is that the sets of people who take part in them react with "that makes sense" and do not react with surprise or anger. Lissack and Roos (1999) aligned with many of the modern management books today by stressing that we all live and work in a complicated world that defies simplification. Workers are forced to endure chaotic lives. They asserted that organizations must respond to complexity by creating a mental architecture in the minds of employees that will bypass the chaos of the world and make things sensible to the individual and work group.

The study of emergence in organizations, organizations in a changing environment, suggests that coherence is efficiency in action whether applied to people or to organizations themselves. Coherent people thrive mentally, emotionally, and physically. Coherent organizations thrive in attainment of their purposes. Coherence is not perceived as a rigid state, but rather is a process that reflects the ongoing alignment of identity, purpose, and values. The need for coherence is especially important in organizations characterized by constant chaos and change. This describes most organizations whose mission it is to respond to society's most violent, horrific, and gruesome events.

The paradigm through which Lissack and Roos (1999) viewed the presence of coherence as between the organization's goals, its viewpoint, and its actions. A coherent organization is more likely to contribute to the accomplishment of shared purpose. They advocate close to a dozen management lessons; examples include use simple guiding principles (belief statements), use landscape metaphors (imagery), tell stories (metaphor), and so forth. According to Lissack and Roos (1999), the old common sense in organizations was about how to deal with the separate and freestanding units of a complicated world, in this case separate events or type of response. The next common sense is about mastering the complex swirl of interweaving events and situations around us. What Lissack and Roos (1999) suggested is that mastering the complexity through finding, nurturing, and communicating coherence are the critical tasks for today's managers. They posit that today's management is all about interactions rather than entities, about the effects of relationships between people inside and outside the organization rather than about controlling entities like distinct groups of employees. Managers need to shift the focus of management from things to processes and from entities to interactions. To do this, the administration must find coherence, enable coherence and communicate coherence, which become the critical tasks of management. In Lissack and Roos' (1999) perspective, when purpose and identity are aligned, they create a context from which actions can be understood as well as performed. That alignment evokes a point of view called the

"coherent point of view." In slang terms, it may be referred to as "being on the same page," yet it is much more. What coherence does is create alignment with institutional history, organizational and occupational culture, recent past, and perceived future. Coherence is necessary if actions are to make sense, be comfortable, and are accepted. Actions then promote further development of the coherent point of view. It is this positive spiral of coherence—a set of interactions—that lead to further interactions and perceptions of a positive nature.

> By purpose we mean the reason for being or doing: Why am I doing what I am doing? By identity we mean an evolving, moving intersection of the inner and outer forces that make each of us who we are, converging in the answer to the question: Who am I? Both purpose and identity are rooted in a set of basic human values ("right versus wrong," "good versus bad") and filtered through a set of guiding principles ("seek honesty"). These filters are not grand missions ("to be the leading biotech company in the world") or high ideals ("the bottom line") or instructions ("render unto Caesar"). Instead, they are simple checks and balances that what is expressed as purpose or identity matches the values from which they are drawn. (Lissack & Roos, 1999).

In this conception, coherence helps us understand the role of the organization through its administration and managers in assisting workers to weather the disruption of experiencing work-related trauma, especially in those organizations where it is inevitable. In organizations such as the police, fire, emergency medical services, danger exposure services, statistically identified high-risk occupations such as taxi driver, construction or steel worker, and so forth, such a managerial approach would seem a required safety technique. What coherence can do is enable actions to be grounded in certainty of purpose, identity, context, and future. Roos and Lissack (1999) pointed out that incoherence and "decoherence" (*sic*) reveal themselves by uncertainty, shame, or actions that defy sensemaking. In their conception of management, coherence is only a part of culture—in society or in an organization. Cultures provide context for being coherent or not. An organizational culture that thrives on inducing shame is incoherent. By contrast, an organization whose actions make sense to its members and stakeholders has found a coherent viewpoint from which to guide actions. It has coherence. Thus, managers and administrators have an obligation to make occupational tasks and performance coherent. That coherence is important is seen in the dissension that "Monday morning quarterbacking" causes the organization and its members stress, raises questions concerning trust, and heightens discord.

In *The Centerless Corporation*, Pasternak and Viscio (1998) put forth the notion that coherence is what holds the organization together. It is the glue

that binds the various pieces enabling them to act as one. It includes a range of processes beginning with a shared vision and shared set of values and beliefs about what the organization and the individual can and cannot accomplish. Coherence is the antidote to uncertainty. In organizations, uncertainty is evidenced by an unwillingness to act. Once the will exists, so too does the certainty. A coherent perspective increases the willingness and reduces the periods of uncertainty as members and the organization tolerate ambiguity. According to Lissack and Roos (1999) coherence can be seen as:

- A potent binding force
- What makes an organization or group greater than the sum of its parts
- Glue keeping a group together despite forces pushing it apart
- The directional arrow on a compass, the "ideal"
- Allowing flexibility, sharing, communication, linkages
- A process of change

Although coherence has not yet become conventionally noted in managerial contexts, its critical role is well recognized in other fields. In psychology, for example, professional practice is based on the recognition that a unified perspective is needed to make full sense of the world as each of us perceives it. This unified perspective is described by psychologists as "coherence," and those who possess it are "coherent." Coherence is the glue that holds the entity together. Here is where psychology and managerial science can intersect. Confusion, uncertainty, and ambiguity caused by traumatic events generally result in reductive practices of examining individual parts of the event, searching for individual causes, and sorting things out but frequently fail to eliminate much of the uncertainty felt by the individual worker, work group, or organization. In that failure lies the explanation for many if not all of the incoherent actions frequently described as "everyone acting crazy after the event, not knowing what to do or where to go."

Certainly it can explain such actions as taking the keys from the ambulance on the site making it impossible to clear the scene to allow rescue vehicles to leave or enter the blocked access. Uncertainty is accompanied by a perception of diminished control or power, much as Janoff-Bulman (1992) reminds us in *Shattered Assumptions* that people strive to maintain cognitive constancy. Our need for stability and coherence places great emphasis on frame of reference and our "horizon of expectations." Lissack and Roos (1999) stated that few of us like that perception, least of all workers with a strong internal locus of control, in fact it is the source of the emotion called shame. Shame leads to even greater search for certainty, control, and a firm place to stand. Janoff-Bulman (1992) pointed out the central role of the need for the survival of the conceptual system, which is in a state of upheaval and

disintegration during and following a traumatic event. The very assumptions that had provided psychological coherence and stability in a complex world are the assumptions that are shattered by trauma.

Mastering complexity means having a coherent viewpoint to guide action in spite of the confusion, uncertainty, or ambiguity that are introduced by the demands, situations, and interactions that exists synchronous to violent, disastrous, and catastrophic events. It is possible to take the ten ideals put forth by Lissack and Roos (1999) and apply them to good emergency management techniques for supervising either traumatized workers or those whose duty it is to intervene in traumatic situations. They include the following:

1. **Use simple guiding principles and establish simple rules** that are easily understood, readily applicable, and recognize context, including the anomaly, the exception, and the extraordinary when holding workers to the standard. Much is known about the process of attention, perception, decision-making, and short-term memory disturbances during peritraumatic response. Trauma workers should not be held accountable for autonomic responses beyond their control. Tachypsychic reactions such as tunnel vision, auditory and visual distortions, time disturbances, and dissociation may impair workers' ability to process abstract, complex cognitive processes. Simple rules and procedures are easier to grasp during concrete functioning.

2. **Respect mental models**, yours and others. Our psyches are not printed from cookie cutters; we do not think or process the same; our perceptions and cognitions follow different mapping, and our memories are not alike. Recognizing that perception and recall are but two of the memory processes on which we depend to analyze and act are important in preparing before and evaluating workers after a traumatic event. Encoding, associating, and storing perceptions may also be disrupted by the trauma. Workers need information, knowledge, and training to facilitate association. They need time to process and identify recovery cues for recall. The "Jack Webb" methods of interview and interrogation do not necessarily elicit the quality and quantity of information that managers seek. Methods of cognitive interviewing have proven much more effective in witness recall. Techniques such as these should be considered in supervising and investigating a trauma response.

3. **Use landscape metaphors** and realize that how situations, actions, and events are framed significantly conveys expectation and assessment. If the message being conveyed is critical of performance, worker cooperation may be negatively affected. Empathic understanding of the

trauma experience goes a long way to providing the support the trauma worker needs after deployment without introducing new sources of stress and trauma. Ceremonies and memorial commemorations serve as concrete metaphors acknowledge appreciation for the effort, sacrifice, commitment, and energy made by trauma workers despite a flawless performance. For example, one community erected a statue of a police chief on his knee talking to a young child outside of the police department. The community wished to honor the chief who was killed in the line of duty after he had traded himself for a six-week-old hostage. The statue was erected to honor not just the chief, but also the officer who inadvertently shot the chief during rescue as well as for all police officers who were fathers. In this case, the hostage taker was the son of a police officer. The administration and community were sensitive to the various messages being sent to their officers and sought to send a positive message of appreciation to officers serving children in the performance of their duty and in their role as good parents (Dunning, 1999).

4. **Combine and recombine** information as new knowledge is formed by recognizing that a particular thing is made up of components and combining those components in new ways serves to rehearse potential new situations and desensitize us to those experienced. Uncommon situations require uncommon solutions. In an occupation and service that is predicated on rules, policies and procedures, and standards of practice, it is harder to accept the need for and reality of improvisation. Yet, those same practices have been historically based on the experience of what worked and what did not. Rather than being hampered from or criticized for acting outside usual guidelines, managers should be aware of the damage that can ensue from perception of condemnation or discipline for violations "because actions were not by the book." This is an extremely common source of secondary wounding among trauma workers who felt at the time that the "book" was not applicable or would not work in this extreme case. Consideration for the uniqueness of the event is important for the manager to acknowledge.

5. **Recognize multiple roles, do not dismiss them.** True, administrators, managers, and supervisors need to provide leadership and model and demand good performance, but they must also recognize that no one is perfect. Lissack and Roos (1999) pointed out that only by acknowledging the many sides of each person can a company hope to obtain maximum performance. Singling out one individual worker for assessment has a devastating impact on the group that responded.

Trauma workers see themselves as a cohort, a group of individuals acting as a team. Some workers do not perform, but others take up the slack. The "we all were in this together" mentality leads to supporting and performing others' roles and responsibilities. Trauma workers are sensitive to criticism for stepping outside role, formal organizational mandate, or administrative turf. The rescue needed to happen, whether by a firefighter or a police officer.

6. **Create canyons, not canals.** By that the authors suggest that alignment of an organization's members, groups, and parts is about ensuring that the interests and actions of all employees are directed toward an organization's key goals. To accomplish this, the organization must allow the goal to be accomplished in more than in one strict, formulaic, mechanistic response. It must recognize and encourage creative and innovative methods while providing a framework of safety catch points to ensure important policies and laws are met. Trauma workers often rail against discipline for infractions of rules during the heat of the trauma and question why meeting the goal of recovery, rescue, or protection should not mitigate their decisions.

7. **Tell stories** that allow others the benefit of shared experiences. Lissack and Roos (1999) asserted that merely repeating conclusions or instructions will not do the trick. Stories allow others to relate to fact, context, and emotion and to bring their own interpretation to what they hear or read. They hold that conclusions and instructions provide no room for the person hearing the conclusion or receiving the instruction. Meaning happens from interaction, not from blind passive reception. Encounters are memorable when they are infused with emotion. Stories not only allow emotions to be expressed by the teller but also to be inferred by the listener. Cutting off stories as rumor or entertainment belies their value as sources of validation, learning, and organizational inclusion.

8. **Send out scouting parties.** Administrators and managers must learn from the environment. Paramilitaristic organizations have long believed that preparation is the key to attaining advantage. Managers must stay connected with the reality of the "field." Too often, the balance of expectation between action and emotion is lost when experience is not immediate. Rather than withdrawing from the field, it is imperative after a traumatic event that managers and administrators stay connected to what is happening to workers by creating opportunities to enter the field.

9. **Post and attend to road signs** involves identifying and giving credit to individuals who have acted under adverse circumstances. It is important that administrators recognize individual contributions and allowing others to honor them. Part of that response is to allow individuals to put out signs. It is the responsibility of good management to read them and respond. For example, complaints concerning the lack of the most up-to-date breathing apparatus after the deaths of two paramedic-firefighters after a flashback should be seen as a grief response, not a union challenge.

10. **Fuel coherence with aligned words.** According to Roos and Lissack (1999), one task of management is to assist those they are managing (or leading or guiding or influencing) to visual those "adjacent possibles" that are coherent with the intentions of management. This process, in turn, is dependent on the images and words, and language projected by the manager. Emergence scholars point out that words that are aligned with values and purpose assist intended acts. This is not the time to use "We You-They" words. Words of support, encouragement, recognition, and value are especially important in chaotic circumstances.

CONCLUSION

It is imperative that emergency, disaster, and trauma-response administrators construct a management style to promote coherence and certainty before, during, and subsequent to response to traumatic events. For example, understanding the impact assignment to traumatic events may have on workers should prompt administrators to consider managerial ways in which to incorporate certainty practices into administrative response. At an informal level, new traumatic events bring forward stories of past organizational responses to similar situations. This tends to happen spontaneously and is frequently discouraged by managers who see little utility in "rehashing" and sometimes "glorifying" less-than-perfect performance, because all trauma is by definition a failure. Workers of the present situation learn little but tactics and techniques lessons from these events. The belief systems about standards of performance and reaction are not measured against normal human behavior, but against some "best scenario" outcome. Communication about human fears, perceptions, and meaning are discouraged, if not forbidden. Mental models that allow for the perception of tolerance for some human weakness among workers; that train supervisors to monitor the "road signs" as to the developing "war story" that begins to emerge from such events; and create "islands of security" in respite assignments would be such an example.

Managers need to "talk the talk" of coherence by communicating to the worker a reaction and assessment that reinforces comprehensibility, manageability, and meaningfulness regarding the worker's performance in the event within the context of the organization. They need to be especially cognizant of the profound effect their words and actions can have on workers. Unintended negative consequences can be harder to address and more long lasting and devastating than the traumatic event itself. Cohen and Welch (2000) underscored the ability of the attitudes, beliefs, values, and culture of the organization and its members to mediate the effects of stress and trauma. Administrators must be aware of the messages they send that undercut workers' beliefs regarding their role in prevention, protection, intervention, mitigation, remediation, investigation, and resolution. Coworkers and peers, supervisors, and mental health caregivers must no longer ignore the importance of sociocultureal context and group norms.

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Chapter 10

ENVIRONMENTAL RESILIENCE: PSYCHOLOGICAL EMPOWERMENT IN HIGH-RISK PROFESSIONS

PETER JOHNSTON AND DOUGLAS PATON

INTRODUCTION

In this chapter we extend the discussion of the range of factors capable of facilitating resilience to deal with adversity by considering how organizations and organizational life can contribute to these processes. Two issues are canvassed here. One considers how organizational practices can sustain individual (dispositional and cognitive) resilience within the postevent environment. The second considers how organizations can facilitate a capacity for adaptability, and possibly growth, prior to exposure. In regard to the manner in which resilience is conceptualized in this text, it is important that the environment sustains resilience emanating from individual and group capacities. Here we consider the role of managerial behavior and the organizational climate.

SUSTAINING INDIVIDUAL RESILIENCE

Managers can play a key role in facilitating and sustaining staff adaptability and resilience but often lack the capability and/or willingness to realize their potential in this context (Paton & Violanti 1996; Paton, 1997a, b; Paton, Smith, Violanti, & Eränen, 2000; Violanti & Paton, 1999). For example, a cultural predisposition to suppress emotional disclosure, contempt for those

displaying emotions, or focusing on attributing blame can undermine support provision, inhibit recovery and extend performance deficits. Developing managerial capability as a resilience factor involves training covering, for example: participative and supportive management style; acknowledging and accepting staff needs; identifying and meeting staff needs; communication; planning and contingent plan implementation skills; and delegation (Gist & Woodall, 2000; Paton, 1997b) and managing the "let-down" and reintegration processes (Hartsough & Myers, 1985; Paton, 1997a).

Managers can sustain resilience by acting as role models (e.g., acknowledging their own feelings) and providing feedback to staff (Paton, 1997b). This behavior demonstrates how staff can reconcile the personal impact of the event with the process of returning to work and provides a framework for the positive resolution of their experience. The latter involves helping staff identify the strengths that helped them deal with the traumatic event and using the experience to discuss how future incidents could be dealt with more effectively. Analyses of capabilities in this regard can also contribute to organizational development through, for example, identifying organizational constraints on adaptation (e.g., inadequate policy and procedures for managing reintegration, lack of review processes and/or managerial capability, and level of bureaucracy).

Bureaucratic systems can, through persistent use of established procedures when responding to crises demands, internal conflicts regarding responsibility, and a desire to protect the organization from criticism or blame hinder adaptability and heighten stress vulnerability (Paton, 1997a, b). Systemic flexibility, particularly in regard to participation and co-ordination, is a prerequisite to creating adaptability, control, and self-efficacy (Gist & Woodall, 2000; Paton, 1997a). Here we examine the potential of empowerment to manage these issues and provide an environment capable of promoting and sustaining adaptability and resilience.

EMPOWERMENT

Although a term that is in common usage in organizations, empowerment remains a generally misunderstood and poorly defined construct (Dobbs, 1993; Gagne, Senecal, & Koestner, 1997; Spreitzer, 1995a, 1997; Zimmerman, 1990). Conger & Konungo (1988) extracted two distinct perspectives representative of the management and psychology literatures respectively: the relational perspective and the motivational perspective. The relational perspective acquired its name from its primary concern with the relative power of one individual over another. The motivational perspective is so

named as a result of its focus on the intrinsic motivational experiences of an individual (Conger & Konungo, 1988). As we see, the elementary constructs of power and control, implicit within the notion of empowerment (Spreitzer, 1997), are treated differently depending on the orientation adopted (Conger & Konungo, 1988). Each approach offers contrasting perspectives from which to explore this construct and its implications for understanding resilience to emergency and disaster stress.

Relational Approach to Empowerment

The relational approach argues that empowerment is predominantly concerned with relative power differentials between individuals or groups (Bacharach & Lawler, 1980). Pfeffer (1981) stated that relative power differentials are determined by the relative levels of dependence between people (i.e., if one person is dependent on another, the latter has power over the former). Understood within this framework is the notion that individuals who have power can achieve goals more effectively than those without power.

The relational perspective focuses on reducing dependencies through the giving of power, often in the form of formal authority, decision-making discretion, and resources, by members with higher status to those at lower hierarchical levels (Hardy & Leiba-O'Sullivan, 1998; Quinn & Spreitzer, 1997; Ripley & Ripley, 1992). This is also widely referred to as delegation. Examples of potential organisational practices include increased sharing of information (Breeding, 1996; Cotton, 1996; Ghoshal & Bartlett, 1997; Plunkett & Fournier, 1991; Randolph, 1995), decision making authority (Curtin, 1998; Ghoshal & Bartlett, 1997), rewards based on alignment of empowered behaviour with organizational goals (Bowen & Lawler, 1992; Ripley & Ripley, 1992), training and education to facilitate empowered behavior (Perry, 1997; Plunkett & Fournier, 1991; Randolph, 1995), and the clear communication from top management of a mutual vision (Curtin, 1998; Plunkett & Fournier, 1991).

This focus on delegation of authority led to empowerment also being described in terms of participative management and employee involvement techniques (Conger & Konungo, 1988), including quality of work life, job enrichment (Cotton, 1996), representative participation (Eccles, 1996; Cotton, 1996), and self-directed work teams (Cotton, 1996; Ghoshal & Bartlett, 1997; Randolph, 1995; Ripley & Ripley, 1992; Schipper & Manz, 1992). In the context of this text, can a relationship between these practices and stress resilience be identified? The answer appears to be yes.

For example, job enrichment has been linked, through enhancing role-breadth self-efficacy, to better adaptability (Parker, 1998). Delegation, partic-

ularly in relation to decision-making responsibility, has been implicated as a factor in facilitating resilience in emergency service groups (Gist & Woodall, 2000). In addition, given that information-sharing practices are prominent disaster stressors (Paton & Flin, 1999), an understanding of empowerment from this perspective can provide guidance on the development of resilience policies and practices. Team-based strategies could reduce the tendency to attribute blame to others, reduce the attendant loss in social support and self-efficacy (Gist & Woodall, 2000; MacLeod, 2000), and provide an environment conducive to developing situational awareness and naturalistic decision-making capability (Paton & Flin, 1999). The realization of these benefits, however, requires that attention is paid specifically to efficacy and control issues. These issues are discussed more fully later in this chapter.

Notwithstanding these potential benefits, the preoccupation of the relational approach with participative management techniques designed to reduce power differentials (Spreitzer, 1997), rather than as an inherently valuable construct in itself (Conger & Konungo, 1988), constrains the potential of this construct. In other words, regarding empowerment as a set of management practices tells us little of the empowering experience from the perspective of the individual employee and provides few insights into what is required to develop a resilience culture. This is a particularly important issue from the perspective of professionals for whom resilience is fundamental to their ability to adapt to, resist, and grow from repetitive and/or prolonged exposure to emergency and disaster demands (Gist & Woodall, 2000; Paton & Flin, 1999; Paton et al., 2000).

Noting this, Conger & Konungo questioned whether participative practices are sufficient for creating an empowered individual. The latter, they argued, involves identifying the underlying psychological mechanisms of empowerment, and its causes and consequences (Conger & Konungo, 1988). This alternative model, the motivational approach, provides a stronger basis for exploring the means of facilitating resilience in high-risk professions.

Motivational Approach to Empowerment

Conger and Konungo (1988) proposed that empowerment involves "enabling" people to deal with environmental demands. Individuals' power needs are satisfied when they perceive they have sufficient personal resources to cope with the challenges presented by events, the environment, and interpersonal relationships. The basis of this approach is best encapsulated in relation to the construct of self-efficacy (Bandura, 1986), with its well-documented link to work-related performance (e.g., Stajovic & Luthans,

1998). Empowered people have enhanced beliefs about their ability to achieve a desired level of performance, which may or may not result in expectations regarding certain outcomes; the key is that such individuals develop feelings of capability no matter what their hoped-for outcomes are. The key issue in this chapter is how can this capacity be facilitated by organizational practices and procedures?

Self-efficacy refers to people's belief that they can successfully perform the behavior necessary to produce an outcome (Bandura, 1986). In an organizational context, procedures that enhance one's sense of self-efficacy will make one feel more powerful. In this respect, Conger and Konung's (1988) idea of empowerment as an enabling process is illuminating. To enable is to facilitate the conditions necessary for enhanced self-efficacy, resulting in an increased motivation for effective task performance and enhancing resilience through facilitating a sense of meaning (see also Dunning, 1999). Following this general proposition, Conger & Konungo (1988) defined empowerment as:

> a process of enhancing feelings of self-efficacy among organizational members through the identification of conditions that foster powerlessness and through their removal by both formal organizational practices and informal techniques of providing self-efficacy information. (p. 474)

Crucial to the process of developing an empowered workforce is the identification of the organizational conditions required to cultivate a sense of powerlessness within individuals. More important, following Hart and Wearing's (1995) conclusions, this process should also include a focus on facilitating learned resourcefulness (Dunning, 1999). The information derived from this diagnosis can be used to configure and implement strategies aimed at removing these suboptimal conditions, and implementing those that promote adaptability and resilience (Hart & Wearing, 1995; Paton, Johnston, & Houghton, 1998).

This line of thinking led to the formulation of "the empowerment process," devised with an organizational context in mind, consisting of five stages:

1. Identifying conditions which foster powerlessness (and learned resourcefulness)
2. The use of managerial strategies to encourage self-reliance
3. Provide self-efficacy information and remove or consolidate the conditions identified in stage 1,
4. Resulting in individuals experiencing psychological empowerment,
5. Leading to individuals exhibiting behaviors characterized by initiative and perseverance.

Although acknowledging the seminal work of Conger and Konungo (1988) in releasing the empowerment construct from the constraints of being considered simply as a set of participatory management techniques, Thomas and Velthouse (1990) developed this idea by formulating a more complex cognitive model of the empowerment process.

Thomas and Velthouse (1990) opted to use the term "energy" to conceptualize empowerment. Accordingly, to empower means to energize. This reasoning led to the pivotal role of intrinsic task motivation in the empowerment process model, defined as "those generic cognitions by an individual, pertaining directly to the task, that produce motivation and satisfaction" (Thomas & Velthouse, 1990, pp. 666-681). These cognitions, called task assessments, exist within the individual, relate to the task rather than to contextual factors surrounding the task (e.g., work unit structure), and are taken to be the major cause of satisfaction and motivation. As these cognitive components have become the cornerstone of more recent empirical research on empowerment, a description of each is provided, as well as an analysis of their possible contribution to understanding resilience in high-risk professions.

Meaningfulness: A sense of meaning involves a level of congruence between a task and one's values, attitudes, and behaviors (Brief & Nord, 1990). Ultimately, meaning encompasses how much an individual cares about a task (Thomas & Velthouse, 1990). The obvious link with thinking on stress resilience is evident here given the dominant position that meaningfulness plays in Antonovsky's (1990, 1993) conceptualization of sense of coherence and wellness (Dunning, 1999). Antonovsky defined meaningfulness as the extent to which one perceives life as emotionally meaningful, and that problems and demands encountered are perceived as welcome challenges that are worthy of the engagement of one's energy and capabilities.

Competence: Competence is analogous to Bandura's (1977) notion of self-efficacy. Competence is developed over time through the attainment of various cognitive, physical, and social skills and refers to one's belief in one's ability to perform a given task (Bandura, 1986). Self-efficacy has repeatedly been described as a cornerstone of successful adaptation to adversity and as a basis for resilience (Dunning, 1999; Gist & Woodall, 2000; Parker, 1998; Taylor, 1989). Parallels can also be drawn between competence and another element of Antonovsky's (1990, 1993) concept of coherence: manageability. This describes the extent to which one perceives oneself as having the resources available to meet the demands encountered.

Choice: (also known as self-determination): While the competence dimension reflects a sense of mastery over one's behavior, choice

reflects the extent to which one perceives their behaviour is self-determined (Spreitzer, 1997). "To be self-determining means to experience a sense of choice in initiating and regulating one's own actions"(Deci, Connell, & Ryan, 1989, p. 580). Parallels can be drawn between this element and the construct, learned resourcefulness (Rosenbaum, 1990), which defines a general predisposition to act positively under adverse conditions (Dunning, 1994) and the comprehensibility element of Antonovsky's (1990, 1993) sense of coherence that defines a predisposition to perceive environmental demands as structured and having clarity.

Impact: This refers to the extent to which one perceives one can influence important outcomes (e.g., strategic or administrative) in one's organization (Ashforth, 1989). Spreitzer (1997) pointed out that, where choice concerns control over one's work behaviors, impact concerns the notion of personal control over (organizational) outcomes. Parallels can be drawn between this element and perceived control, another factor that has been widely implicated in thinking on stress resilience and adaptability (Dunning, 1999; MacLeod, 2000; Taylor, 1983, 1989).

According to Dunning (1999), control in complex organizational settings involves multiple goals and meanings, and recognition of this complexity has implications for cognitive restructuring (meaningfulness) and enhancing control in uncertain environments. Relational and motivational models may provide a framework for identifying organizational opportunities for the reinterpretation of performance outcomes from failure to success and increase the range of environmental contexts within which individuals and groups can exercise control; if control over one goal is thwarted, attention can be redirected to others. Also relevant here is the notion of positive illusion described by Taylor (1983) that concerns defining meaning in event causation and impact in relation to the value or purpose the event has for the person (see also MacLeod, 2000). In this way, according to Taylor (1983) meaning and efficacy are closely interrelated.

MacLeod (2000) and MacLeod and Paton (1999) argued that control attributions have important implications for vulnerability in that it may be increased if control beliefs and event outcomes do not coincide. The link among meaning, control, and efficacy may also facilitate a focus on future events, another factor suggested by MacLeod (2000) as facilitating resilience. In contrast, focusing on events perceived as uncontrollable and having a high probability of recurrence may sustain vulnerability. Consequently, realistic expectations, meaning, perceived control, and efficacy must be linked, and this process is embodied in Thomas and Velthouse's (1990) model.

MODELING EMPOWERMENT

The four dimensions of the model combine to form an overall experience of intrapersonal empowerment. As well as being applicable to a certain task, assessments can be generalized across time and across a multitude of tasks (global assessments). Thomas and Velthouse (1990) noted that global assessments facilitate a capacity to deal with new and/or unfamiliar situations, an important factor given the ambiguous and evolving nature of much emergency and disaster work (Paton & Flin, 1999). Global impact can be linked to emotional adjustment, proactive behavior, and resiliency. Global competence refers to a person's ability to perform proficiently in new situations. Global meaningfulness represents a person's general level of commitment to tasks. Global choice is the general extent to which people believe they act with self-determination.

Generally, individuals with high global assessments, compared to those with low global assessments, will tend to be optimistic rather than pessimistic in novel situations. Viewed in this light, global assessments can be thought of as dispositional characteristics of an individual. These characteristics are not permanent, however, as they are subject to change as a function of an individual's cumulative experiences with the environment and the accompanying revised patterns of task assessments.

Both task and global assessments are key factors in Thomas and Velthouse's (1990) "cognitive model of empowerment" (Fig. 10.1), which proposes a process of empowerment whereby environmental events (those wthat provide information regarding consequences about an individual's behavior and about conditions relevant to their future behavior), a person's interpretive styles (e.g., internal or external attribution of failure, how people evaluate setbacks, how apt people are at envisioning success), and global assessments each affect people's task assessments, which, in turn, affects their behavior (i.e., flexibility, resiliency, activity, concentration, and initiative). A person's behavior affects one's environmental events, and so the causal loop continues. Feeding into this process are interventions prescribed to target changes in the environment (e.g. delegation, self-directed teams) and interpretive styles (e.g., self-empowerment programs to teach people styles that potentially optimize their task assessments). Initial empirical evidence showed strong correlations between task assessments and existing measures of intrinsic motivation, job satisfaction, and stress. Evidence was also found, by way of factor analysis, for the four distinct task assessments and the three distinct interpretive styles, described in the cognitive model.

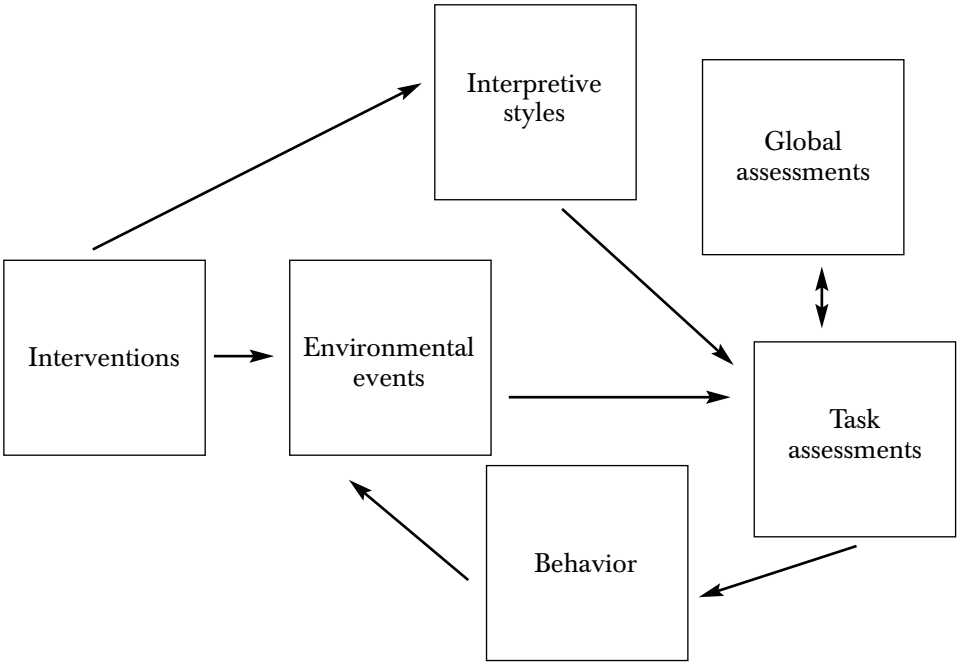

Figure 10.1. Cognitive model of empowerment.
Adapted from Thomas and Velthouse (1990).

The development of these conceptual models, first by Conger and Konungo (1988) and then by Thomas and Velthouse (1990), has major implications for future theorizing and empirical research on empowerment. Separating potential causes (e.g., participative management practices) and effects (e.g., adaptability, resilience, increased task persistence) of empowerment from the actual individual experience of empowerment cleared the path for research examining the effectiveness of organizational, job-specific, and interpersonal factors in facilitating an empowered environment (e.g., Kirkman & Rosen, 1999; Spreitzer, 1995b, 1996). More specific to the model set out by Thomas and Velthouse, (1990) the proposed "task assessments," first adopted by Spreitzer (1995b) as direct measurements of psychological empowerment, have proven capable of withstanding rigorous empirical enquiry, enhancing the validity of the model.

ASSESSING EMPOWERMENT

Drawing on the meaning items from Tymon (1988), the self-determination items from Hackman and Oldham's (1980) measure of autonomy, the impact

items from Ashforth's (1989) measure of helplessness, and adapting the competence items from Jones's (1986) self-efficacy scale, Spreitzer's (1995b) initial work on the measurement of psychological empowerment in the workplace sparked a strong and ongoing interest in the organizational studies literature.

Spreitzer (1995a) confirmed the convergent and discriminant validity (but noted that discriminant validity was not clear-cut) of the four task assessments (meaning, competence, self-determination, and impact) and found evidence that each contributes to the overall construct of empowerment. She examined, more rigorously than previous researchers, the postulated antecedents of empowerment (self-esteem, locus of control, information, rewards), and also the proposed outcomes of empowerment (managerial effectiveness, innovation).

The conclusions of this initial study were positive. Self-esteem and access to information regarding an organization's mission were significantly related to empowerment, suggesting their potential as targets for fostering empowerment in the workplace. Again parallels can be drawn between this work and that examining adaptability to adverse events, with self-esteem and efficacy being prominent precursors (MacLeod, 2000; MacLeod & Paton, 1999; Taylor, 1983, 1989). Innovative behavior and managerial effectiveness were also significantly related to empowerment, pointing toward the possible advantages of an empowered individual. This conclusion reiterates those of Dunning (1999) and Rosenbaum (1990) in relation to learned resourcefulness. With these encouraging results on the potential uses of empowerment in an organisational context, Spreitzer (1996) then examined the influence of the work environment on individual empowerment. She concluded that whether an environment is deemed empowering or disempowering depends on how the person interprets his or her perceptions (see Thomas & Velthouse earlier), and that high-involvement structures (i.e., participative climate, access to information, low role ambiguity, and wide supervisory spans of control) produce potential for empowerment in the workplace.

Spreitzer (1995b), building on the work of Thomas and Velthouse (1990), concluded that: "Psychological empowerment is defined as a motivational construct manifested in four cognitions: meaning, competence, self-determination, and impact. Together, these cognitions reflect an active, rather than a passive, orientation to a work role" (p. 1444). Spreitzer lists several assumptions critical to this notion of psychological empowerment. First, empowerment should be considered as a continuous construct: rather than being either empowered or not empowered, people are rather more or less empowered. Second, psychological empowerment is not a stable personality trait applicable across situations: It is subject to change over time and to the influence of a specific work context (Thomas & Velthouse, 1990). Third, psy-

chological empowerment is not generalizable to life endeavors and roles outside of work. Consequently, sustaining the benefits of this approach in other environments (e.g., the family) will require attention.

Several studies have furnished evidence for the structural validity of the four-factor model of empowerment, the existence of the four distinct dimensions of empowerment, and that each contributes to an overall gestalt of psychological empowerment (Gagne et al., 1997; Spreitzer, 1995b, 1996). Significant relationships have been found between psychological empowerment and various antecedents, including social structural characteristics (e.g., sociopolitical support) (Spreitzer, 1996), perceived job characteristics (Gagne et al., 1997), culture (Spreitzer, 1995a), and interpersonal relationships (Liden, Wayne, & Sparrow, 2000). Significant relationships have also been found between psychological empowerment and attitudinal (e.g., work satisfaction, organizational commitment; Johnston, 2001) and group effectiveness (Koberg, Boss, Senjem, & Goodman, 1999) outcomes. Evidence of a role for individual (e.g., age, education, personality) characteristics (Johnston, (2001) and organizational trust (Jackson, 1999) has also been observed. These findings indicate that organizations can, by changing the work environment and culture, create the conditions necessary to develop and sustain a psychologically empowered workforce. In doing so, the potential for facilitating adaptability and resilience within both routine and adverse operating environments is increased.

CONCLUSION

The answer to the question "can empowered organisations and individuals lead to increased organizational effectiveness and individual well-being?" is yes. Implicit within the theories discussed here is the notion that the major force driving people comes from within but is sustained by environmental factors. The focus of future research must tap into individual cognitions and learn which experiences are perceived as positive and which are perceived as negative to determine which organizational contexts are most conducive to fostering and sustaining resilience.

Conger (1989) noted possible limitations of empowerment, including mistaken overconfidence, managerial style being incompatible with an enabling style of leadership due to personal insecurities, and individuals lacking the prerequisite need for control and/or success on which motivational empowerment is based. These concerns are equally applicable to high-risk groups (Violanti & Paton, 1999).

Despite these exceptions, Quinn and Spreitzer (1997) argued that organizations intending to implement an empowerment program should utilise a

synthesis of both the relational and motivational approaches to empowerment to optimize impact. This approach, represented by four important "levers", is necessary for cultivating empowered organisations (Table 10.1).

TABLE 10.1
QUINN AND SPREITZER (1997) "LEVERS" FOR THE CULTIVATION OF AN EMPOWERED ORGANISATION

	Lever	*Implications*
1.	The provision of a clear vision and challenge by senior management	If an empowered employee has a definitive understanding of his or her role in achieving the organization's goals then they will be best equipped to take an autonomous approach to work rather than having to be micromanaged.
2.	An emphasis on openness and teamwork	Employees need to feel that they are listened to and valued in the organization.
3.	There needs to be discipline and control so as to set boundaries on autonomy	It is important to let employees know that there are boundaries but, as the employee grows and develops as an empowered person, it is also important to provide them with the opportunities to expand these boundaries.
4.	There should be a supportive climate	If employees are going to grow as flexible, autonomous, responsible workers then managers and coworkers need to encourage empowered behavior regardless of the outcome, as it is only through experimentation that people will be able to discover their strengths and weaknesses as an empowered worker.

The parallels evident between empowerment theories and conceptualizations of dispositional and environmental resilience suggest that empowerment models can assist our understanding of stress resilience and guide the development and implementation of strategies designed to foster and sustain it. This represents a potentially fruitful line of future research, particularly if the methodology adopted addresses both distress and wellness and growth outcomes (Hart & Wearing, 1995; Paton et al., 2000).

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Chapter 11

THE PROCESS OF TRUSTING: ITS RELEVANCE TO VULNERABILITY AND RESILIENCE IN TRAUMATIC SITUATIONS

Roy L. Payne and Murray Clark

INTRODUCTION

Trust is a prominent determinant of the effectiveness of interpersonal relationships, group process and organizational development. Although several recent articles have reviewed organizational trust (e.g., Lewicki & Bunker, 1996; McAllister, 1995; Mayer, Davis, & Schoorman, 1995; Mishra, 1996; "Special topic forum," 1998), disagreement regarding how decisions to trust are formed remains. This chapter discusses some key issues and their implications for stress vulnerability and resilience. Unless super confident in their own resilience, people who cannot trust become vulnerable in threatening situations that call for them to trust other people or systems. Truly resilient people can trust both themselves and others (though not blindly).

Pivotal to our theoretical and methodological understanding of trust is Kee and Knox's (1970) model of trust that emphasized the antecedents and outcomes of trust. They conceptualized trust as having two related components; (1) the observable choice behavior, and (2) a subjective state that underlies the manifest choice behavior. Their model proposes three types of independent variables that influence trust: (1) an individual's previous experiences, (2) structural and situational factors, and (3) dispositional factors. In the vulnerability literature, trust (1) might include previous exposure to trauma, (2) might include the quality and quantity of social support, and (3) might include personality traits such as neuroticism and hardiness (McFarlane & Yehuda, 1996). Each of these act directly to influence an individual's per-

ception of another's motives/and or competence. Given these perceptions, the individual experiences some corresponding degree of subjective trust or suspicion that, depending on the individual's assessment of the uncertainty of an outcome, may or may not be manifest as trust behaviorally. Kee and Knox (1970) thus distinguished between behavioral trust and the underlying psychological states.

Mayer, et al. (1995) elaborated on how trust develops by further articulating its antecedents and outcomes. Their model contains a feedback loop and, in this sense, describes a process, but it is one where the main determinants of trust are in the characteristics of the person to be trusted, though the trustor's propensity to trust may moderate the perceptions of those characteristics. The situation is also brought into account indirectly through the concepts of perceived risk, and the risk-taking relationship. In traumatic situations, the degree of risk may be extremely high, and combined with the perceived pay off, will strongly affect the decision to trust or not. Although the introduction of the concepts of ability, benevolence, and integrity as grounds for trusting another is a useful addition to Kee and Knox's (1970) model, it still underemphasizes other elements of the trust process.

It is argued here, that there is still lack of a framework that:

1. Models the act of trusting in the context of a traumatic event;
2. Explains why trust may not occur in the context of a traumatic event;
3. Explicates why trust may develop into a generalized attitude toward a person over time, and into a generalized personal attribute that influences all trusting acts;
4. Deals with subtle shades of psychological states that underlie the concept of trust; and
5. Outlines the role of the situation in determining trusting behavior.

Through a consideration of the meanings ascribed to trust in organizations, and building on the models proposed by Kee and Knox (1970) and Mayer et al. (1995), this chapter clarifies the conceptual nature of trust by elaborating the process by which trust occurs on specific occasions, and how this plays a part in establishing trust as a more enduring "state of mind."

AN ELABORATED CONCEPTUAL FRAMEWORK

Mayer et al.'s (1995) model integrate the literature through a framework that recognizes the action of trusting as the end product of a process that involves cognitive, affective, intentional, and behavioral components. The model also describes how a particular decision to trust might occur but

simultaneously shows how that process might also lead to the establishment of an ongoing state of trusting through feedback loops.

To understand the underlying psychological processes by which trust might be manifested, the conceptual framework builds on the type of model advocated by Fishbein and Ajzen (1975) to explain how attitudes serve as the cause of volitional behavior. As previously indicated, the decision to trust presumes reasoned action on the part of the individual contemplating trusting specific others. The basis for this conceptual framework rests on the distinction between an individual's specific orientation toward a particular object of trust, the generalized attitude to trust, their trusting intentions, the attractiveness of possible outcomes, and the actual behavior that indicates the individual has or has not trusted a person on a specific occasion. Consistent with Fishbein and Ajzen's (1975) theory of reasoned action, the model is restricted to situations where an individual has a choice whether to trust or not. In some traumatic situations, victims may be denied this choice, but the rescuers have choice, and they often have to trust both victims and fellow rescuers. The consequences of these acts of trust can last well beyond the event itself: "The person's state of mind in the midst of the traumatic experience will also have a profound impact on the way the memory of the trauma is laid down in the aftermath of the traumatic event" (McFarlane & Yehuda, 1996, p. 156).

The trust process is illustrated in Figure 11.1. Consistent with Kee and Knox's (1970) conceptualization, the process of trust formation is conceived as comprising subjective and objective elements. The subjective dimension that Kee & Knox argue for is dependent upon previous experience and situational and dispositional factors (e.g. Butler, 1991; Driscoll, 1978; Golembiewski & McConkie, 1985; Mayer et al., 1995; Scott, 1980; Stack, 1978; Worchel, 1979). Subjective trust (or trust as a state of mind) is conceptualized as being influenced by two subconcepts: (1) a dispositional dimension that is a generalized response dependent on previous experiences, and (2) a specific dimension determined by the trustor's previous experience with the person to be trusted (if any) in situations similar to, or the same as, the one under consideration. In many trauma situations such specific experience is absent, hence disposition is more likely to dominate. These process elements, representing the subjective dimension of trust, culminate in determining an individual's intention to trust or not. Whether the intention to trust becomes behavioral trust, where the individuals actually commit themselves to trusting, depends on the perceived attractiveness of the outcomes, and the perceived likelihood of the outcome occurring. The objective behavioral element of the trust process is represented solely by the act of trustin–it is described as objective in the sense that a third party would judge the trustor's behavior to indicate having trusted the individual(s) concerned. The third party would, of course, have to understand the context before coming to such a decision. Mere observation of behavior might be misleading.

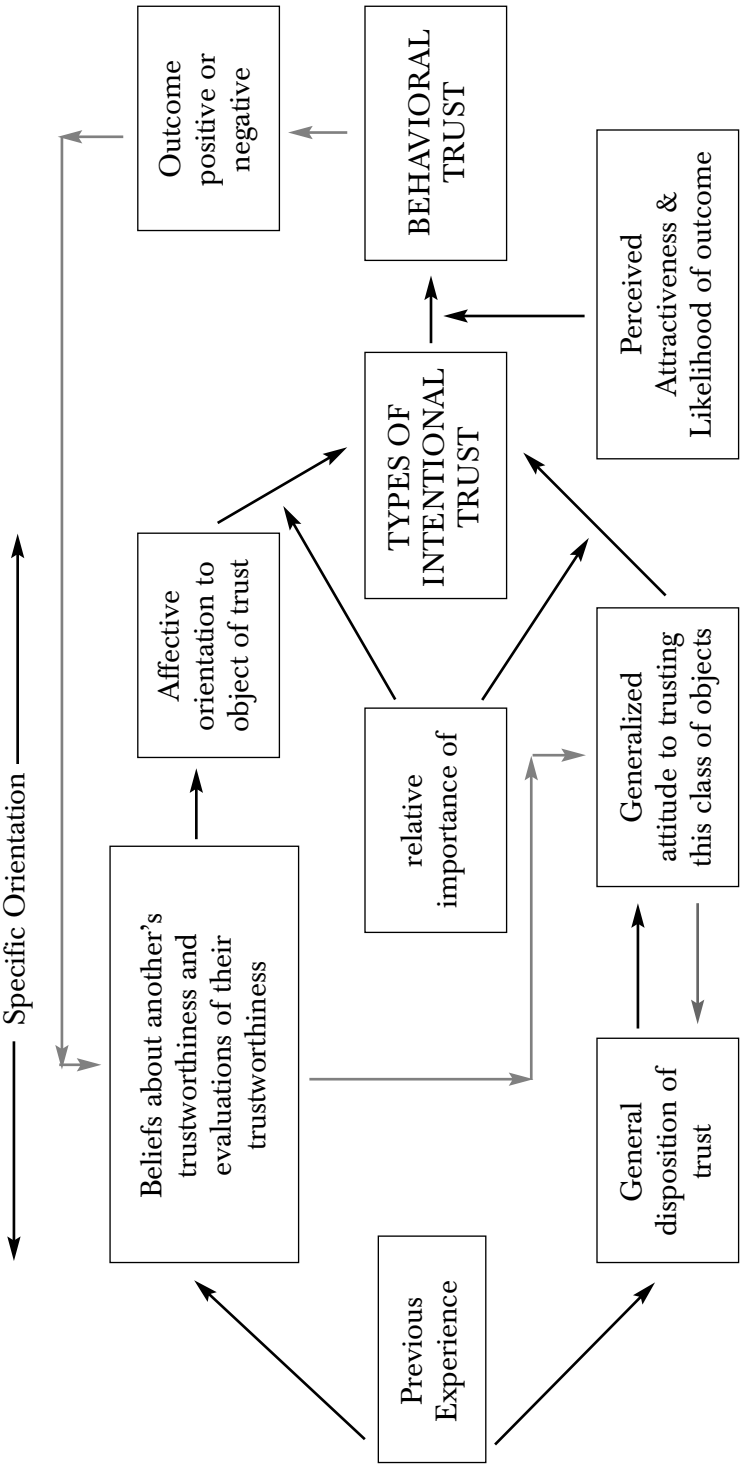

Figure 11.1. Basic conceptualization of the trust process.

Following Kee and Knox's (1970) model, our conceptualization of the trust process suggests the importance of studying the nature of subjective trust, and the fact that understanding intentions is essential to understanding and predicting behavioral trust. We define intentions as an individual's expectation, or estimation of the likelihood, that the object of trust will behave in a trustworthy manner. In traumatic situations, trust relations exist between the victim and the rescuers, the rescuers and the victim, and each of them with the organizational system in which they are embedded. An important consideration for people in the wider system is, can they trust the rescuers and the victim?

The model proposes the following factors as influencing the formation of subjective trust from which the intention to trust derives. The General Orientation reflects a generalized attitude to trusting a particular class of objects, and an individual's general disposition to trust (it is important to recognize that one might generally be a trusting person but still have negative attitudes toward specific groups of people, e.g., the police). The Specific Orientation is determined by beliefs about the trustworthiness of the specific object of trust in a specific context and time frame, the perceived outcomes of previous trust decisions in similar situations, and the positive or negative feelings that these beliefs and experiences generate. As indicated earlier, exposure to such experiences may be limited for all parties in trauma situations except for those with experience of them, such as the police and other emergency services.

General Orientation

The idea of a general disposition may be equated with theories that emphasize trust as a personality trait. Such conceptualizations are concerned with individual differences in generalized expectancies of trust and incorporate the learning concepts of reinforcement and generalization (Worchel, 1979). That is, based on past experience an individual develops expectancies about how others will treat her or him and generalizes this experience to present and future situations.

The most prominent exponent of the importance of a General Orientation is Rotter (1967, 1971, 1980). He developed his theoretically based measure of trust (The Interpersonal Trust Scale: ITS) on the idea of generalized expectancy within a framework of social learning theory. Rotter (1971) argued that:

> In social learning theory an expectancy is a function of; a specific expectancy; and a generalized expectancy resulting from the generalization of related expe-

> rience. The relative importance of the specific expectancy is a function of the degree of experience in that specific situation, or conversely, the importance of generalized expectancy is a function of the degree of novelty, ambiguity, or unstructured nature of a particular situation. The more novel the situation, the greater weight generalized expectancies have. (p. 445).

What is important, according to Rotter, is that the theory provides for general characteristics and for specificity. The situation partially determines the response, and the theory predicts that situations of considerable familiarity are less predictable from a generalized tendency than those involving more novelty. There exists in most situations an implicit problem of whether or not to believe the other person, and it is from this dilemma that trust is hypothesized to occur. Thus an individual's expectancy to trust in less familiar situations will depend to a great extent on his or her past "trust" experiences. Hence, for emergency responders the quality of trust in routine contexts may be an important determinant of trusting in emergency situations.

When conceived of as a personality trait, an individual's general disposition to trust will have a strong influence on determining the generalized attitude toward trusting any class of objects, but a weaker influence on some specific classes of objects. As depicted in Figure 11.1, the generalized attitude toward a specific class of objects will be influenced by past experience with that particular class of objects, though it may also be filtered through a person's general disposition to trust, or not to trust.

The influence of generalized attitudes on intentions, as suggested by Rotter (1971), Worchel (1979), and Johnson-George & Swap (1982), is dependent on the familiarity of the situation. It is argued that the General Orientation is most influential in highly ambiguous, novel, or unstructured situations, where generalized expectancy is all one can rely on. When exposed to more specific situations, where one has to decide to trust a particular person in a particular situation, then previous experience of that particular person X situation interaction will more strongly influence the decision and possibly override the General Orientation to trust. If there is no experience to build on then the General Orientation will have the greater influence on the decision to trust. Suspicious, frightened people are likely to be highly vulnerable in rare events like traumas.

Specific Orientation

The affective orientation to the object of trust is a function of an individual's beliefs about the trustworthiness of another. These, in turn, are influenced by previous experience and in particular the perceived outcomes of past acts of trusting the person in similar situations. That is attitudes, or affec-

tive evaluations of others, result from an individual's perceptions of what is known concerning relevant attributes or behaviors of a specific other(s). Lack of exposure to critical incidents, and to those involved in any specific incident, will frequently make this a redundant concern, but it serves to emphasize the importance of the rescuers' ability to convey their trustworthiness to the victim.

Several studies have conceptualized trust as being derived from the trustworthy characteristics of the participants and highlight the multidimensional nature of trust and concentrate on identifying those attributes/behaviors that influence the formation of trust. This literature has been reviewed by Butler (1991) and Clark (1993) and may be categorized into two groups. First, some researchers concentrated on measures of trust in specific others and used factor analytical techniques to identify dimensions of trust (e.g., Butler, 1991; Butler & Cantrell, 1984; Cook & Wall, 1980; Giffin, 1967; Hart, Capps, Cangemi, & Caillouet, 1986; Johnson-George & Swap, 1982; Larzelere & Huston, 1980). Second, others have used more qualitative methods, for example, clinical interviews (Gabarro, 1978) and exploratory field studies (Jennings, 1971), to determine participant characteristics that contribute to the establishment of trust.

These studies have established several dimensions, but as Butler (1991) states, "Although most of them were well validated, none of them attempts to measure a complete and exhaustive set of the concepts representing the conditions leading to trust" (p. 644). Despite apparent variations, however, certain themes may be identified:

1. Competence (technical and interpersonal skills, decision making, judgment, role performance);
2. Integrity (honesty, truthfulness, promise fulfilment, sincerity);
3. Loyalty (good intentions and motives toward others, benevolence, shared goals);
4. Consistent behavior (fairness, predictability, reliability); and
5. Openness (mental accessibility, freedom of expression and information, accurate communication).

Although these general themes capture the main criteria regarding why beliefs about an individual's trustworthiness may be formed, "Currently, there is no agreement as to what these conditions [criteria] are" (Butler, 1991, p. 647). Accordingly, Butler (1991) attempted to identify a comprehensive a priori set of conditions of trust and to produce a valid instrument for measuring them. Following content analysis of interviews with eighty-four managers, Butler identified ten conditions of trust: availability, competence, consistency, discreteness, fairness, integrity, loyalty, openness, promise fulfil-

ment and receptivity. He developed a forty-four item instrument to represent the ten criteria, plus an eleventh scale to measure overall trust. The instrument's psychometric properties have been investigated on managers and student managers involving over two thousand people.

Confirmatory factor analysis of the items identified a ninefactor solution that confirmed the hypothesized ten conditions, with two conditions, fairness and loyalty, loading on the same factor. A tenth factor comprised items that had been negatively worded (from the discreteness and loyalty scales), and Butler labelled this mistrust, although it was a relatively trivial dimension, with only two salient loadings. Butler provided considerable evidence of the validity of the ten scales but adds that, as the items were developed with reference to the management literature, the conditions might not represent a complete content domain of trust conditions in other relationships. In emergency situations, many of these conditions would be irrelevant (e.g., fairness and loyalty), but competency and availability would be crucial.

Butler's research has been discussed in some depth because it is important to the conceptual framework of trust suggested here. Examination of the items that make up the scales indicate that they are principally cognitive measures of a trustor's knowledge and beliefs about the person to be trusted. As such, they may be assumed to represent an individual's beliefs and evaluations of the other's trustworthiness, and Butler's research offers strong evidence for the importance of what we have called the Specific Orientation.

The influence of the affective orientation to the object of trust on intention to trust is, however, still subject to environmental influence. It, therefore, becomes necessary to consider how the environment influences attitudes toward the situation (including the person to be trusted), the intention to trust, and the psychological foundations for those intentions.

ENVIRONMENTAL INFLUENCES ON SUBJECTIVE TRUST

Two aspects of the situation are particularly important. The first reflects the person's generalized orientation to trusting the class of objects that is mainly based on a "Familiarity" with them, or with situations that are similar to the present one. The second is the amount, quality, and availability of information relevant to the situation. An alternative label is "Situational cues".

Familiarity

Luhmann (1979) argued that familiarity has been a major influence on trust. He comments that:

> In a familiar world the past prevails over the present and the future. The past does not contain any 'other possibilities': complexity is reduced at the outset. Thus, an orientation to things past can simplify the world and render it harmless. . . . [In the familiar world, one can assume] that the trustworthy will stand the test once more and that the familiar world will continue into the future. (p. 20) .

Familiarity with a situation is hypothesized to exist as a continuum with degrees of familiarity ranging from low to high. High familiarity represents situations an individual has experienced on numerous prior occasions (e.g., routine work). A situation of low familiarity represents a novel experience to an individual. The degree of familiarity is important. It plays a significant role in the understanding of situational information with respect to an individual's decision to trust another.

Situational Cues

The Specific Orientation tends to modify the influences of the generalized trust attitude and, in the majority of instances, has the greater influence on subjective trust levels. The degree of specific trust is hypothesized to be directly related to cues or information specific to the situation. In the absence of situational cues, an individual faced with a decision to trust will rely more on the General Orientation to establish a level of subjective trust. Where many situational cues are available and perceived, an individual is assumed to rely more on the cognitions derived from those cues (i.e., the specific orientation to trust).

Situational cues, the relevant information available in a situation, may take numerous forms: information concerning motives (loyalty and integrity), competence, openness, other's personality traits, and so forth. But it is the availability of such information, and an individual's receptivity to it, that influences the type and strength of intentional trust. These two concepts of familiarity and situational cues are used later to create a typology of intentions and to elaborate some of the more subtle distinctions made in the trust literature. Although sometimes used as synonyms for trust, the following analysis reveals that they represent different psychological states that are brought about by differences in the environment in which the trustor is required to make a decision to trust.

A TYPOLOGY OF INTENTIONAL TRUST

Figure 11.2 casts the two concepts, familiarity and situational cues, into a 2 X 2 table to illustrate four "ideal" types of trust that stem from combining

these two sets of concepts. It attributes synonyms of trust, namely, faith, reliance, dependence, and confidence to each of the four ideal types of intentional trust.

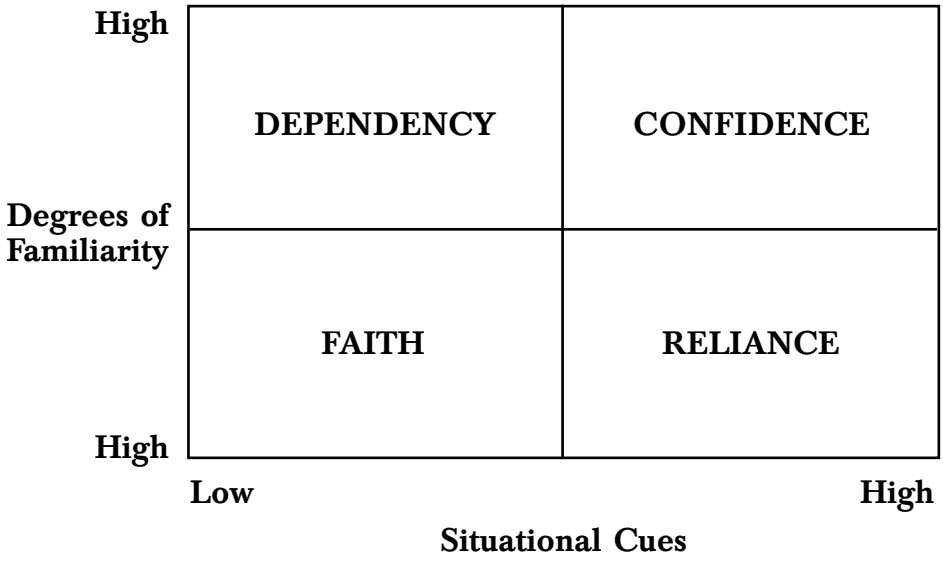

Figure 11.2. A typology of intentional trust.

Dependency

A high-familiarity/few-situational-cues scenario classifies intentional trust as dependency. Under such conditions, because good relevant information specific to the situation is limited, an individual depends on past experience in similar situations to guide his or her judgment regarding the decision to trust. High familiarity facilitates the sharing and structuring of all information available such that the scope for varied interpretations of it is limited.

Reliance

Low-familiarity/many-situational-cues scenarios describe trust as reliance. In relatively novel situations where the available information is plentiful, well structured, and easily shared, individuals will rely on the information and personal ability to make sense of it and to trust or not trust as deemed appropriate. Here, the situational trust component will be relied on to a greater extent than the generalized component. For example, consider an

individual who is considering a financial investment decision for the first time. If it is assumed the individual's outlook on life is a sensible and mature one, and the individual can grasp the significance of elementary financial matters, then the information available concerning the successes of different financial plans, investment brokers, and so forth, can be readily shared. A decision to trust the advice given by his or her financial consultant relies on the information provided and the credibility of the consultant. The distinction between reliance and dependency is a subtle one, but it is hoped that the analysis shown in Figure 11.2 adequately explains the different psychological states these two situations will produce.

Confidence

Under conditions of high familiarity/many situational cues, an individual has the best information possible. It is well structured, plentiful, and therefore easily understood. In addition, familiarity with the situation allows even low codified messages to be communicated. This type of trust is termed "confidence," as an individual can make the most rational assessment of the situation possible under well-understood circumstances. In such a situation, both Specific and General Orientations to trusting play a role, though in most cases the situation will dominate the decision. An example of trust as confidence is trust in a work situation. Consider a subordinate's decision to trust a superior's order to carry out a routine, but potentially dangerous task. It is likely, that the individual will have been in a similar situation on numerous occasions, is highly familiar with the situation and can thus make sense of ambiguous or unstructured information, such as the superior's personality, motives, values, and so forth Other work information that is potentially more structured, such as symbols and verbal messages, will also be easily shared as the individual will be conversant with the way it is usually articulated. All this leads to a state of confidence that the order can be carried out with little risk.

Faith

The fourth type of trust is termed "faith." Under conditions of low familiarity/few situational cues, an individual has little structured information with which to guide a decision. What information is available is likely to be unstructured or ambiguous, and the situation is one that is difficult to relate to other experiences. In the ultimate instance, faith might be conceived as involving unquestioning and emotionally charged acceptance of someone or something (Worchel, 1979). As with each of the four types of trust, however,

it is assumed that faith may exist in varying degrees. As such, faith is taken to represent a type of trust that would depend almost entirely on the subjective base of generalized trust, that is uninfluenced by well-structured information about a specific situation. An example might be firefighters trust in fire-ground leadership, when dealing with a familiar situation. However, when faced with a disaster, it may be more difficult to structure the information. The decision to trust is based on a state of dependency developed in routine contexts that may become less applicable in disaster situations (Paton, 1994). Although it may be possible to generalize from one routine experience to another, one's trust depends on one's own past experience and judgment. Consequently, trust may break down under novel circumstances. The individual's decision to trust the leaders will, therefore, be based on the individual's general disposition to trust, generalized attitude to leaders, and faith in the ability to cope with the anxiety and uncertainty such a situation entails. Many people in traumatic situations will be forced to act on the basis of faith, and this will apply to both victims and rescuers. Because confidence

	Uncertainty	Costs	Benefits	Intention to Trust	Intention Not to Trust
1	High	High	High	> Disrupt	< Disrupt
2	High	High	High	> Disrupt	< Disrupt
3	High	High	High	> Disrupt	< Disrupt
4	High	High	High	> Disrupt	< Disrupt
5	High	High	High	> Disrupt	< Disrupt
6	High	High	High	> Disrupt	< Disrupt
7	High	High	High	> Disrupt	< Disrupt
8	High	High	High	> Disrupt	< Disrupt

Key: > Likely to disrupt link between Intentions to Trust and Behavioral Trust
< Unlikely to disrupt link between Intentions to Trust and Behavioral Trust

Figure 11.3. Likelihood of intention leading to behavioral trust.

is the most comforting of the trust types, it indicates the importance of rescuers and people in the wider organizational system doing things that create confidence in each other, and hence in the victim.

In all four cases, the actual decision to trust (and hence observable trust behavior) will depend on the degree of risk associated with the situation. For example, even with low degrees of certainty concerning trustworthiness, if the perceived risk is low then there is still a good chance that trust may be displayed. Similarly, in perceived high-risk situations the opposite may be true; high certainty of the other's trustworthiness may still not result in behavioral trust. Figure 11.3 depicts the conditions that influence the likelihood of intention to trust being converted into behavioral trust.

LINKING INTENTION TO TRUST AND BEHAVIORAL TRUST

Several writers (e.g., Coleman, 1990; Lewis & Weigert, 1985; Luhmann, 1979; Zand, 1972) argued that trust only becomes necessary when there is some potential or actual risk to the decision maker. In emergencies all decision makers have to deal with risk. A trusting decision is contemplated because, potentially, individuals will be better off, although the decision is nearly always problematic and involves some degree of uncertainty (Coleman, 1990). In the present model, the decision maker assesses the probability that an individual is trustworthy before coming to some decision to intend to trust (or not), but once the decision has been made, the link between intention and behavior may be disrupted by several factors that can alter the perception of risk and the value of the outcome, leading to complex questions about whether the intention is realized in practice.

Whether intention to trust becomes behavioral trust depends on the elements of risk-taking behavior, namely, the trustor's perceptions of the uncertainty of an outcome occurring, and the likely costs and benefits of the decision to trust (cf., Coleman, 1990; Yates & Stone, 1992). The perceived uncertainty of the outcome occurring and the cognitive assessment of the costs and benefits that might occur to the truster interact in complex ways . Figure 11.3 combines these three variables and hypothesizes the likelihood of the link between the intention to trust (or not to trust) and behavioral trust being disrupted, for each of eight combinations derived from dichotomizing each dimension into high and low. Describing the problem in this way makes clear the importance of differentiating between intentions to trust versus those not to trust.

In Situation 1 the decision maker is faced with a situation involving high outcome uncertainty and high costs of committing trust, even though the

perceived benefits are also high if the outcome does occur. Under these conditions a decision maker who intends to trust another is unlikely to place trust in another because the cost/benefit ratio is not particularly favorable and the uncertainty is high. In the same situation, a person with no intention of trusting another will behave in a manner consistent with that intention. In life-threatening situations, sheer fear may alter this outcome.

In Situation 2 the likelihood of intention to trust leading to behavioral trust is, because of the poor cost/benefit ratio, low. For the individual who has already decided not to trust the person, this situation will only encourage that individual not to trust: a risky medical procedure where other treatments have already failed might bring about such a situation. In Situation 3 where there is uncertainty but a favorable cost/benefit ratio, the individual who intends to trust is likely to translate that intention into action because of the favorable cost/benefit situation. The individual who intends not to trust, however, may well find this favorable cost/benefit ratio attractive enough to change the individual's mind, despite the high level of uncertainty. Some rescue situations bring this about.

When uncertainty is high, but costs and benefits are low (as in Situation 4), the individual who intends to trust faces a difficult decision, and the high uncertainty will often be sufficient to change his or her mind. Where trust does not already exist the opposite applies, and the individual is highly likely not to place trust in the other individual.

When it is highly likely an outcome with both high costs and benefits (e.g., physical harm but survival) will occur, it is unlikely that the individual who intends to trust will change his or her mind because of the high benefits that will accrue, but for the individual who does not have high trust the high costs are likely to dominate the decision, and that individual too will act consistent with his or her intention. Situation 5 defines this condition. Situation 6 describes a poor cost/benefit ratio outcome that has high chance of occurring. This will likely influence the individual with an intention to trust due to the certainty and high costs involved. The low-trusting individual on the other hand, is very unlikely to his or her mind when faced with such a situation, so there is a low likelihood of his or her intention being disrupted.

In Situation 7, an individual with a strong intention to trust is very likely to carry out that intention because payoff is high and there are low costs and high certainty of the outcome following. Given these very favorable circumstances, the individual who starts with an intention not to trust is likely to change his or her mind and risk disrupting the intention-behavior link. An individual afraid to do something even though it does not appear risky to most people is likely to act positively if his or her life or well-being is the benefit at risk. In the final situation (8), neither party is likely to be disrupted from his or her intentions but for different reasons. The individual who

intends to trust may as well, even if the benefits are small, because costs are low and certainty is high. The low-trusting person, however, will show behavioral consistency because there is little in it for him or her, and his or her view would be that the other individual cannot be trusted anyway, or can be trusted to let him or her down. Low-benefit situations will be uncommon in most emergency situations.

CONCLUSIONS

Building on Mayer et al.'s (1995) work, the additional features we claim for our model are that it explicitly acknowledges that:

1. The beliefs about another's trustworthiness are dependent on previous experience that determines evaluations of a person's trustworthiness;
2. The general orientation to trust (propensity) influences generalized trust toward the specific set of objects (e.g., managers, trade unionists) that is a concept missing from Mayer et al.'s model;
3. Trust may not be unidimensional but may consist of different psychological states (types of intentional trust) that are not synonyms for trust, but different states brought about by different combinations of contextual variables such as familiarity and situational cues;
4. That perceived risk is a function of likelihood of outcome and perceived attractiveness of outcome; and
5. That even when intentional trust is strong the context or situation can cause disruption to that intention (i.e., affect assumed risk) and that this disruption is due to perceived uncertainty, and the perceived costs and benefits of the outcome.

Feedback loops indicate how the outcome of the decision to trust will influence the individual future expectations and attitudes toward the specific object, and over time gradually change his or her generalized attitude to that class of objects. This in turn will gradually alter the individual's generalized expectancy to trusting the world. By introducing the idea that multiple exposure to similar situations or problems will alter the individual's traits, attitudes, and behaviors the model can be said to operate at a second level that is concerned with the development of trust in the sense of it being a property of an individual or group. The model is offered as a way of bringing coherence to the many strands in the literature.

The relevance of such a model for understanding stress resilience in, and arising from, traumatic events is that trust is clearly involved in understand-

ing its development. An additional value is that trust is involved in all the important relationships that are related to the traumatic events: victim-rescuer, rescuer-victim, victim-system, rescuers-system, system-rescuers, and system-victim. Although actions/decisions that determine the levels of trust in these relationships differ, the processes that affect those levels of trust are potentially generalizable to them all. The following comment applies to victims and their long-term rescuers, but it might also have relevance to all the above relationships: "In order to deal with victims one needs to be able to trust their motives and to squarely confront the tragedies that have befallen them and continue to dominate their lives" (McFarlane & Van der Kolk, 1996, p 573).

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Chapter 12

THE FAMILY: RESILIENCE RESOURCE AND RESILIENCE NEEDS

JANE SHAKESPEARE-FINCH, DOUGLAS PATON AND JOHN M. VIOLANTI

INRODUCTION

A key support resource for emergency services personnel is the family. The family can act to maintain balance in the presence of the significant disturbances to psychological equilibrium that often characterize emergency and disaster work. However, if the psychological integrity of the family is threatened by their direct or indirect involvement in critical events, the quality of this support resource will be diminished.

This chapter discusses the direct and indirect involvement of family members in traumatic events, and its implications for both their role as a resilience resource and for their own well-being and support needs. We commence with a discussion of the implications of emergency work for coping and family systems functioning. Next, the impact of duty-related separation on family members' well-being is discussed. Finally, the resilience of family members who are victims of line-of-duty death is considered.

THE WORK-FAMILY INTERFACE

Given that our jobs are second only to our families in terms of our emotional investment and that for many people work is central to psychological integrity, the interface between work stressors and family functioning has received considerable attention (Barnett & Marshall, 1992; Lambert, 1990).

For emergency services personnel, this relationship will be influenced by, for example, the hazardous nature of work, repeated exposure to critical incidents, and by operational demands such as shift work. Segmentation, spillover, and compensation are the prominent models explaining the relationship between work and home domains (Lambert, 1990).

The segmentation, or independent-effects model, proposes that experiences in one role (e.g., critical incident exposure) are unrelated to experiences in another (e.g., family functioning; Barnett & Marshall, 1992). Barnett and Marshall (1992) asserted that this model is particularly applicable to males, claiming that men in general have more rigid boundaries than women and thus are more able to compartmentalize affective experiences. Although the explanatory capabilities of this model may prevail when dealing with occupational demands, its applicability in those who routinely encounter critical demands remains to be determined (Eränen, Millar, & Paton, 2001). For example, the intensity of atypical experiences may be more difficult to contain in the manner anticipated by this model.

In contrast, the spillover and compensation models assume that the quality of experience and level of distress in one role varies as a function of the quality of experience in another role (Abramsky, 1992; Barnett & Marshall, 1992; Bolger, DeLongis, Kessler, & Wethington, 1989; Lambert, 1990). The negative spillover or role-stress model posits that an individual experiencing problems in the family domain, for example, would find the effects of job stress to be exacerbated. Individuals experiencing high work demands may have limited time and energy to devote to their family role, negatively affecting on the family system. Exposure to stress may also interfere with specific family functioning dimensions such as communication and problem solving (Bray, 1995).

In regard to potential negative consequences, what little research that has been conducted with emergency workers suggests it can have both negative (family members being distressed and wanted them to leave the service) and positive (e.g., increased emotional support and quality of family life) implications for family functioning (Eränen et al., in prep; Paton & Kelso, 1991; Wraith, 1994).

Wraith (1994) posited that emergency work may detrimentally affect family members through one or more of three processes. First, transmission effects describe changes in family circumstances as a direct result of changes in the emergency worker's emotional and behavioral state associated with involvement in a traumatic event. However, as the change is readily attributed to a specific event, transmission effects have a minimal impact on overall family functioning. Second, repercussion effects are generated within the family because of unresolved work stress issues. These effects develop over

time and the ensuing behavioral, attitudinal, and emotional changes may significantly alter family functioning. Finally, induced effects, emanating from repeated and unresolved exposure to trauma, may generate permanent, and often maladaptive reactions. Repercussion and induced effects may create significant long-term problems within family systems (Wraith, 1994). For emergency personnel, emergency and disaster work is only one factor capable of disrupting family systems.

The positive spillover or compensation model foresees a positive outcome; resources available to an individual in the partner role may mitigate any negative experiences occurring in the work role (Barnett & Marshall, 1992). For example, training and/or support strategies that facilitate the normalization of stress reactions and self-help could enhance the quality of family relationships and, consequently, their well being (Eränen et al., in prep). It is also important to consider other operational demands in this context.

OPERATIONAL DEMANDS AND FAMILY FUNCTIONING

The number and timing of hours worked outside the home significantly influences workers' ability to participate in and enjoy family life (Lambert, 1990). Shift-workers experience more family-related problems than daytime employees due to the lack of synchrony between their hours and family daily routines (Finn, 1981). Shift work is a common component of emergency service work and has been strongly associated with family functioning (White & Keith, 1990). Unorthodox work hours may leave little or no time for the working parent to spend with his or her spouse or children, and difficulties may arise for couples who wish to share child-raising responsibilities.

However, the relationship is not straightforward. Shift work can have both positive and destabilising effects (Barnett & Marshall, 1992; Finn, 1981, 1988; Motohashi, & Takano, 1993; Simon, 1990; White & Keith, 1990). Further complications are introduced by the suggestion that the fallout generated by both trauma and shift-work may be mediated by coping; most notably by social support (from peers and family members) and cognitive coping strategies (Barnett & Marshall, 1992; Monk, 1988; Paton & Violanti, 1996; Lazarus & Folkman, 1984; McCammon, Durham, Allison, & Williamson, 1988; Sparrius, 1992; Van der Kolk & Fisler, 1995). To assess the role of family support in ameliorating traumatic stress, it will be important to separate the effects of trauma from those emanating from shift work.

Shakespeare-Finch, Smith and Obst argued that, as a consequence of elevated critical incident exposure, ambulance officers would demonstrate lower levels of family functioning than a shift-working control group who

were not exposed to trauma in the course of their employ. However, given the posited mediating role of personal resources on work-related stress on family functioning (McCammon et al., 1988), differences in family functioning (e.g., intimacy, conflict, parenting style) between groups could be influenced by personal coping resources (e.g., social support, rational/cognitive, self-care, recreation) and training.

In this controlled study, Shakespeare-Finch et al. (2001) found support for the hypothesis that personal resources mediate the relationship between occupation and family functioning. However, exposure to work-related traumatic incidents alone did not predict a detrimental impact on the family functioning dimensions measured. Furthermore, differences emerged in the way the two groups utilized personal resources. Although a significant relationship between specific personal resources (e.g., social support) and family functioning was observed in both groups, the emergency personnel demonstrated a more varied repertoire of strategies in association with family functioning dimensions of conflict, intimacy, and parenting style.

Although this study did not permit causal inferences to be made, several explanations for these findings can be proposed. The lack of a detected relationship between exposure to trauma and family functioning is inconsistent with the literature (Abramsky, 1992; Bolger et al., 1989; McCammon et al., 1988). However, this study was unique in controlling for shift work: a factor recognized to negatively affect family functioning (White & Keith, 1990). Removing this portion of the prospective variance in family functioning may account for the lack of difference between these two shift-working groups.

Alternatively, interpretation of these findings using the independent effects model (Barnett & Marshall, 1992) would suggest that emergency personnel can effectively compartmentalize their stressful experiences, limiting their influence on the family environment. Barnett and Marshall (1992) further asserted that the independent-effects model is particularly applicable to men. However, a lack of women in the Shakespeare-Finch et al. (2001) study precluded testing this possibility.

A more comprehensive explanation of these results may rest with the finding that emergency personnel used a broader range of coping resources than the control group. Whereas social support was the only significant predictor of family functioning in the control group, social support, self care, and cognitive rationalizations all held significant relationships with family functioning dimensions in the emergency group. This interpretation is consistent with research suggesting that coping effectiveness is a function of the range and diversity of strategies available to the individual (Genest, Levine, Ramsden, & Swanson, 1990; McCammon et al., 1988)

The relationship described here could also be attributed to training that facilitates the expression and normalization of reactions and promotes a

broad range of coping resources, including social support, cognitive preparation, and self-care practices (Miller, 1995; Paton, 1991; Violanti, Paton, & Dunning, 2000). A more extensive repertoire of resources could also result from direct and indirect (i.e., modelling) effects of work experience and the development and use of strategies, within family systems, to deal with family demands (e.g., Eränen et al., 2001).

Implications and Future Research

The demonstration of a more varied repertoire of coping resources in the emergency services population than in the control group emphasizes how training can promote a capacity to cope with and learn from adversity to the extent that it benefits individual, work, and family domains of experience. Furthermore, as personal resources were the sole predictor of family functioning regardless of work-related exposure to trauma, future research should examine more specifically the role of preparation and intervention programs in this context. The prominent role of shift work as a precursor of deleterious family functioning observed here reinforces the findings of other studies (Eränen et al., 2001) in highlighting how organizational factors can influence family systems relationships. Further research exploring the intricacies of personal resources may provide further guidance for staff support programs and for the development of family-friendly programs and support resources. It is also useful to examine which cognitions are activated by particular events and on what aspect of an individual's well-being they specifically affect.

This study did not support the notion that exposure to work-related trauma per se had a detrimental impact on family functioning. The results indicated that regardless of the nature of employment (i.e., exposure to trauma or not), employees' perceptions of their own family functioning can vary according to the personal resources they utilize. Deleterious effects of exposure to trauma are, however, apparent when an individual's coping resources are overwhelmed. Consequently, developing employee and family coping resources should be given high priority in future intervention. Furthermore, the mitigating effect of varied repertoire of personal resources indicates the efficacy of preventative training in both work and family domains. However, the research only utilized information regarding family functioning from a single member of each family (i.e., the ambulance officer). Other members of the same family may harbor different perspectives.

Although not addressing this concern directly, other studies have examined the issue from the partner's perspective. In addition to illuminating the nature of the family experience of critical incidents, understanding family

perspectives is an essential prerequisite for developing and sustaining a capacity of those directly exposed to traumatic events to adapt in the face of adversity. These findings have implications for developing strategies to support family members and for sustaining their capability to act as a support resource for those directly involved. This issue will be examined here from two perspectives. One concerns how a partner's involvement in overseas disaster and peacekeeping duties affects family members. The other discusses the implications of line-of-duty death for family well-being.

FAMILY SEPARATION

Family members bring their own unique perspectives to bear on high-risk work even if not directly involved. In military contexts, it has long been acknowledged that combat-related separation affects family well being and support needs (Wexler & McGrath, 1991). It also affects child and family interaction (Kelley, 1994) and significantly increases the demands associated with adjustments to child care roles, decision making and dealing with concerns for their partner's safety (Blount, Curry, & Lubin, 1992). The importance of understanding family separation issues is growing as military, emergency services, and law enforcement personnel are increasingly being called on to perform peacekeeping and disaster relief roles (Paton, 1996; Violanti & Paton, 1999). These activities result in family separation in a context defined by considerable risk.

In this section we discuss separation from the perspectives of spouses of disaster search-and-rescue workers (Paton & Kelso, 1991) and military peacekeeping personnel (MacDonald, Chamberlain, Long, & Mirfin, 1996). Both studies found that the family experience comprises three phases, each with its own implications. The predeployment phase commences when the occurrence of a disaster is acknowledged and ends when staff is deployed. The deployment phase covers the period of active duty. The postdeployment phase covers the return and the process of reintegration into regular patterns of living, family life, and working. Analyses of such experiences will provide a basis for developing effective training and support interventions for family members. Safeguarding the well-being of the family will, in turn, increase its capacity to act as an effective support resource for those directly involved in peacekeeping and disaster work.

Predeployment

Prominent predeployment family concerns included time management, concerns for their children and their partners' safety, concerns regarding sep-

aration and independent living, uncertainty regarding present and future events, maintaining normal family life, changes in family relationships, and coming to terms with the risks faced by the partner entering a high-risk situation (MacDonald et al., 1996; Paton & Kelso, 1991). Bey and Lange (1974) noted that emotional distancing and suppression were common reactions at this stage. Paton and Kelso (1991) observed that this was linked to a desire to hide anxieties and concerns from their partners because they did not want to burden them in this way and did not want them worrying about whether they would cope while they were away. That this period is highly stressful is evident in the finding that average distress in wives was highest during the predeployment phase, but improved during the period of actual deployment (MacDonald et al., 1996).

Support from family and friends is an important coping resource (MacDonald et al., 1996) during predeployment. With respect to support from military or rescue agencies, information about what was likely to happen, information regarding family dynamics and well-being, and regular contact with other families were cited as most desirable (MacDonald et al., 1996; Paton & Kelso, 1991).

Deployment

During deployment, uncertainty regarding the duration of the mission, lack of detailed information from the disaster or peacekeeping zone about their partners, separation and loneliness, concerns about coping independently, incomplete media reports, media misrepresentation, and concerns regarding the safety of their partners were prominent family stressors (MacDonald et al., 1996; Paton & Kelso, 1991). Additional demands could also come from the effects of separation on their children (Kelley, 1994; MacDonald et al., 1996; Paton & Kelso, 1991), including dealing with their children's anxieties, unusual changes in children's behavior, coping with the children alone, and discipline issues.

MacDonald et al. (1996) observed that distress decreased during deployment. Interestingly, their measure of positive well-being showed the opposite trend. Positive well-being scores declined between pre- and actual deployment and recovered again during the postdeployment period. This suggests that family well-being and distress are distinct and influenced by different factors. Symptomatically, this period was characterized by sleep difficulties, lethargy, nausea, feeling cut off and isolated, anger, frustration, worry, and crying over trivial issues (MacDonald et al., 1996; Paton & Kelso, 1991).

The predominant means of coping during deployment was via the social support provided by family, friends, and by the organization (MacDonald et

al., 1996; Paton & Kelso, 1991). Denial and emotional suppression, which limits utilization of support and exacerbates subjective stress (Stewart, 1989a, b), were, however, also reported. These strategies were often used because wives were reluctant to impose additional demands on those in a similar position to themselves. Another prominent coping resource was trying to maintain a normal life and minimizing disruption to routines (particularly where children were concerned). For some, involvement in organizational activities (e.g., media liaison) assisted their coping efforts by increasing their feelings of control over an experience otherwise characterized by considerable uncertainty. Although a sense of becoming more independent assisted coping during deployment (MacDonald et al., 1996; Paton & Kelso, 1991), this strategy created additional problems during the reintegration process.

MacDonald et al. (1996) found that low levels of support and low levels of satisfaction with support increased distress, reduced well-being, and increased the likelihood of daily demands being perceived as stressors. For military families, support needs during deployment were described in terms of accessing information about the duration of deployment, return dates, living and working conditions, and how personnel were coping. Paton and Kelso's (1991) group reported that the information supplied by the rescue organization addressing these issues was helpful because of its perceived reliability. Outside the rescue organization, the media was the most commonly cited information source. Concerns were expressed regarding the accuracy and sensationalizing of media reports, and this constituted a source of stress for some. However, comments about the media were not all negative. Pictures and reports about the team, where they were, and what they were doing provided reassurance that they were well.

Return and Reintegration

The final phase, postdeployment, concerns return and reintegration. Issues here include transmission effects (Wraith, 1994). Individuals differ in the time it takes for them to effect this reintegration. For some, the transition is rapid, taking place within days or a few weeks of their return, but for others it may take up to a year (Paton et al., 1989).

While almost one third of MacDonald et al.'s (1996) sample reported that the period of deployment was the most stressful, some 20 percent described the return period in this way. Issues that emerged during this period could be traced to several sources, with getting reacquainted, renegotiating roles and relationships, and re-establishing intimacy being prominent (MacDonald et al., 1996; Paton & Kelso, 1991). Other stressors were uncertainty regarding the appropriateness of what they were doing to help their partners

to deal with their feelings and finding it difficult to discuss their experience.

Family members wanted to know what they could do to assist the reintegration and recovery of their partners. A need to understand how and why partners were affected in the way they were, and to be better informed about what they could do to help were common requests during this period. Not knowing whether they were doing or saying the right thing to assist their partners was a source of anxiety. Family members also expressed a desire to understand more about their own feelings and whether these were normal under these circumstances. Not knowing how they would be affected and the intensity of the feelings that they did experience constituted a source of stress. Other issues that emerged at this stage included readjustment of roles and responsibilities, having to account to another after a period of relative independence, and regaining intimacy.

A prominent suggestion for promoting active coping, disseminating information, and providing opportunities to discuss their own feelings was via a wives' discussion and support group. The involvement of partners in these groups was identified as a potentially valuable strategy. Support groups can also serve as a means of identifying those experiencing more persistent problems during the reintegration period (Paton & Kelso, 1991; Stewart, 1989a, b). To optimize their effectiveness, it is important that support groups are facilitated by professionals who possess a sound understanding of duty-related separation under high-risk circumstances and their family implications (Bey & Lange, 1974; Stewart, 1989a, b). The increasing incidence of volunteer and emergency service involvement in disaster relief work and similar shifts in military deployment renders this an important issue.

Disaster and emergency personnel regularly risk their life to protect others (Violanti & Paton, 1996). All too frequently, the execution of their professional role results in their death. The highly traumatic nature of a line-of duty death for surviving family members (Williams, 1987) highlights the need for support to be made available to the family.

THE POLICE CULTURE AND SURVIVING SPOUSES

A traumatic line-of-duty death has prolonged implications for surviving family (Amick-McMullin, Kilpatrick, Veronen, & Smith 1989; Burnett et al., 1994). The trauma of a death experience will somehow be integrated into their lives, and each time the death anniversary occurs the families' sense of loss may surface. In instances of felonious death, every retrial, appeal, or parole forces the family to relive the injustice dealt to the fallen officers and their loved ones (Stillman, 1986; Van der Kolk, 1990).

Research on the consequences of duty-related police deaths on surviving

spouses is sparse, making it difficult to develop a systematic basis from which to appreciate the role of the coping resources (e.g., friends, police agencies) and interventions that facilitate family resilience. Shaw (1986a) noted that the successful recovery of the police spouse and family is directly related to events that follow the death; emotional and tangible support was essential for survivors. Shaw (1986b) described the difficulties that police widows face as public scrutiny, military-style funerals, hesitancy of other officers in talking, and misperceptions of their vulnerability.

If an officer is killed in the line of duty, the surviving spouse may rely on other officers, the police agency, and police benevolent groups to provide support (Rieser & Geiger, 1984; Williams, 1987). Interaction within the cohesive police culture may provide familiar structure, leadership, companionship, and motivation for grief recovery (Figley, 1988) and may mitigate psychological trauma and distress (Violanti & Paton, 1999).

Police officers and their families are enmeshed in a cohesive work culture. Finister (1994) defined the police as a "psychosocial group," where both officers and their families are psychologically aware of each other, interact with one another, and perceive themselves as a whole. Officers often mistrust those who are not police, socialize only with other officers, and express the feeling that no one except other police officers can fully understand them. Group cohesion is bolstered by the aversive reactions of the community, media, and the criminal justice system (Bonafacio, 1991). This cohesiveness has the potential to act as an environmental resilience resource for families. With this in mind, Violanti et al. (2000) investigated whether interactions with, and responses of, cohesive police groups after the death of a police officer would increase resilience and decrease trauma in survivors.

Violanti et al. (2000) used a measure of "sense of group belonging" (Cohen, Mermelsen, Kamarck, & Hoberman, 1985) to assess quality of social interaction. Because sense of belonging would exist both pre- and postincident, they measured the change in frequency of support before and after the officers death by subtracting interaction scores before the officer's death from those after the officer's death for each person/group (police friends, nonpolice friends, coworkers, relatives, children, in-laws, and parents) mentioned (Hartsough, 1990). It was hypothesized that a positive change in interaction with the police group would significantly decrease psychological distress and trauma. A second dimension of social interaction concerned satisfaction with various groups after the officer's death, including police agencies, police fraternal organizations, and groups outside the police (e.g., criminal justice system, the media, and community persons).

They found that police survivors experienced levels of psychological distress and trauma following the death of their spouses that were higher than in other nonpatient women, and in some categories were higher than psy-

chiatric outpatients. Trauma scores remained elevated and even increased as time since the death increased. As the change in quality of interaction with police friends became more positive following the officer's death, General Symptom Index scores decreased significantly (see Table 12.1). Spouses who reported increased satisfaction with police agencies and fraternal groups also reported decreased symptomatology scores. Satisfaction with police agencies appeared to have a stronger negative association with GSI and Trauma Reaction Index scores than other groups. Regardless of reported positive interactions with outside groups, distress and trauma did not decrease in police survivors (Table 12.1).

TABLE 12.1
REGRESSION ANALYSIS OF SOCIAL INTERACTIONS AND SATISFACTION WITH GROUP RESPONSES ON PSYCHOLOGICAL DISTRESS AND TRAUMA

	SCL-90-R GSI Scores $N = 162$		*Trauma Reaction Index Global Scores* $N = 162$	
	Beta	*Sig. t*	*Beta*	*Sig. t*
Change in Quality of Interaction After Death				
Police Friends	- .287	.008**	- .157	.086
Relatives	- .012	.883	- .029	.741
Satisfaction With Responses of Groups After Death				
Police Agencies	- .254	.0009**	- .336	.001**
Police Fraternal Groups	- .227	.016*	- .115	.243
Outside Community	.157	.075	.212	.017*
Months Since Death of Officer	- .170	.045*	- .155	.088

*$p < .05$, **$p < .001$, $R^2 = .229$, $F = 5.61$, $p < .0001$; $R^2 = .220$ $F = 5.36$, $p < .0001$

From Violanti, J.M. (1996). The impact of cohesive groups in the trauma recovery context: Police spouse survivors and duty-related death. *Journal of Traumatic Stress, 9*, 379-386.

Positive interaction with police friends (those with whom the spouse and the deceased had previously been acquainted) significantly related to decreased symptoms in SCL-90-R subscales and global scores. On the organizational level, support of police departments and police fraternal organizations was associated with a statistically significant reduction in distress and trauma. This was somewhat surprising, as Sawyer (1988) and Stillman (1986) reported that surviving wives expressed feelings of being abandoned by police organizations after the death of the officer. It may be that the timing and longevity of support affects how survivors respond to the organization.

Implications for Intervention and Treatment

In the case of the police family, resilience may best be increased at two levels: (1) the group level, which our study suggests may be associated with reduced distress and trauma, and (2) the individual level, where specific characteristics of the death and individual grief responses must be dealt with. Intervention should be guided by the need to ensure that police survivors can retreat to a safe place of physical and psychological support. Police and family groups may be such a safe place (Figley, 1988; Ochberg, 1995). Figley (1988) described how such groups promote recovery by detecting trauma stress, confronting the trauma, urging recapitulation of the incident, and facilitating resolution. Figley (1989, 1995) discussed a generic treatment model designed to empower (by developing social supportiveness among group members) the family (or group in the case of the police) to overcome and learn from their ordeal with duty-related death and in doing so be better prepared for future adversity.

Unfortunately, not all police agencies are aware that they may be of benefit to survivors. Failure to provide continued support gave survivors the impression of being abandoned by the department (Stillman, 1987) and may account for findings that trauma in survivors does not significantly decrease over time. Police agencies should strive to develop timely policies and practices that promote the development and maintenance of a supportive climate (Paton, 1996) in which support resources are matched to the needs of survivors (Cook & Bickman, 1989; Concerns of Police Survivors [C.O.P.S.], 1997).

The group Concerns of Police Survivors (1997) recommended the appointment of a liaison officer to integrate survivors within the police family and allow them to feel more comfortable in asking questions and making arrangements (e.g., funeral arrangements). They should also be constantly available to the family throughout this traumatic time. If a family support group is organized in the police department, they should be responsible for seeing that the needs of survivor families and their visitors are attended to. The family should have access to other public safety survivors or support groups (e.g., Concerns of Police Survivors, Survivors of Homicide Victims, Compassionate Friends, Parents of Murdered Children).

Our study suggests that trauma remains high in police survivors over time. It is important to help all survivors feel part of the police family for which the officer gave his or her life. Departments can easily keep in touch with the family through monthly phone calls the first year after the death, and less frequently afterward. Coworkers of the deceased officer should be encouraged to visit survivors on a regular basis. The department should always observe the officer's death anniversary date with a short note to the family.

Remember that all holidays are traumatic events for the family the first year. The department should maintain support as long as the family feels they need it. The family will let you know when they are ready to move on with their lives without assistance from the department.

An increase in the quality of interaction with police groups after the officer's death may increase resilience to trauma in survivors. Cohesiveness and a sense of belonging to the police culture, manifest through positive interaction with police friends, the department, and police fraternal groups, assists coping with distress and trauma. Regardless of increased survivor satisfaction with groups outside of policing (e.g., media, justice system, community) their stress scores still increased, suggesting that they may not have received essential personal support directly related to the officer's death. Apparently, police groups provided more meaningful types of support than outsiders to the survivor spouse, reducing their distress.

This study infers that close-knit police groups who provide a sense of cultural belonging may decrease distress among its members in times of crisis. It is uncertain whether this finding would apply to work populations or groups who are less cohesive than the police. It is timely to consider the families and survivors of persons who choose law enforcement as a profession. Recent focus of the exposure of police officers to stress and trauma often overshadows the same residual exposure of their families. The ripple of police traumatic death flows outward, touching all in its wake and leaving a discernible path of grief. We should strive to understand and ameliorate the pain of those left behind and devote more attention to developing resilience in the family of members of high risk professions to facilitate both their capacity to adapt to adverse circumstances and their ability to act as a resilience for those directly involved.

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Chapter 13

RISK RESPONSE MODEL

LEIGH M. SMITH AND JOHN M. VIOLANTI

INTRODUCTION

When exposed to adversity some people and organizations will have better outcomes than others. The reasons why lie in the complex inter-relations among personal characteristics and the nature of organizations. Some of these characteristics are relatively fixed; others can be altered by planned interventions. This chapter describes a generic model of individual reactions to adverse situations that can be used to modify the resilience of people and their organizations when confronted by the risk of disasters.

The inventory of factors affecting peoples' responses to adversity is extensive. As the specificity of a potential risk increases, more local factors can be added to the inventory. Table 13.1 lists some generic factors that have been shown to, or hypothesized to, affect outcomes. Were all these to be incorporated in a model it would be of such an order of complexity to render it untestable and ineffective. The model we propose is based on the following considerations:

1. The variables in the model have predictive utility and are manipulable through intervention strategies at the individual and organization levels;
2. The model reflects the development of processes that affect outcome responses;
3. The processes of resilience and growth be incorporated, rather than just focusing on negative consequences; and
4. the explicit recognition of the two levels, individual and organization, of variables that affect outcomes.

TABLE 13.1
GENERIC FACTORS AFFECTING RESPONSES TO RISK

Organisation		*Person*	
Long-term risk	Market vulnerability	Experience	Past behavior
Industrialisation	Infrastructure	Demographics	S.E.S
Organization	Cohesiveness	Abilities	Personality traits
Resources			
Norms	Current risk	Hardiness	Health
Disaster	Training resources	Beliefs	Self-efficacy
Management teams			
Constraints	Information	Risk perception	Sense of community
Training programs		Expectancies	Training
		Social network	Coping strategies
		Cost/benefit	

Drawing a distinction between factors that could be manipulated and those that are relatively immutable provides the basis for an instrumental model (rather than an explanatory model). The primary purpose of this chapter is to show how an instrumental model can be developed. Although it is known that affective and behavioral responses to stressors are moderated by personality traits, these have limited value in a model designed for modifying individual affective and behavioral outcomes in high-risk situations. Such variables can be viewed as antecedent causes that need to be controlled to assess the relations among the variables that constitute the model.

MODELLING RESILIENCE

Research on the factors that affect responses to adversity has tended to focus on bivariate relations. Although these studies provide some insights into how people respond to adversity, they are less useful in determining why people respond the way they do. This is partly because the complexities of the interrelations among variables cannot be unambiguously read off from bivariate relations and partly because many of the studies have not tracked the processes involved in the development of responses. The structural model we propose makes the sequence of relations explicit. While typically linked to negative outcomes, the risk concept also accommodates positive outcomes and growth (Paton, Smith, Violanti, & Eränen, 2000). Table 13.2 presents positive and negative outcome responses to risk.

TABLE 13.2
TYPOLOGY OF OUTCOMES TO DISASTER RISKS

	OUTCOMES	
	Positive	***Negative***
	Preparation	Anxiety
	Optimisim	Depression
	Responsibility	Complacency
	Community orientation	Displacement
	Cohesion	Despair
	Growth	Helplessness
	Hardiness	Anomie
	Hope	Vulnerability

At this point it is opportune to point out that "risk" has two meanings. First there is the actuary's meaning–"the product of the likelihood of an event by the cost of the event." Second, there is the cognitive state–"the subjective likelihood of the event and what that means to an individual and his or her organisation." This suggests that there are two ways in which the notion of risk can enter the model and that it operates at two levels ñ the individual and the organisation. The generic model in Figure 13.1 is a multi-level developmental system of variables. This model has trait and learned variables at the individual level. The actuarial risk factors at the organization level (e.g., the likelihood of an accident) are also relatively fixed organizational characteristics. These features of the generic model allow for explanatory and predictive analyses. Later we show how an instrumental model can be derived from this generic model.

As with all process models, choices have to be made about what will be specified and where the sequence "begins." In this model, the variables in the "Level-1 Person" and "Level-2 Context" variable sets have antecedent causes that are not modelled. The prefix "level" indicates that the model posits a nested relation between individuals and their organizations. The arrows indicate the causal direction of influences on the outcome variables. Although individuals have formative effects on their organisations these are

left as unspecified antecedents of the variables modelled here. The organization level Context variables directly affect the Person-level variables and independently directly affect the Outcome variables. The Context variables also affect other organization-level variables that moderate the relation between the Person variables and the Outcome variables. Similarly, there are Person variables that act on Level-1 variables that moderate the relation between the person variables and the Outcome variables.

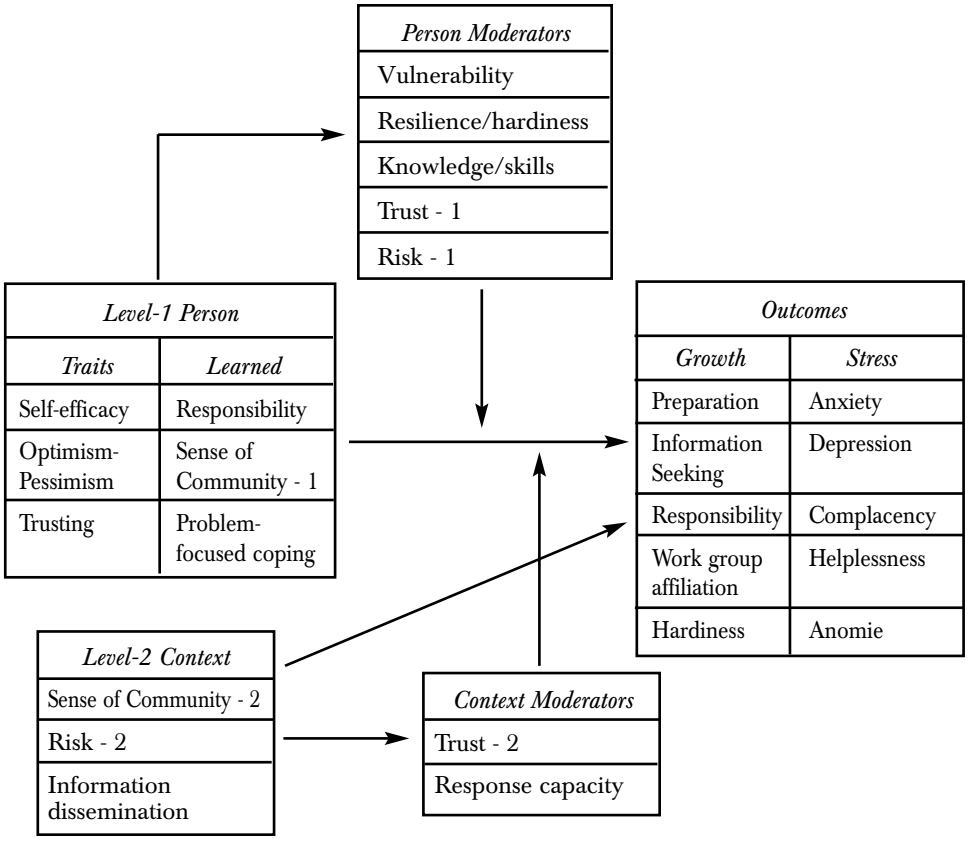

Figure 13.1. A generic model of responses to risk.

The direct effect of the Context variables on the Outcome variables needs some explanation. It may seem impossible that something can affect a person's behavior without involving them. However, remember that the data collected at the person level is all self-report. People are aware of these factors that affect their behavior, though they may not know in detail or accurately how their behavior is affected. The direct effect of Context variables

on Person variables is moderated by perceptual and belief systems, and it is these perceptions and beliefs that then affect the Outcome variables. The direct effect of the Context variables on the Outcome variables represents structural causes that shape peoples' behavior without their ordinarily being aware of them. In the model, then, the person variables operate in the domain of ordinary awareness.

To illustrate this point take the case of "sense of community" (SOC). In the context of an organization this construct represents the degree to which a worker identifies with others in the organization. This will vary across levels within a large or structurally complex organization. The relevant group or organization level for the purpose of this model will be that where workers are proximally or functionally connected in the event of a disaster (e.g., a watch or shift). Although somewhat dependent on the nature of the event, it is possible to generate a typology of potential hazards for most organizations to identify the groupings affected. Each individual in an organization will have a SOC-1 and this can be averaged to derive an index (SOC-2) for the organization (or function/ proximal-level work group). In addition to having a SOC-1, each individual can have beliefs about the SOC-2 of his or her organization. Such beliefs may or may not accurately reflect SOC-2. The model allows for SOC-2 to have an effect on individual outcomes that is independent of the effect of SOC-1.

FACTORS INFLUENCING OUTCOMES

We turn now to a description and justification of the factors that influence the outcomes modelled in Figure 13.1. In the generic model people exposed to high-risk contexts will react and behave in ways that are shaped by their personal characteristics and those of their organization and its environment. As suggested earlier, many individual characteristics affect how people react (Table 13.1). Their personal characteristics can be categorized as those that are distal or antecedent (including gender, genetically driven personality characteristics, education, etc.) and proximal variables. Some traits in this latter category are included in the Level-1 Person box. It is posited that these will have an immediate effect on the variables listed in the Outcome box.

"Self-efficacy," "optimism/pessimism," "trust," and "physical capacity" are all hypothesised to contribute to the formation of responses to disasters. Research has consistently shown that peoples' beliefs in their own capacity to act ("self-efficacy") affects their willingness to act and the behaviors they choose as appropriate. Bandura (1999) contends that self-efficacy not only determines whether coping behavior will be initiated, but also its duration

and intensity. As the need for specific behaviors increases, and the time for their execution approaches, "self-efficacy" is manifested in such precursors of the behaviors as "sense of personal control" and perceived effectiveness of the proposed actions.

Seligman has written widely on learned helplessness, its associated causal attributions, and how these are risk factors for negative mood states such as depression. Peterson and Seligman (1984) summarized the evidence for this and reported on studies that demonstrated that a person is most at risk when the attributions they make are internal ("The cause is something about me"), stable ("The cause won't go away"), and global ("The cause effects a wide range of things"). Seligman (1991) argued that the cognitive component of the risk factor was optimism-pessimism. He emphasized the importance of the "balance" between optimism and pessimism but nevertheless conceptualized them as part of a continuum. More recent work (Chang, 2001; Chang, Maydeu-Olivares, & D'Zurilla, 1997; Xenikou, Furnham & McCarrey, 1997) indicated that optimism and pessimism are separate negatively correlated constructs that independently contribute to the formation of stress and trauma outcomes. Optimism can also be developed to protect people against the negative psychological effects (Day, Kane and Roberts, (in press). Because social phenomena are complex and multifaceted, the generic model posits that both optimism and pessimism can be differentially attached to various aspects of the overall situation and affect responses to risk and disaster. Thus, a police officer could be pessimistic about the outcome of a hostage situation, but optimistic about his or her ability to protect citizens in the future.

In times of uncertainty people not only have to draw on their own internal resources; they also have to rely on other members of their organizations. This is especially true for those charged with managing the organization's response to disasters. "Trusting" (see Ch. 10) will be manifested in the trust an individual has in those people he or she depends on to make informed decisions about the management of responses to risk. The person-level trait will interact, in a given situation, with the actual competencies of these managers in determining an individual's trust. This, in turn, will moderate the relation between other person-level factors and the growth and stress outcomes.

Within gender and age groupings, physical capacity has a formative role for the repertoire of outcome behaviors. For emergency responders, experience accumulated over time (with age) may potentially extend the coping repertoire. This generic variable, like others in the model, would need to be tailored to the specific hazards to which the organization is vulnerable (e.g., child abuse, motor vehicle accidents, earthquakes) and their characteristics (e.g., speed of onset, duration, extent). Specific situations will call on a range of physical and psychological capacities. An individual's profile on these capacities may be instrumental in his or her response to risk and disaster.

Clearly these four variables do not exhaust the list of possible, even probable, factors that are proximal to the outcomes. The generic model is intended to suggest how the procedure of modelling the response process might be undertaken. It shows that these trait factors operate in relation to the outcome variables in a similar manner to the learned factors–"responsibility," "sense of community - 1," "problem focussed coping," and "experience." We shall now describe the roles of these variables.

When confronted with situations that require novel or atypical responses, a person must decide whether he or she has the capacity to carry out these actions and the degree to which he or she have a responsibility to do so. This includes the process of acquiring the knowledge and skills to act appropriately in adverse situations. "Responsibility" (the perception of one's own responsibility for one's well-being) should play a crucial role in the process of developing a repertoire of adaptive behaviors and psychological states.

Organizational action is the focus of the generic model. The greater a person's identification with other members of the organization ("sense of community - 1"), the less likely the person is to opt for an egocentric response to disaster. Sense of community is instrumental in shaping peoples' response to a wide range of situations (Chavis & Pretty, 1999; Chipuer & Pretty, 1999). Sense of community was selected as the generic variable for two reasons. First, it connects this work with the broader field of community psychology. Second, during disasters routine organizational structures tend to become less relevant, and people are left with action dilemmas centered on collective or individual options. Sense of community serves to collate feelings and beliefs about responsibility and support and channel these into appropriate collective actions. It plays a similar role to "normative beliefs" in the theory of planned behavior model (Conner & Armitage, 1998). This construct describes the cohesion that typically prevails in emergency and law enforcement agencies.

Whereas self-efficacy relates to a person's beliefs about his or her capacity for effective action, problem-focussed coping is concerned with the choice of actions. This variable is important because it indexes the tendency to choose behaviors that are directed at changing the situation rather than internal states (Lazarus & Folkman, 1984). The two variables–self-efficacy and problem-focused coping–are contingently, but not necessarily, related. A person can believe that he or she has the wherewithal to cope with a situation while choosing inappropriate responses. These variables potentially tap different sources of variance in determining the outcome in a given situation.

The model allows for two aspects of "experience" to affect outcomes (Weinstein, 1989). First, there is a person's actual or vicarious experience of adversity that may have led to either adaptive responses (Norris, Smith, & Kaniasty, 1999) or heightened future vulnerability. Second, their formal or

other relevant training should be assessed (see Ch. 7). Both types of experience set expectancies and skills and so will influence response to subsequent adverse situations (Paton, 1995).

The level-1 person factors that affect outcomes are themselves modulated by the organization context. The generic model shows three contextual (level-2) variables that directly affect the Outcome variables. These three variables ("sense of community - 2," "risk - 2," and "information dissemination"), which also affect the two contextual moderator variables ("trust - 2" and "response capacity") have been included in the model for the primacy of their effects. Other context variables may also operate in this manner, but it is hypothesized that these are the primary factors.

The context (level-2) sense of community was described earlier. This contextual variable is a characteristic of an organization that may not be perceived accurately by each individual, but which nonetheless has a structural-causal effect on people's thoughts and actions (Kingston, Mitchell, Florin, & Stevenson, 1999). This is analogous to the work skills of individuals and the pool of skills in the organization as a whole. The latter will affect the work practices and productivity of individual workers regardless of their own level of skills.

The contextual variable "risk - 2" indexes the actual risk to which an organization is exposed. It differs from "risk - 1", which is an individual's perception of personal risk. "Risk - 1" need not be veridical (van der Plight, 1996). People regularly and systematically over-or underestimate risks. However, independent of what (nonexpert) people think, reality will impinge on them. In addition, the provision of information about actual risks will feed into the perception of risk and consequent reactions. For this reason, it is important to include a measure of expert assessment of risk. Organizations will, according to locations and circumstances, vary in respect of "risk - 2."

The provision of information on risk and appropriate behaviors affects how people respond. However, the relation between the provision of information and responses is neither simple nor transparent (Weinstein & Sandman, 1993). Attempts to modify behavior on a social scale, as in public health campaigns, by listing the benefits and risks of particular behaviors often fail to produce the desired results (Eggar, Donovan, & Spark, 1993). In the generic model, the relation between context-level variables and Outcome variables is both direct and indirect. The model allows for the effects of these variables to be moderated by other context (level-2) and (level-1) person variables.

Moderating variables interact with other variables to alter their interrelationship (McClelland & Judd, 1993). The generic model incorporates moderating variables at both levels–person and context. These moderators are

hypothesized to act on the relation between the level-1 person variables and the outcome variables, but not on the direct effect the level-2 context variables have. The function of this latter path in the model is to account for the influences that affect outcomes without being registered in ordinary awareness (see earlier). As with the variables previously described, the moderators are general in form and must be operationalized for specific applications.

The distinction between a moderator variable and a mediator variable lies in how each affects the relations among other variables in a causal sequence. A mediator is part of the causal sequence such that the effects of preceding variables on variables later in the sequence is through their effect on the mediating variable. If α, ß and γ form such a sequence and the effect of a α on γ, wholly or in part, is through the effect α has on ß, then ß is a mediating variable. By contrast a moderating variable indicates an interaction with one or more variables in the causal sequence. Groups formed by deaggregating the data on the basis of the moderator variable will have different relations among the variables in the causal sequence. If ß is a moderator between α and γ, then there will be a ß by γ interaction. Subgroups based on ß will show different relations between α and γ.

In the generic model the causal sequences are not specified within the boxes. These relations may be in the form of blocs, or may be sequential with some variables mediating between others. The grouping of variables in the generic model has been into extrinsic variables (primary causes), moderators, and outcome variables. The assumption we have made is that it is important to model the factors that affect how people develop outcome behaviors and that a "one-size-fits-all" approach does not achieve this end.

The level-1 person moderators include: "vulnerability," "resilience," "knowledge/skills," "trust - 1," and "risk - 1." These moderators affect the relation between the level-1 person variables and the outcome variables. The psychological aspects of a person's capacity to cope with adversity include vulnerability (e.g., inadequate social skills) and resilience (e.g., hardiness) factors. When fear interacts with perceived vulnerability, it inhibits planned action (Barlow, 1988). In addition to the belief component of vulnerability, several other aspects are incorporated in the generic model. These include age and general health status under the rubric of "physical capacity" and prior negative experience under the rubric of "experience." "Resilience" is the countervailing factor for vulnerability. A person's capacity to cope with adversity will act as a buffer against unplanned and inappropriate reactions to risk. Although these two factors–vulnerability and resilience–are conceptually related, they can potentially operate independently. They have both cognitive and affective components, and it is generally held that negative and positive affect systems are relatively autonomous (Baker, Zevon, & Rounds, 1995; MacKinnon et al., 1999; Warr, Barter, & Brownbridge, 1983; Watson,

Wiese, Vaidya, & Tellegen, 1999). This suggests that they can operate simultaneously. The complex and multifaceted nature of emergencies suggests that it is important to assess the joint effects of "vulnerability" and "resilience" in moderating reactions to adverse situations.

People cope more effectively with adversity when they are informed about what to expect and how best to react. The level of a person's knowledge and skills will be an important determinant of how that person reacts, regardless of other factors. Consequently, "knowledge/skills" is included as a moderator variable in the generic model. The remaining moderators–"risk - 1" and "trust - 1"–represent a person's assessment of the situation. The perception of risk acts as a trigger to action, though its effects may be nonlinear. The Yerkes-Dodson law (Yerkes & Dodson, 1908) suggests that while moderate levels of stress (perceived risk) facilitate planned action and problem solving, high levels are inhibiting. It is therefore important to know the extent of perceived risk, as this will modify a person's action potentials. The level of risk experienced by a person will relate to that person's perceptions of the capacity of the risk managers to perform tasks. This will be reflected in "trust - 1," the measure of trust in these people. An assessment of this factor also needs to be included as a moderator in the generic model.

Two level-2 context moderators are posited as affecting the relation between the person variables and the outcomes–"trust - 2" and "response capacity." The variable "trust - 2" is construed in the same manner as "sense of community - 2." It is an aggregate index of the trust that individuals have in those managing the organizational crisis response and captures the collective view of the competencies of the managers. The other context moderator ("response capacity") measures the resources, human and physical, available within an organization to create the circumstances in which people can actualize appropriate responses to an ongoing or pending disaster.

OUTCOMES

The literature on self-protective behavior has addressed several issues relevant here. These include the relation of self-protective behavior to risk perception (van der Plight, 1996), message content (Weinstein & Sandman, 1993), prior experience (Norris et al., 1999) and affective states (Weinstein, Lyon, Rothman, & Cuite, 2000). Our model differs in three main respects. First, the outcomes include psychological states–cognitions and affects–in addition to behaviors. Second, it incorporates explicit moderators. Third, the separate and interdependent effects of factors operating at the level of the individual and at the level of the organizational context allow for the deter-

mination of local and non-conscious trans-personal influences on outcomes. The model we present is broader in scope than those concerned with self-protective behaviors. We now turn to discussion and description of the outcomes we wish to model. As outlined earlier, our approach and the generic model we propose allows for negative, positive, and "growth" outcomes. The negative outcomes (e.g., anxiety, depression, helplessness) have been well documented. Consequently these will only be briefly dealt with here. Greater emphasis will be placed on growth outcomes.

"Anxiety" and "depression" are standard variables used in stress research (Cohen, Kessler, & Gordon, 1995), and numerous measures are available. These psychological states signal that people are not functioning well and that they are unlikely to act in appropriate ways in difficult situations. When self-initiated behaviors are desirable "helplessness" attenuate their actualization. The processes that psychologically separate a person from his or her reference group exacerbate the tendency to apathy and an inability to prepare for disasters or adopt self-preserving behaviors when they are required.

The generic model lists five "growth" variables: "preparation," "information seeking," "responsibility," "workgroup affiliation," and "hardiness." As previously suggested, some of these variables are precursors to others. Preparation needs planning and planning requires information: "What do I do? How do I do it? Where do I get the resources?" Even prior to initiating a plan, people must perceive themselves as having some responsibility for their own well-being and recognize their risk status. However, cultures characterized by denial or blaming can reduce perceived risk and responsibility (e.g., Violanti & Paton, 1999). Real responsibility involves seeing the limitations of one's own coping resources, seeking to know more about the risks a situation holds, and seeking ways to deal with them (Paton & Flin, 1999).

How a person acts and the nature of the outcomes is a function of the relation between that person's personal resources and those of his or her workplace. The generic model shows how the dialectic between personal characteristics and organizational characteristics shapes individual behaviors. The variables in the model have been emphasized because they can be altered through training and planning. To optimize positive outcomes, employees need to identify with the fate of their fellow workers and see themselves as having a responsibility to cooperate with collective plans and with some responsibility to contribute, if only through cooperation. Of course a balance needs to be struck between relying completely on organization-based plans and personal coping strategies. A degree of "hardiness" is desirable as it encourages the adoption of appropriate behaviors.

The model in Figure 13.1 is too general and detailed to test as a whole or to employ as a heuristic. The variables need to accommodate specific situations–natural disasters differ from homicides. The specific forms of the gen-

eral variables in the model also need to be operationalized through the selection or development of measures. The generic model, then, stands as a blueprint for a research directed at discovering and understanding the relations among organizational and individual characteristics in forming peoples' response to adversity. At the beginning of this chapter we described the need for instrumental models to manage a set of manipulable factors that affect outcomes to adverse situations. We now turn to a description of an instrumental model (Figure 13.2) derived from the generic model.

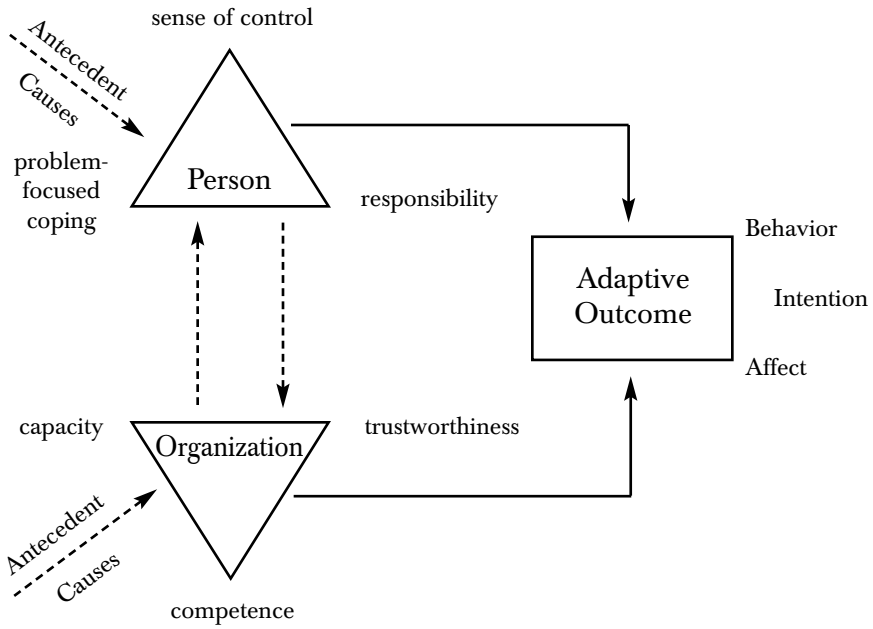

Figure 13.2. An instrumental model of the formation of adaptive behaviors.

First, however, it will be necessary to clarify how the notion of "positive outcomes" relates to the model. The words "positive" and "desired" imply value judgments. In deciding what is a positive outcome, the question of orientation arises; namely, "positive for whom?" A person-centered orientation would allow that any behavior that maximizes an individual's cost-benefit ratio is positive relative to some other behavior with a lesser individual benefit. An organization-centered orientation would make a similar analysis except that "person" would be replaced with "organization." These two conceptions of positive outcomes do not necessarily lead to the same evaluation of a given behavior (e.g., risk to an individual search and rescue worker vs.

the risk of failure to organizational [normative] expectations). The notion of a positive outcome used here leans in the direction of the organization-centered (public norm) orientation. Thus, in the instrumental model the "adaptive" behaviors would be those that maximize the well-being of the organization as a whole.

The instrumental model combines unmoderated person-level and organization-level proximal causes of adaptive behavior. Like the generic model, each variable requires operationalizing for specific events and organizations. At the person-level the development of "problem-focused coping," "responsibility," and "sense of control" can all be modelled by extrinsic factors ("antecedent causes"). Similarly, the antecedent causes of the organization-level variables–"competence," "capacity," and "trustworthiness"–are extrinsic to the instrumental model.

Some of the proximal causes have been described in relation to the generic model–"problem-focused coping," "responsibility," "trust - 2" (trustworthiness), and "capacity." The other variables are derivatives of the generic variables. The person-level variable sense of control is a specific and localized form of self-efficacy. It indexes a person's belief in his or her capacity to draw on personal resources to cope with a situation. Planned action requires this belief and its maintenance throughout the sequence of events leading to an adaptive behavior. At the organization-level, a distinction has been drawn between capacity in terms of infrastructure ("capacity") and the personnel to carry out tasks ("competence"). The distinction is made for two reasons. The structural capacity to carry out tasks is a necessary but not sufficient requirement for their successful completion. Those charged with using the infrastructure need to have the competencies for their successful use. For example, Paton (1995) described how firefighters performing search-and-rescue roles following an earthquake had the capacity to perform the task, but the coordination and control infrastructure (task/role allocation, resource allocation) was rendered inappropriate by atypical and intense disaster demands, reducing their well-being and performance effectiveness. There can also be a compensatory relation between capacity and competence. The two organisation-level variables "capacity" and "competence" parallel the person-level variables "problem-focused coping" and "sense of control." In this sense, there is symmetry between the person-level and organization-level determinants of adaptive behavior.

The value of the instrumental model lies in its utility. The model can be used to monitor the development of target adaptive behaviors. The antecedent causes and their relations to the variables in the instrumental model suggest ways in which programs can be planned and instituted to foster adaptive behaviors. In addition, monitoring the variables specified in the instrumental model provides a basis for evaluating the success of a program

prior to the need for adaptive behaviors to be actualized. Short of the disaster occurring there may be no means, other than an expressed behavioral intention or through a simulation, to determine whether an adaptive behavior is likely to occur. Other adaptive behaviors, such as preparation, can be directly observed.

The instrumental model shows how an optimal context for the development of adaptive behaviors can be formed and monitored. This represents a significant advance over ad hoc approaches to bringing about adaptive changes in peoples' behaviors and psychological states. In combination with the generic model it also provides the basis for a research program that can lead to a greater understanding of peoples' responses to adversity. Because of the focus of the model on growth we should be in a better position to promote and facilitate a salutogenic approach to risk management in organizations.

METHODOLOGICAL CONSIDERATIONS

One way that collective organizational behavior can be thought of is as the modal behavior of the individuals. This modal behavior may feed back on the behavior of each individual. In some models of behavior (e.g., the theory of planned behavior, Ajzen, 1991), this possibility is allowed for by the inclusion of an individual-level variable measuring perceptions of normative behavior. The problem with this approach is that it assumes all relevant trans-individual factors are perceived and that their effects can be captured this way. This may not be the case. In the models presented here, the influence of organization-level variables is explicitly modeled. These models describe relations among specific organizational level input-variables, individual level input-variables and individual-level outcome variables whose justification we have explained.

This analysis of organizational and individual characteristics suggests two issues for research in this field. First is the question of appropriate indicators (see earlier). Second is the question of appropriate methodologies for research designs and data analyses. Here we argue that two classes of influence can be isolated–those operating within individuals and those operating within organizations. The individual-level factors are nested in organizations. Technically, such an arrangement is best dealt with using multilevel (hierarchical) research models (Bryck & Raudenbush, 1992; Goldstein, 1995, Little & Schnabel, 2000). It is important to realize that, although related, organisation-level aggregate variables and their individual counterparts are autonomous constructs. They are not interchangeable, nor do they operate

at the same level. Each can independently contribute to the formation of individual and collective activities.

Changes in hazard environments, periodic hazard activity, and changes within and between organizations over time in prevailing beliefs and levels of preparedness mean that these issues need to be conceptualized within a longitudinal framework. Consequently, the methods used to examine the operation of core constructs and processes must be capable of dealing with the complexities of change data. Instruments designed to assess psychological constructs are used on the assumption that there is a degree of stability in the psychological constructs (e.g., risk perception) being assessed. The assumption that the underlying construct is robust and manifests itself in the same way in all those affected provides a consistent platform for planning, intervention design, and administration and evaluation (Paton & Smith, 1995). However, this assumption may not always be justified (see also Byrne, 1991; Paton, Smith, Ramsay, & Akande, 1999; Viet & Ware, 1983).

A developing theme in the methodological literature on change has been concerned with its form (Collins & Horn, 1991; Golembiewski, Billingsly, & Yeager, 1976; Magnusson & Bergman, 1990; Millsap & Hartog, 1988). Golembiewski et al. (1976) proposed three types of change–alpha, beta, and gamma. When individuals are observed on multiple occasions, changes in measures may reflect events in the intervening period, or unreliable aspects of the measures. Changes in self-ratings may also occur because respondents have formed different relations to, or perceptions of, the items they rate. Researchers therefore need to assess whether changes in measures across time reflect real change, and if they do what type of change they reflect.

In addition to the structural-means analysis approach to assessing change and the use of structural equation modelling for path analysis, other techniques are available for the analysis of longitudinal data. In recent years structural equation modelling has been extended to the analysis of multilevel models such as those described here (McArdle & Hamagami, 1996). Pitts, West, and Tein (1996) addressed questions about the stability of processes over time and provided suggestions as to how these questions might be addressed methodologically and analytically. In dealing with change in organizations, we should be interested in both who changes and how change occurs. Determining the perseverance of types of individual over time (e.g., those who remain unaware of protective behaviors) can be cast as a form of survival analysis and analyzed in terms of survival rates (Velicer, Martin, & Collins, 1996). Data analytic techniques, such as Cox regression (Luke, 1993) can provide the means to determine the factors that differentiate those who change from those who do not change. However, in many instances the data generated in the kind of research germane to issues we describe here is categorical in nature. The growth of logit and probit models has facilitated the

analysis of categorical data and the problem of modeling change over time with multiwave categorical data has been extensively addressed in Hagenaars's (1990) book on log-linear panel, trend, and cohort analysis.

CONCLUSION

Although the issues in designing research in this field are complex, researchers now have a considerable range of techniques and supporting literature at their disposal. Ideally, assessment techniques, and the methodology employed to assess change, should be capable of coping with the complexities to which we have alluded. Multiwave, longitudinal designs ought to be used for research and modeling the processes associated with the development of traumatic stress reactions and the recovery processes at individual and organizational levels, and how these change over time. A longitudinal framework is also better suited to anticipating support and adjustment requirements, for mapping these to the needs of employees, and for evaluating hazard reduction initiatives.

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Chapter 14

RESILIENCE AND GROWTH IN HIGH RISK PROFESSIONS: REFLECTIONS AND FUTURE DIRECTIONS

DOUGLAS PATON, JOHN M. VIOLANTI, AND LEIGH M. SMITH

Nobody can really guarantee the future. The best we can do is size up the chances, calculate the risks involved, estimate our ability to deal with them, and then make our plans with confidence.

Henry Ford II

INTRODUCTION

Since its inception as a field of study, conceptualization of critical incident or traumatic stress has been dominated by the assumption that exposure to adverse, atypical and extreme environmental demands results in those so exposed experiencing negative and possibly pathological (e.g., PTSD) consequences (Violanti & Paton, 1999; Violanti, Paton, & Dunning, 2000). Increasing recognition of the fact that, particularly among emergency, helping, and law enforcement professionals who regularly encounter extreme adversity, distress, and pathological outcomes are not an inevitable correlate of performing in this capacity has led to more critical and searching analyses of how traumatic work is experienced (Violanti et al., 2000).

Although we acknowledge that distress, and in some cases pathological reactions, may accompany the performance of high-risk duties, and that interventions to provide posttraumatic care will be required for those so affected, we must strenuously guard against assuming that such outcomes are inevitable. To do so will hinder both acceptance of the reality of alternative

outcomes and the systematic search for the protective or resilience factors that underpin individual and group capacity to adapt to, and even grow from, exposure to adverse work experiences. The fact that such encounters are a constant and inevitable facet of the work experience of emergency, helping, and law enforcement professionals make this shift in thinking and planning of paramount importance. By identifying risk and resilience factors, developing mechanisms to reduce risk and increasing the availability of, and ability to use, resilience resources, a foundation is laid for a proactive approach to managing critical incident or traumatic stress.

The contents of this book demonstrate how this outcome can be accomplished. It provides organizations with a traumatic stress management model that allows them to plan how to increase the ability of personnel to anticipate and adapt to the demands encountered when operating in hazardous or adverse operating environments. The development of this capability can also promote effective performance under adverse circumstances and increases the likelihood of adaptive and positive resolution following exposure to adverse operational demands.

RESILIENCE AND GROWTH

In Chapter 1, the quote from Epictetus revealed the long-held, but inadequately acknowledged, belief that we can learn and even prosper from exposure to adversity. The intervening chapters described how resilient capability exists at several levels, with personal, group, and organizational variables all being identified as playing a role in this context. The contributors to this book have provided a framework for a salutogenic approach to both organizational analyses and the planned and systematic development of the personal and organizational characteristics required to facilitate the attainment of adaptive and growth outcomes. Although not referring specifically to the members of professions whose role it is to protect and assist those whose lives and communities are disrupted by emergencies and disasters, Henry Ford's words encapsulate the rationale for the approach advocated here.

Those employed in emergency, helping, and law enforcement professions face a future characterized by risk in the form of regular and repetitive exposure to mass emergencies and disasters and their consequences. Nowhere was this more poignantly demonstrated than in the aftermath of the terrorist attacks in New York and Washington D.C. on September 11, 2001. The unpredictable nature, timing and location of these events emphasize the need to identify the risks and risk factors that emergency personnel encounter. Knowledge of these factors will determine the personal, group,

and organizational characteristics required to promote the well-being and performance capability of those who are repeatedly cast into the vitally important role of protecting and safeguarding communities and their members. This, in turn, will facilitate confidence in their ability to deal effectively with such events. By providing a theoretically rigorous, critical, and comprehensive review of these characteristics, a framework for organizational analysis, and the development of the systems, procedures and programs necessary to effectively pursue this objective, becomes available to emergency organizations.

FUTURE RESEARCH ISSUES

Taking the contributions to this book collectively, it is clear that resilience is not a univariate construct. It is a multivariate one. Although the dispositional characteristics (e.g., hardiness, trust, self-efficacy) that personnel bring with them to a given emergency or disaster influence how they respond, their psychological well-being and performance effectiveness under these circumstances is also a function of their being able to render atypical and demanding situations meaningful and coherent. Resilience thus has a prominent cognitive component. However, realizing the full potential of these resources requires that the group, organizational, and operational environments within which the person operates facilitates and sanctions their use. Accordingly, optimizing a capability to adapt to atypical demands, to maintain or regain normal levels of functioning, or to encourage psychological and professional growth from encounters with adversity will require the collective operation of individual, group, and organizational resources. The integration of these factors into the process model described by Smith and Violanti makes it easier to appreciate the need to conceptualize resilience as a developmental phenomenon. This model also makes it easier to understand how resilient capability can vary between personnel and organizations, within a person over the course of his or her working life, or from one situation to another.

Although evidence for the efficacy of dispositional, cognitive, and family resources has been presented here, the contribution of organizational variables as resilience resources has yet to receive the same level of attention. Knowledge of the efficacy of all the factors discussed in this book has been gleaned from their assessment in isolation from one another. Consequently, to future research agenda can be added the need to assess their collective efficacy, interaction effects, the assessment of their relative or weighted contribution, and any additive, subtractive, or compensatory contributions they make to adaptive and growth outcomes.

The process under examination is one involving complex, dynamic relationships between risk and resilience factors. Consequently, the systematic and critical analysis of hazard and risk factors and how they interact with resilience factors to determine adaptive and growth outcomes (e.g., Windle, 1999) should be the subject of more rigorous analysis. Given the orthogonal relationship between loss and well-being (e.g., Hart & Wearing, 1995), additional work should be directed to developing appropriate outcome measures, and the adoption of research methodology capable of managing the implications of this distinction. Smith and Violanti's discussion of the longitudinal assessment of complex, multivariate relationships provides the methodological and analytical direction for future work in this area.

RESILIENCE INTERVENTION

What we do possess at this stage is sufficient knowledge of variables and mechanisms to begin planning systematic research and developing tentative intervention strategies. Until the previous questions are answered, however, a measure of prudence in making claims regarding the nature and effectiveness of intervention is warranted. We can reiterate the conclusions of Masten (1999) in that the complexity of the phenomenon and the rudimentary state of our knowledge regarding resilience argue for caution in overselling what we know or what we may be able to achieve through intervention.

The contributors to this book have provided a theoretically rigorous and (largely) empirically supported framework within which the initial development of effective intervention can proceed. At the same time, articulation of the conceptual and methodological constraints that govern progress in this field (see also Glantz & Johnston, 1999) allows for a more critical approach to intervention development, more accurate qualification of the recommendations made in regard to their likely effectiveness, and provides a basis for planning and conducting critical and constructive evaluation.

Another important potential barrier to the effective realization of the benefits of this more salutogenic approach concerns managerial acceptance of these benefits and the application of the recommendations discussed. Managerial decision making is often driven by economic criteria. Indeed, the acceptance of postincident interventions such as psychological debriefing was driven, in part, by their low costs and minimal intrusion into managerial activity (Stuhlmiller & Dunning, 2000).

In regard to their economic and administrative costs and implications, how might the strategies that could be developed from the contents of this book fare against postincident intervention such as debriefing? Although

such deliberations must remain speculative until the necessary analyses are conducted, there are no grounds for assuming that proactive, preventative intervention to heighten resilience will be any more costly. The assessment of this issue should be informed by the fact that preventative intervention at individual (e.g., stress training) and organizational (e.g., management and emergency systems development) levels can enhance performance effectiveness and well-being in high risk settings, facilitate the prompt and effective return of personnel to routine activities following involvement in emergency and disaster work, and reduce the need for postevent remedial and therapeutic intervention (Alexander & Wells, 1991; Gist & Woodall, 2000; Paton, 1994). Furthermore, the rigorous theoretical perspectives that contributors to this book have brought to bear on resilience facilitates the kind of critical assessment and evaluation methodology that is an essential precursor to the continuous evolution of organizational thinking and practice (Paton & Smith, 1999). The preventative, resilience-promoting interventions discussed here (e.g., trust, empowerment) will also contribute to the enhancement of routine performance effectiveness and satisfaction whether or not personnel are exposed to adverse work demands. In this context, the only real cost is the need for more exacting standards of managerial behavior and greater vigilance in the design and operation of organizational systems, processes and procedures.

CONCLUSION

In conclusion, the dispositional, cognitive, and environmental (group, family, organizational) variables discussed here, and the model articulating the mechanism of their collective action, can serve to both facilitate resilience research and inform the process of incorporating the findings (e.g., by directing the development of the levels of empathy and empowerment required to capitalize on the capabilities and knowledge of personnel) into the fabric of organizational life. When this happens, estimates of the capability to deal with hazardous and adverse work experiences will increase substantially, as will confidence in the planning that precedes the deployment of personnel to deal with the emergencies and disasters that are all too frequent facets of the working lives of emergency, law enforcement, and helping professionals.

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