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Resilience

A New Definition of Health for People and Communities

Alex J. Zautra
John Stuart Hall
Kate E. Murray

Beginning with the Framingham Study (Dawber, Meadors, & Moore, 1951), risk factor research has a long and successful history of identifying biological and psychosocial vulnerabilities to chronic, as well as acute, illness. By age 65, most, if not all, Americans will harbor some significant risk for a life-threatening illness. Yet those who live that long may be expected to live an average of 20 more years. In addition, the National Academy of Sciences finds a decrease in disability rates—falling under 20% for the first time in 2000—among elders, citing education, diet, exercise, and medical and public health advances, all leading to a more vigorous and healthy old age (National Research Council, 2001). Even centenarians profess a level of happiness that rivals that of younger groups and laugh at least as often (Jopp & Smith, 2006). How do these people sustain themselves while ill, and how do so many who are ill recover?

The pursuit of knowledge about these capacities is not just about those individuals who beat the odds. There are also considerable anomalies in the community health data (Evans, Barer, & Marmor, 1994)—levels of illness and disablement that cannot be accounted for in the accumulation of risk indices, and surprisingly high levels of functional health in the face of physical illness that cannot be explained by risk factor research. Social status, for example, confers health advantage even after the calculation of multivariate risk ratios between risk and poor health (Marmot & Fuhrer, 2004). Furthermore, there are apparent paradoxes in the findings for some groups that cut against the social gradient (Heidrich & Ryff, 1993). The best known among them is the Hispanic paradox. Even at high risk on the standard indicators, those with strong attachment to their Hispanic heritage appear healthier as a group than their social status would warrant (Fuentes-Afflick, Hessol, & Perez-Stable, 1999; Gould, Madan, Qin, & Chavez, 2003).

These anomalies may be due to a matrix of factors woven within the fabric of the lives of people and their communities that confer

resilience. Indices of this capacity for resilience may be found within the person, his or her primary network of kith and kin, and the sociocultural profiles of the neighborhood and community settings. In this chapter we offer resilience as an integrative construct that provides an approach to understanding how people and their communities achieve and sustain health and well-being in the face of adversity. Our aim is to define resilience based on current thinking in biopsychosocial disciplines, to outline key research methods employed to study resilience, and to suggest how this approach may further the development of public health and other intervention programs designed to promote health and well-being.

What Is Resilience?

We begin with definitions of the term. The need for clarity here is made all the more important by its popularity in everyday discourse, becoming what Rutter (1999) has called the "millennium Rorschach." Until recently, scholarly work on resilience was the sole province of developmental psychology (Luthar, 2006). In that arena, resilience has been studied as a dynamic process of successful adaptation to adversity revealed through the lens of developmental psychopathology. Across research and practice, there has been considerable debate over the definition and operationalization of resilience (Luthar, Cicchetti, & Becker, 2000). Is resilience best categorized as a process, an individual trait, a dynamic developmental process, an outcome, or all of the above? In addition, where does one draw the line at successful and resilient adaptation versus nonresilient responses?

In our view, *resilience* is best defined as an outcome of successful adaptation to adversity. Characteristics of the person and situation may identify resilient processes, but only if they lead to healthier outcomes following stressful circumstances. Two fundamental questions need to be asked when inquiring about resilience. First is *recovery*, or how well people bounce back and recover fully from challenge (Masten, 2001; Rutter, 1987). People who are resilient display a greater capacity to quickly regain equilibrium physiologically, psychologically, and in social relations following stressful events. Second, and equally important, is *sustainability*, or the capacity to continue forward in the face of adversity (Bonanno, 2004). To address this aspect of resilience we ask how well people sustain health and psychological well-being in a dynamic and challenging environment.

Definition 1. Recovery: From Risk to Resilience

One of the problems we have in understanding the processes of recovery from stressful events is that most models of physical and mental health have not developed an adequate understanding of the meaning of recovery. This problem is made even more apparent by the frequency with which people and communities actually recover from adversity. Masten (2001), in referring to the many children who survive difficult even abusive home environments, called it "ordinary magic." It is most consistent with resilience we observe in human communities: a natural capacity to recover and at times even further one's adaptive capacities. In fact, the modal response to calamity in our community studies has been not to despair but "to see the silver lining." People report they "discovered what really mattered in life," "found out how much others cared," and "uncovered hidden strengths within (or hidden capacities for generosity in others)" (Zautra, 2003). Researchers who have focused narrowly on developmental risks often see resilience in response to adversity as the exception rather than the rule (Luthar, 2006). However, people are extraordinary, and it is common, not rare, to observe these feats of resilience in children (Garmezy, 1991) and across the lifespan (Bonanno, 2004; Greve & Staudinger, 2006). Some initial psychological distress following stressful

experiences is expected and may even be potentially beneficial to adaptation. From a resilience perspective, speed and thoroughness of recovery from harm are the key outcomes to observe. A resilient "recovery" may not be without some remaining emotional "scars," but the return to health is often well beyond what our models of psychopathology would have predicted. A broader and more differentiated view of physical and mental health would be a place to start to capture these resilience experiences.

Though the resilience response may be nearly universal, it is unlikely that we are all the same in this capacity, and that the environmental forces that strengthen or weaken resilience to stress are distributed equally in the population. People differ in their inner strength, flexibility, and "reserve capacity" (Gallo, Bogart, Vranceanu, & Matthews, 2005) just as communities differ in resources and overall resilience capacities. Furthermore, the responsiveness of the social and physical environment differs from one family to another, and from one community to the next (Garmezy, 1991). Some resilience researchers have focused on personality features (e.g., Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal, 2005), and have given relatively short shrift to the social-environmental determinants of response capacities of individuals. Yet without attention to social, as well as psychological, capital within our communities, models of resilience may have limited applicability. A social and community psychology of resilience is needed if we are to understand why many of us are not always able to preserve well-being and sustain our progress toward the goals we have set for ourselves and for those about whom we care (Cowen, 1994). In addition, attention to the social and contextual factors may provide greater insights into differences in resilient processes across cultures, an area that requires greater theoretical and empirical interrogation.

We often fail to recognize that communities recover as well, albeit in potentially different ways across cultures and countries. In fact, recovery from horrific devastation is one of the most important themes of the history of cities. As chronicled in *The Resilient City* (Vale & Campanella, 2005) cities have been destroyed throughout history. Only 42 cities worldwide were permanently abandoned (Chandler & Fox, 1974), and all others have recovered, rising like the mythical phoenix. As Kelly (1970) has reminded us, adaptation principles apply as much to human communities as they do to other ecosystems. It is frequently observed that in the process of recovery from devastation, most members of affected communities demonstrate unusually high levels of cooperation and bonding. Alas, these changes in behavior may not last. Whether it be dramatic examples, such as New York City following 9/11, or more frequent natural disasters, such as floods or hurricanes, people often tend to return to business as usual once the sandbags are removed, the debris is cleared, the insurance claims are filed, and so forth. For many communities, "community resilience" ends with immediate recovery. "Social resilience" may partially result from crises, but lasting sustainable resilience capacities seem to require purposeful intervention in multiple aspects of community, and there are unique approaches to recovery enacted by different systems of governance around the globe. Communities clearly recover; how they do so, and with what implications for future resilience capacity, deserve our attention.

Definition 2. Sustaining Pursuit of the Positive

The second major definition of resilience is adopted from the field of ecology and linked directly to the concept of reserve capacity. Holling, Schindler, Walker, and Roughgarden (1995) define the *resilience* of an ecosystem as its capacity to absorb perturbations/disturbances before fundamental changes occur in the state of that system. By changes in state, Holling and colleagues and others (e.g., Adger, 2000) do not mean a change in the level of a given profile of interactions, but a dynamic, nonlinear change in the nature

of the relationships among constituent parts of the system. When people reach and go beyond their capacities to cope with events, we observe not simply a change in levels of cognition, affect, and behavior but also a change in the nature of relationships among these core elements of the human response.

The study of chronic pain patients provides one illustration. During episodes of pain and stress, there are changes in not only the level of negative emotion but also the relation between positive and negative states, revealing a reduction in the complexity of a person's affective experiences (Zautra, 2003; Zautra, Fasman, et al., 2005). Based on these findings, it seems that heightened stress and pain lower the capacity of the person to distinguish between positive emotion and the absence of negative emotion, lowering the sustainability of positive affective engagement.

Kelly (1955) was among the first to point out that the constructs we use to understand ourselves are oriented to the prediction and control of future events. We follow his lead in proposing that the natural course of one's life has a forward lean toward engagement, purpose, and perseverance. Mind–body homeostasis is sustained not by emotional neutrality but by ongoing, purposeful, affective engagement. From this perspective, resilience is expected to extend beyond the boundaries of a person's capacity to stave off pathological states, or a community's ability to recover from a disaster; thus, it includes sustaining pursuits of the positive. In this sense, *individual resilience* may be defined by the amount of stress that a person can endure without a fundamental change in capacity to pursue aims that give life meaning. The greater a person's capacity to stay on a satisfying life course, the greater his or her resilience. Whereas resilient *recovery* focuses on aspects of healing of wounds, *sustainability* calls attention to outcomes relevant to preserving valuable engagements in life's tasks at work, in play, and in social relations.

Behavioral scientists, as well as clinicians, who are unaware of the shortcomings of their conceptual models of health and mental health have difficulty understanding the discontinuities between a person's level of suffering and capacity for psychological growth. Attributes of the positive, such as "satisfying life course," are often left undefined, or are defined on the basis of the absence of some negative attribute. Yet we all know people and communities that appear perfectly adjusted to their circumstances but do not have the capacity to plan for them. Their ship is still in the harbor. We know of people who carry full diagnoses of illness, even mental illness, yet show spark, wit, and perseverance that is remarkable for even the healthiest of us. The absence of illness and pain is no guarantee of a good life. Some paradigms within the clinical sciences that have focused on revealing hidden pathologies within us have often appeared blind to the natural capacities of people, even those who are ill, to resolve problems, bounce back from adversity, and find and sustain energy in the pursuit of life's goals.

There are parallels in the study of communities. We often define the *quality of life* within a community by the absence of crime, the safe streets, the convenience to stores selling everyday commodities, and a relatively unfettered path from home to work and back again. If this were all that attracted us to community, though, no one would bother with Manhattan, San Francisco, or Los Angeles. These very diverse, vibrant places prosper because they attend to the basics, as well as provide high levels of stimulation and opportunity, even though they may introduce more hazards into everyday life (Florida, 2004). People need the structure of a coherently organized physical environment that affords them basic goods. They also benefit from communities that support their needs for social connection and psychological growth. Resilient community structures build on peoples' hopes, as well as provide a means of circling the wagons to provide a "defensible space." We need definitions that go beyond the absence of problems: not just risk, but also capacity, thoughtfulness, plan-

ning, and a forward-leaning orientation that includes attainable goals and a realistic vision for the community as a whole.

How does our focus on sustainability of the positive as resilient compare in saliency to recovery? The capacity to mount effective responses to stress and to resist illness is a fundamental imperative. But survival is not enough for resilience. A fulfilling life is also fundamental to well-being, so changes that affect our plans and goals for ourselves, our families, and our communities need attention as well.

The Role of Awareness in Resilient Lives

Recovery and sustainability are different in one critical respect. For recovery, homeostasis is the fundamental principle: a return to a former, more balanced, state. Sustainability, on the other hand, is not based on push-and-pull mechanisms of action and reaction. This condition depends on unique human capacities for appraisal, planning, and intentional action. Whereas automaticity characterizes homeostatic processes, awareness and choice characterize the development of sustainable human values and purposes.

The implications of this distinction are profound. First, it seems possible, even likely, that many people recover from adversity without giving the experience much thought at all. Physiological systems are built to bounce back. One's blood pressure rises under stress, even "boils" when one is angry, but returns to resting levels without any special work on the person's part. Psychological levels of well-being and distress, and social perceptions, such as interpersonal trust, show changes in response to adversity only within a range of values, returning to preadversity levels except under the most extraordinary circumstances. Loss naturally leads to sorrow. For some the grief is remarkably understated, but for others the grief seems so strong as to be frightening. At the time we are faced with grief at its peak levels, it may appear that we will never recover. But just as we say that to ourselves, a light appears at the end of the tunnel, and we begin to move toward it.

There are cultural differences in how people rebound from adversity. David Brooks (2008) noted how little trauma and grief there was among the survivors of an earthquake that struck China's Sichuan Province in 2008, killing 70,000 people. Instead of sorrow, he observed a pragmatic mentality: "Move on, don't dwell, look to the positive, fix what needs fixing, and work together." But even in Western nations, quick recovery is the rule. Bonnano (2004) found that a high proportion of those who lost a close family member showed no grief reaction, and another significant proportion showed rapid recovery following the death.

Individuals may differ in the extent to which they are able to rebound fully and rapidly. McEwen (1998) introduced the idea of *allostatic load* to describe elevations in physiological indicators that appear to defy homeostatic principles: cortisol levels and blood pressure that do not go lower during the day, for example. Depression and anxiety may be added to the list of indicators of load that, once elevated, does not fall back to normal levels for some people. But these are exceptions to the principle of recovery. The science and practice of psychosomatic medicine arose to address just these kinds of abnormal "heterostatic" patterns.

The normal course of human response is to return to baseline. Interventions are not needed to coax most people back to health, unless there are other problems. A physiological propensity toward autoimmunity, for example, might lead to rheumatoid arthritis for those suffering from episodes of major depression. Some people have great difficulty admitting that they suffer, and they deny painful experiences even to themselves. In psychoanalytic frameworks, denial can turn ordinary experiences into nightmares, a dynamic that influences our emotional lives in unpredictable ways, sometimes leaving us more troubled than we were by the original experience.

The young are without the means to comprehend fully a highly threatening experience. Often unprepared to cope with implications of highly stressful events, a youth's emotional wounds may be left unhealed. Abuse and early trauma can invade awareness years later, disrupting homeostatic processes and chronically elevating central psychological and physiological processes in homeostatic regulation (e.g., Luecken & Appelhans, 2006; Luecken, Appelhans, Kraft, & Brown, 2006). Researchers in behavioral medicine have verified these kinds of costs of early trauma, but even here, not every child is distressed. If we look, we see plenty of the "ordinary magic" of resilience (Masten, 2001) throughout development.

Sustainability and Awareness

Sustainability of purpose invites more consideration of existential questions than does recovery. How do we want to live? What do we wish to accomplish? Which voice within do we listen to most fervently? This is the world of choice and value, and it is surprising how little time most of us spend in this world. Nevertheless, sustainability is a moot point unless we are aware enough to have pursuits that give our lives meaning beyond recovery and survival (Ryff & Singer, 1998). Without a sense of purpose, there is no purpose to sustain, and without a sense of value, no meaning can lengthen the life of the emotions that accompany a positive experience. We are willows in the wind, without a direction of our own.

Awareness is a prerequisite to these higher-order processes, and it is only logical to extend this discussion to include levels of awareness. Some forms of consciousness are more likely than others to yield a rich bounty of meaning and value. Tolle (2005) and others talk about differences in types of awareness. Here it is possible to introduce a range of possible definitions of the quality of the conscious experience. Different cultures have different ways to order the quality of conscious experiences as well (e.g., Diener & Suh, 2000). Western and Eastern philosophies, for example, offer contrasting views on the nature of conscious experience most likely to sustain well-being. Western views focus on choice and mastery over the environment, whereas Eastern philosophies emphasize full awareness and acceptance of experience, however painful, to gain an enlightened and "joyous" view of the world. These cultural differences underscore that there is more than one way to be resilient, and that greater understanding of resilience processes across cultures is needed.

When thinking of a community's resilience, this distinction between recovery and sustainability is all the more apparent. However, "awareness" is not a property typically ascribed to communities, so, at first glance, it would appear irrelevant. For many, an effectively managed community is one that operates like clockwork. The trains run on time regardless of what is happening, and people shuffle forward as expected, undeterred by calamity. Indeed, an effective future plan for recovery in a community following a natural disaster is one that arranges resources in such a way that the response is as swift and automatic as possible. Emergency deployments are thoughtfully planned before the fact. During the disaster, members of the community hope that everyone knows what he or she is to do without question. They may be guided to safety by set programs, modified in process from the top by only a select few engineers with authority. Yet, from experience, we know that a substantial transfusion of cooperation as a result of disaster can sometimes be the key ingredient in community recovery. Two key research questions remain:

1. Why is it that increased cooperation and bonding occurs in some communities but not in others, despite similarity of the event?
2. Why is it that immediate cooperative responses often dissipate and do not lead to continued collaboration after immediate recovery?

Sustainability of community life requires a different kind of thinking and planning, one that relies on raising awareness and participation of the whole, not just investment in the skills of a few. Fundamental to elevation of awareness to purposeful collective action are processes that promote awareness, social cohesion, and connectedness, and participation by all in the functioning of a healthy community system. Here is where the Sarason (1974) concept "sense of community" is most applicable. Without a shared sense of purpose within the community, there may not be much of a community to sustain anyway. There may be "bricks and mortar" to be sure, but for purposes not defined by those who live and work there. Just as there are levels of awareness and conscious engagement within individuals, communities vary in the quality of citizen awareness, contribution, and commitment to goals. We believe the sustainability of a community's future is in direct proportion to the quality and extent of collective awareness, and direction for growth and development.

What contributes to these capacities, and how to foster these processes within people and their communities, are the key questions that need to be addressed by resilience researchers. New innovative programs focused on resilience are under way and would benefit from paradigm guidance and a better articulated and integrative set of methodologies. Next, we examine measures and methods that may be useful in the study of resilience within people and across communities. We propose one important distinction to keep in mind: Resilience is an outcome of successful adaptation to adversity, and is revealed by sustainability, recovery, or both. Resilience processes are those that have garnered empirical support as variables that increase the likelihood of those outcomes. For the field to advance it is essential to keep the processes and outcomes distinct. Doing so allows us to develop ways to examine the evidence for resilience processes, without confusing independent and dependent variables (see also Greve & Staudinger, 2006).

Identifying Indicators of Resilience Processes

At this stage of resilience research, social scientists have advanced the field with propositions regarding the key biopsychosocial processes that further recovery and sustainability (e.g., Hawkley et al., 2005; Ong, Bergeman, & Bisconti, 2004). Reliable measures of core aspects of positive mental health (Ryff & Keyes, 1995), personal agency, emotional maturity, and subjective well-being (Vaillant, 2003) have provided substantive means of evaluating those propositions. Furthermore, Charney (2004) and Curtis and Cicchetti (2003) have reviewed potential neurohormonal and genetic processes that may yield physiological markers of resilience. Greater specificity in reliable measurement is increasingly available across the levels of inquiry.

A key question for resilience research is how new indicators of resourcefulness differ from established ones of vulnerability. Table 1.1 illustrates how such indices of resilient processes compare to more conventional indices of risk across different levels of analysis. On the left side are examples of risk factors culled from studies of health risk, beginning with the Framingham Study (Dawber et al., 1951). These "usual suspects" are well-established markers of high risk for a number of health problems as people age. On the right side of the graph is a contrasting set of variables that identify biopsychosocial and community resources. Many of these indices have been associated with better psychological and physiological functioning, but for fewer studies have been conducted on the positive side of the ledger.

Resilience Processes as a Separate Dimension

The evidence to date indicates that resilience resources illustrated in Table 1.1 are not qualities found at the positive end of a single continuum of risk but are a separable factor of well-being altogether that confers unique physical and mental health advantages not

TABLE 1.1. Risk and Resilience Resource Indices

Risk factor index	Resilience resource index
Biological	
• Blood pressure: diastolic > 90, systolic > 140	• Heart rate variability
• Cholesterol > 240 mg, resting glucose > 124, body mass index > 25	• Regular physical exercise
• Genetic factors associated with anxiety	• Genetic factors associated with stress resilience
• High C-reactive protein and/or other elevations in inflammatory processes	• Immune responsivity and regulation
Individual	
• History of mental illness	• Positive emotional resources
• Depression/helplessness	• Hope/optimism/agency
• Traumatic brain injury	• High cognitive functioning, learning/memory and executive functioning
Interpersonal/family	
• History of childhood trauma/adult abuse	• Secure kith/kin relations
• Chronic social stress	• Close social ties
Community/organizational	
• Presence of environmental hazards	• Green space and engaging in the natural environment through community gardening
• Violent crime rates	• Volunteerism
• Stressful work environment	• Satisfying work life

accounted for by assessments of relative risk (e.g., Steptoe, Wardle, & Marmot, 2005). To characterize the nature of risk and resilience we need models that contain at least two separate factors: One that estimates vulnerabilities and another that estimates strengths (Zautra, 2003). Resilience depends as much on keeping separate that which is different as on integrating parts that fit together to make a congruent whole. A psychological economy that equates the positive with the absence of the negative is a model for simplicity within the mind, not growth.

One reason we need to distinguish factors is that they address two fundamentally different motivational processes: the need to protect and defend against harm, and the need to move forward and to extend one's reach toward positive aims (Bernston, Caccioppo, & Gardner, 1999). These processes infuse a two-factor meaning structure into emotion, cognition, and behavioral intention. Indeed, neurophysiological responses, including both electroencephalographic (EEG) and functional magnetic resonance imaging (fMRI) data, support distinct neural structures for the regulation of positive as opposed to negative emotive responses (Canli et al., 2001; Watson, Wiese, Vaidya, & Tellegen, 1999). Underlying cognitions of personal control and mastery show two factors (Reich & Zautra, 1991): one of agency, optimism, and hope, and another of helplessness, pessimism, and despair. Social relations have similar differentiated structures. The extent of negative social ties does not predict the extent of positive social ties (Finch, Okun, Barrera, Zautra, & Reich, 1989). Even within intimate spousal relations the extent of negative social interaction does not account for the extent of positive exchanges between partners (Stone & Neale, 1982).

When investigators have constructed separate indices of positive and negative aspects of the person and/or social relations, they have uncovered surprising currency for positive aspects in prediction of health and illness that is not accounted for in measures of negative affective factors (Cohen, Doyle, Turner, Alper, & Skoner, 2003; Moskowitz,

2003; Pressman & Cohen, 2005; Russek & Schwartz, 1997; Seeman et al., 1995). Laughter, positive affect, and optimism; emotional range, as well as maturity (Vaillant & Mukamal, 2001); and the capacity for empathy and support for others all may infuse people with potentially life-sustaining resources even in the face of considerable distress (Zautra, Johnson, & Davis, 2005). It is important not to overstate the amount of psychological muscle it might take to be resilient. Resilient actions often start just with a smile or a moment for reflection that welcomes a broader perspective and encourages a thoughtful optimism about events.

In collaboration with other investigators, we have conducted three studies of risk and resilience with patients challenged by chronic pain disorders (Furlong, Zautra, Puente, López, & Valero, 2008; Johnson-Wright, Zautra, & Going, 2008; Smith & Zautra, 2008). Each of these studies examined whether measures of resilience resources formed separate factors and predicted health outcomes over and above risk factors in patients with rheumatic conditions, including rheumatoid arthritis, osteoarthritis, and fibromyalgia. Although each study relied on somewhat different predictors and different health outcomes, each found evidence of separate but inversely correlated factors of resilience and risk, and in each case the resilience factors predicted key health outcomes after researchers controlled for risk. The Smith and Zautra study of patients with rheumatoid arthritis, for example, identified a resilience factor that comprised measures of active coping, acceptance, positive reinterpretation and growth, purpose in life, and optimism that had a modest negative correlation ($r = -.31$) with a vulnerability factor containing scales measuring anxiety, depression, interpersonal sensitivity, and pessimism. Scores on vulnerability (but not resilience) predicted daily fluctuations in negative affect, including elevations in negative emotion on days of elevated pain. Those participants with high resilience reported more everyday positive interpersonal events, more positive emotion, and greater responsivity to daily positive interpersonal events. Vulnerability scores were unrelated to those positive affective outcomes.

Indicators of Individual Resilience: Resources and Outcomes

At the level of the individual, resilience concepts have led researchers to develop indices of *positive adaptation*, with items such as "I tend to bounce back quickly after hard times" (e.g., Smith et al., in press). They constitute self-report measures of resilient outcomes. In child development, this research has focused on competence and adaptation, stating that adaptation is identified by children successfully meeting developmental criteria (Luthar, 2006). For adults and older adults, preservation of health and well-being in the face of adversity provides key resilience outcomes. Here we urge further work to distinguish between the resilience outcomes of recovery and sustainability. Speed with which a person regains physiological homeostasis following inflammation in an autoimmune flare-up is one example of *recovery* aspects of resilience. The length of time to return to prestress levels of depression is an example of recovery in mental health. In contrast, *sustainability* in mental health is revealed by the preservation of energy and commitment to purposeful engagements in work and family life under the adaptation challenges imposed by psychosocial distress. For example, resilience may be examined through estimates of sustainability of daily physical functioning under the stress of an episode of chronic pain. In a recent public health study, retention of 20 or more teeth was used as the primary index of resilience to urban poverty (Sanders, Lim, & Sohn, 2008).

To assess resilience resources, the researcher needs to be guided by theoretical models of how people adapt successfully to stressful events. To date, emphasis has been placed on variables linked by theory and/or data to greater endurance. Investigators

have begun to examine several key variables of this capacity, including measures of coping, flexibility, and personal agency; sense of purpose; positive emotional engagement in daily life at home, work, and at play; emotion regulation; and indicators of physiological buoyancy, such as heart rate variability (Connor & Davidson, 2003; Keyes, 2004; Masten & Powell, 2003; Ryff & Singer, 1998; Seligman & Csikszentmihalyi, 2000). Theoretical models, research, and interventions must also take into account cultural values, beliefs, and norms to increase understanding of resilience resources in the experiences of individuals around the globe.

Public health researchers have studied related processes for some time as antidotes to stress and vulnerability. Two examples of this emphasis are the study of social support (Berkman & Glass, 2000) and personal control (Pearlin & Schooler, 1978; Reich & Zautra, 1990; Schulz, 1976), both seen as resources that promote adaptation to stressful situations. Indeed, concepts of personal mastery and social support are among the most thoroughly conceptualized, researched, and applied concepts in all the social sciences (Coyne & Downey, 1991; Skinner, 1996). The perception that one can achieve desirable goals and retain a sense of mastery when life events threaten one's personal control beliefs defines the resilient individual. Furthermore, the person's social world provides the meaning structures and supportive resources that enable him or her to meet adaptation challenges. A science of resilience utilizes the best of these approaches in the development of indices that promote recovery and/or sustainability.

Some Candidate Indicators of Community Resilience

Work with communities should also take into account a two-factor model of resilience in developing indicators. As with individual research, examination of community-level variables has grown out of a risk-based tradition. There are numerous assessments that focus on community risk, such as crowded housing, poverty, high school dropout rates, and income inequality promoted by the urban Hardship Index, now in its third edition (Montiel, Nathan, & Wright, 2004). Other indices and models that focus on community and neighborhood stress, such as the Community Stress Index (CSI; Ewart & Suchday, 2002) and measures of neighborhood problems (Steptoe & Feldman, 2001), have also been developed to examine psychosocial effects of environmental stress. Links between neighborhood stress and deprivation, and individual mortality and illness constitute an important field of inquiry in public health (e.g., Tonne et al., 2005).

As Beck (1992) has noted, we tend to focus on living in a "risk society," where our public policies, social services, nonprofit and other organizations work to identify problems and areas of weakness in our communities, and in turn attempt to alleviate those symptoms. In fact, studies of neighborhood crime and safety; poverty alleviation; welfare reform; economic development of poor, inner-city neighborhoods; and so forth represent a virtual subfield of urban inquiry. Even former Senator Daniel Patrick Moynihan, remembered in part for his famous critique of the poverty industry–complex, accepted the risk society model. Such attitudes and beliefs trickle down from policies and community leaders to color the way people construe their life experiences and their motivations.

However, the last two decades have given way to an outcropping of research on community resources that foster resilience. At the forefront of this research, extensive examinations of *social capital* have underscored the importance of social trust, reciprocity, neighborhood efficacy, and civic engagement in many aspects of community life (Coleman, 1990; Portes, 2000; Putnam, 2000; Putnam, Felstein, & Cohen, 2003; Putnam, Leonardi, & Nanetti, 1993). Not surprisingly, given the importance of social support and personal mastery as resources that promote adaptation to the most stress-

ful situations, social connectedness and cohesion have been shown to be linked to greater vitality and stability in communities (Langdon, 1997). Studies probing the link between different indicators of social capital and health outcomes (Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997; Veenstra et al., 2005), and empirical research examining the "mosaic" of community risk and protective factors continue to highlight the critical influence of place on individuals (Fitzpatrick & LaGory, 2003). These studies help us understand the complex and variable matrix of capacities that communities rely on to enhance the physical, mental, and financial outcomes of their constituents and the individual consequences of developing greater social and human capital.

Just as some individuals appear more resilient than others, similar variation in resilience capacity has been found among communities (Chaskin, Brown, Venkatesh, & Vidal, 2001; Pelling, 2003; Vale & Campanella, 2005), with some communities better able to maintain healthy growth and development, and to respond to stressors such as economic downturns or natural disasters. This general finding raises profoundly important questions about the nature of the relationship between individual and community resilience, and the community role in crafting deeper wells of resilience. To what extent do communities teach, or instill, resilience in people as opposed to either nurturing or blunting resilience tendencies that people bring to a situation? How much of the variation in community resilience can be manipulated by community programs, resources, and activities versus variance that is more predetermined, ranging from genetic determinants to some social, economic, and educational factors that are difficult to change?

Previous researchers have developed several hypotheses and potential advances in identifying key factors of community resilience capacity but less hard data with which to discern how best to conceptualize and assess these qualities (Flower, 1994; National Civic League, 1999). These questions call for thorough empirical study grounded in theory and guided by advanced methods of inquiry that rely on a multilevel framework for conceptualizing and evaluating the relationships between indices of social, community, and personal capacity. We suggest that attention to distinctions between recovery and sustainability may add clarity to research linking social worlds to health outcomes. Wen, Browning, and Cagney (2007), for example, studied neighborhood correlates of physical exercise, a good indicator of sustainability of health. Other researchers may attend to neighborhood rates of recovery following illness. Different community factors may be responsible for sustainability versus recovery outcomes.[1]

A working hypothesis that guides current research on community resilience is that communities, like people, can be taught to be resilient. But we are learning that this is not an endeavor of quick and easy fixes. Communities must also nurture and build resilience from existing natural relationships and among existing institutions. For communities, as well as individuals, sustainable resilience capacities are built over time, require a focus (often a refocus) on strengths not weaknesses, and rest on improved self-organization, self-control (mastery), and social connection.

The bridge from culture to health is built across neighborhoods and communities that connect individuals who share common space, as well as common ground, to support a collective hope and efficacy (Duncan, Duncan, Okut, Strycker, & Hix-Small, 2003). Research on racial segregation and health disparities has shown how neighborhood resources can profoundly influence individual health outcomes (e.g., St. Luke's Health Initiatives, 2003). These research efforts indicate that communities vary dramatically in their capacity to promote and sustain health and healthy communities (Kretzmann & McKnight, 1993). Yet studies that have examined the relations between community-level factors such as social capi-

tal and person-level variables (e.g., health behaviors) have had mixed results (Carpiano, 2006; Portes, 2000; Ziersch, Baum, Macdougall, & Putland, 2005), suggesting we have only begun to understand the boundaries of influence of the social domain on individuals.

Inconsistencies are not surprising given that different variables have been used in each study to describe community capacity, resilience, health, and well-being. In addition, many questions remain in community research, such as how to define communities and isolate their effects beyond that of individual variables. Communities are complex, as are the few partial theories explored by analyses of these variables (Bourdieu, 1986; Coleman, 1990; O'Campo, 2003; Portes, 2000; Szreter & Woolcock, 2004). Broad descriptive analyses of communities that range from socioeconomic to environmental factors, from crime statistics to educational outcomes, are now available, but they lack integrative focus. Research papers are brimming with hypotheses identifying key factors of community capacity but contain little hard data with which to discern how best to conceptualize and assess these qualities (Flower, 1994; Hall, 2002; National Civic League, 1999). Both individual and community inquiry would benefit from integrative theory and multilevel approaches to this research.

In Table 1.2 we illustrate how measures of resilience resources may be paired with the resilience outcomes of recovery and sustainability across three levels of inquiry: individual, family, and community. These pairs represent hypothesized relationships between resilience resources and outcomes, and may serve as a guide to building a science of resilience over the next decade of research. For example, under individual resources we list "efficacy expectations" and pair that resource with prevention of chronic disablement following injury or illness. There is evidence of this relationship already in the literature (Bodenheimer, Lorig, Holman, & Grumbach, 2002), but we do not know the full extent of that relationship, nor do we

TABLE 1.2. Illustrations of Resilience Resources and Hypothesized Resilient Outcomes

Resources	Hypothesized outcomes
Individual recovery	
• Heart rate variability	• Physiological recovery following stress
• Supportiveness of social network	• Low depression and anxiety following loss
• Coping capacity/efficacy expectations	• Prevention of disablement following injury
• T-helper cell type 1 and 2 (Th1/Th2) balance of immune response	• Rapid immune response to acute illness/injury
Individual sustainability	
• Sense of purpose	• Sustained elevations in positive emotion and hope
• Emotional awareness and clarity	• High levels of emotion differentiation/complexity
• Social connection/affiliation	• Social meaning and value sustained under stress
Family/community recovery	
• Empathetic concern for family/neighborhood/community	• Rapid return to normal pace of community life following disaster
• Rapid response crisis training	• Absence of collateral damage during recovery
• Fairness in allocation of local resources	• Minimal "place" clustering of chronic illness
Family/community sustainability	
• Leadership fostering citizen participation	• Vitality/enthusiasm for living shared by members
• Culture of democratic decision making	• Lasting trust in governance of community resources
• Reciprocity and mutual respect in community relations	• High levels of well-being shared by those in the family/community

know for whom this connection is more or less likely. The resilience outcomes for sustainability are different than those designated as "recovery." These outcomes fall within the realm of positive mental health (Ryff & Singer, 1998; Zautra, 2003), identifying the growth and maturation of some of the best qualities of the human experience.

In family/community levels we propose links between attributes of group relations and outcomes favorable to community resilience, such as rapid recovery following a natural disaster and trust. We include these kinds of hypotheses to encourage greater attention to the broader social context and the role of "community" in sustaining well-being for populations. Often researchers only study characteristics of the person and his or her "perceived" social world to test predictions of individual well-being. The role of social relations is too fundamental to sustaining health and recovery from illness to be ignored any longer by research.

Methods of Inquiry and Resilience Outcomes

Longitudinal Design

To develop the appropriate technologies for the study of resilience we need to follow a few basic principles. First, we need to study resilience over time. People develop themes in their lives that offer them hope, optimism, purpose, emotional clarity, and a wisdom built on a complex and accepting view of their social relationships. But they do not do so all at once. Resilience, as we see it, takes time to unfold. Furthermore, there are many bumps along the way, periods of life in which many people look anything but resilient. If we fail to keep the cameras rolling past the point of an illness episode, we then miss capturing the evidence we seek. A focus on the presence or absence of the episode leads us to see people as healthy only until they exhibit signs of illness; then they are sick. This way of thinking places enormous constraints on the development of constructs that can inform our understanding of adaptation across the lifespan. For example, a person may be nourished by awareness of complex and at times painful emotions, a benefit that is not always immediately apparent. Only through longitudinal observation and carefully conducted birth cohort studies (e.g., Silva & Stanton, 1996) peppered with qualitative evidence from life-changing narratives do we discover how the person has been and can yet be resilient (McAdams, 2006).

Developmental tasks are natural challenges to resilience across the lifespan that identify problems, as well as reveal hidden capacities within. People who look resilient in youth may not retain their resilient capacities in later life, though we suspect that the qualities that make one resilient do tend to generalize to other situations and continue to support successful adaptation and recovery later in life. The degree of cross-situational consistency and stability of resilience over time is important to develop further in future studies. Both the development of these capacities and their sustainability requires us to understand the trajectories of the resilient mind and body over the life course.

Several longitudinal studies within developmental psychology provide a starting point for such inquiry. A seminal study by Werner and Smith (2001) followed children on the island of Kauai from infancy through adulthood, with the initial sample targeting all pregnancies on the island in a given year. Through data collection and analysis spanning 40 years, this research has been able to identify key risk and protective factors that influence outcomes across child development and into adulthood. Findings have emphasized several key factors influencing resilience outcomes, including (1) individual characteristics, such as self-esteem and purpose in life; (2) characteristics of families, such as maternal caregiving and extended family support; and (3) the larger social context, especially having adult role models who provide additional support (Luthar et al., 2000; Werner & Smith, 2001). This study, along with other major longitudinal studies

within child development (see Luthar, 2006, for a review), provides a framework for tracking resilience development among children and adolescents over time and in their transitions into adulthood. Although resilience research in child development provides a critical foundation, longitudinal inquiries of health and well-being across adulthood introduce unique challenges (Ong, Bergeman, Bisconti, & Wallace, 2006). The specific risk and protective factors, and their salience to the desired goals for competence and adaptation, vary across the lifespan and are influenced by culture and context.

Resilience research with adults must also address physical health, a domain diminished in the child literature due to difficulty in detection of physiological processes in the early years of life that increase risk for illness later. To fully understand resilience in adults, we advocate a mind–body approach that incorporates both physical and mental health, and the interactions between the two. The Framingham Study (Dawber et al., 1951) has identified many critical risk factors for illness and pathology over the course of adulthood, such as the role of cigarette smoking and unhealthy diet on physical health outcomes. The next question then is, what are the predictors of continued good health and functioning throughout life? Antonovsky (1987) identifies *generalized resistance resources* as the attributes and resources that help individuals to maintain homeostasis and optimal health. Others (Evans & Stoddart, 1990; Singer & Ryff, 2001) also have recognized the need to examine not only trajectories of illness but also trajectories of health. Resilience theories that provide coherent and integrative biopsychosocial models of adaptation would provide this type of inquiry.

Multilevel Analysis

We define the content of inquiries into resilience as (1) the study of the processes of recovery from adversity, and (2) the processes underlying sustainability of purpose. The best methods to advance these inquiries are multilevel: the examination of resilience capacities at the levels of the biological, psychological, social, and organization–community. Though any single study may focus on core manifestations of resilience at one or two levels, a full understanding of resilience requires methods that can examine how levels interact in the prediction of resilience in the face of adversity.

The examination of resilience at the level of community poses formidable challenges to researchers. Yet communities of location (Black & Hughes, 2001) provide the context in which all individuals (spanning life cycles, income brackets, and cultural heritage) work, love, and live. The complexity of communities provides considerable methodological challenges, demanding multilevel analyses that examine the richness of individual experiences, as well as the cumulative effects of environmental variables. The bidirectional influences of environmental and individual characteristics raise questions of causality, highlighting the importance of feedback loops, cascading effects, and the endless interaction between levels of analysis. Researchers across fields recognize the challenges of understanding, measuring, and evaluating the interplay between individuals and communities (Macintyre, Ellaway, & Cummins, 2002; Rappaport & Seidman, 2000; Sampson, Morenoff, & Gannon-Rowley, 2002; Subramanian, 2004; Subramanian, Jones, & Duncan, 2003).

The "place effects" that were once considered a black box (Macintyre et al., 2002) may now be more clearly delineated, with advances in analysis methods that do justice to the many layers of influence on individual lives. Statistical analyses are now better able to tease apart the differences between and within individuals and communities, allowing us to examine the diversity within our samples rather than look solely at aggregated data (Subramanian, 2004). The obtained increases in predictive power permit an understanding of the richness of individuals and communities, and tests of the independent

impact of risk and resilience factors (Zautra, Hall, & Murray, 2009).

Knowledge of core ingredients of resilience within the person shapes the agenda for insights at the community level, but awareness of ecological forces at work changes and extends the metaphor of recovery and sustainability to include relational constructs such as leadership, reciprocity, and culture. With this greater understanding comes the "opportunity for simultaneous pursuit of new knowledge and more effective practice" (Price & Behrens, 2003, p. 219). The use of multilevel modeling permits us to estimate better the influence of community-level variables and to examine variability both within and across communities, allowing us to inquire, for example, about the determinants and influence of the average level of "trust" within a neighborhood, over and above the influence of the individual (Subramanian, Lochner, & Kawachi, 2003). Improved research design and analysis can aid in identifying the short- and long-term effects, from behaviors and attitudes to the accumulated stress and environmental impact of a neighborhood on individual outcomes (Ellen, Mijanovich, & Dillman, 2001). These analyses provide the rich opportunity to look at different layers of effects over time and have been recognized by community researchers as an essential tool in carrying out macro-level research.

However, different levels of analysis often require attention to ecological influences, raising fundamental questions about the resilience process under study as well. The study of trust is a case in point (see Table 1.3). Trust is best understood at the level of the person and his or her social interactions. However, it can also be examined at a biological level as a "safety response," with physiological markers of parasympathetic activation, and with neurohormones such as oxytocin, which has been associated with trusting others with personal resources (Kosfeld, Heinrichs, Zak, Fischbacher, & Fehr, 2005). Mutuality and cohesiveness characterize trusting family networks. At the level of community, this quality may be best characterized as collaborative ties and fairness in the distribution of resources, measured through indicators that can detect evidence of reciprocity in institutional relationships, neighborhoods, and municipalities. Personal income is a valuable resource for resilience, but at the community level, high levels of income disparity among groups within the community (Wilkinson, 1996) may undermine processes of reciprocity and cooperation that permit the expression of trust in interactions among members of those groups, thereby weakening the psychological sense of community (Brodsky, O'Campo, & Aronson, 1999). Resilience researchers need to be mindful of the shifts in meaning of constructs such as trust across levels of analysis. Measurement properties of the variable, and how that variable is related to other key aspects of adaptation, may change dramatically from the level of the person to that of the community.

TABLE 1.3. The Study of Trust across Multiple Levels of Analysis

Level of analysis	Sample constructs	Research approaches
Biological basis	Oxytocin	Experimental designs, lab assessments
Individuals	Interpersonal trust	Cross-sectional studies, daily diary studies
Families	Family cohesion, mutuality, and trust	Cross-sectional, family, and genetic studies
Communities	Collaborative ties, reciprocity, and fairness	Epidemiological/community samples, social indicator research

Studying Resilience in Action

Resilience scholars shift the focus of research on health and well-being through their emphasis on processes that aid in the restoration of well-being following stressful experiences. Stress reactivity research has correctly emphasized the need to examine responses close in time to the occurrence of the stressor (Linden, Rutledge, & Con, 1998; Lovallo & Gerin, 2003; Treiber et al., 2003). Only when the organism is challenged are its capacities fully tested and its vulnerabilities revealed (Light et al., 1999; Matthews, Woodall, & Allen, 1993). An important area of research concerns the identification of genes that promote resilience under stress. Caspi and colleagues (2003) reported that a functional polymorphism in the promoter region of the serotonin transporter gene protects individuals from depression following stressful life events. Young adults who were homozygous for the long allele had fewer depressive symptoms, diagnoses of depression, and suicidality than individuals with one or two copies of the short allele. Some researchers ask whether we can identify genetic factors in neural plasticity that can shape development of resilience (Curtis & Cicchetti, 2003), and whether we can identify factors that slow the effects of age on the decay of resilience (Hawkley et al., 2005).

A stress–diathesis approach that focuses solely on amplitude of the stress response is not sufficient, however. To estimate fully success of psychophysiological adaptation to stress, researchers need to assess both initial reaction and recovery (McEwen, 1998; Sapolsky, 1998). Frankenhauser (1983) has shown that heart rate increases during the workday at all occupational levels but down-regulates more rapidly afterward for those in higher-status occupations. A focus on resilience calls attention to the effect of time in the restoration of homeostasis. The failure to down-regulate following a stress response and to restore homeostasis both physiologically and psychologically is the central contributor to allostatic load (McEwen, 1998; Seeman, Singer, Ryff, Dienberg Love, & Levy-Storms, 2002). To study resilience properly, we need to identify the critical factors within the person and his or her social situation that preserve health and well-being by promoting restoration of homeostasis.

Advanced field methods offer ways to study resilience processes as they unfold in everyday life. Electronic diaries may be used to monitor affects, cognitions, and behaviors thought to be sources of resilience, as well as those thought to place the person at risk. These methods can be used to record resilient responses and also failures of resilience day-to-day or even minute-to-minute, or hour-to-hour, if one wants to be this precise. Ambulatory recording devices permit within days examination of physiological processes that may underlie recovery following stress as well (Almeida, 2005).

The resilience capacities of individuals and their families may be further tested through longitudinal research following major life crises. Bonanno (2005), for example, has developed a model of resilience built upon observations of how people respond to the loss of a loved one. Chronic burdens in family life pose special challenges to adaptive capacities. Most people have suffered through at least one highly stressful circumstance, and to understand resilience requires a careful assessment of the variables that contributed to emotional, cognitive, and behavioral changes that facilitated their recoveries.

The interpersonal contributions to resilient outcomes are likely substantial. Most stressors are shared: Family and friends are involved, directly and indirectly, in the paths to recovery for people in crisis. Homelessness, divorce, and chronic mental and physical illnesses are examples of situations that recruit whole families into them. To understand resilience requires us to advance our methods, as well as our concepts, to evaluate the capacities of families to rebound when faced with stressful circumstances. At the level of the individual, we may focus on a person's capacity for optimism, but at the family level, emotional leadership and

a climate of acceptance may be the critical features that hold families together during a crisis. Family interaction research can be used to characterize the behavior of resilient families, and social climate measures can add an emotional profile.

Advances in neuroscience have permitted investigations of how family members exchange biological goods as well as social ones. Reacting to and sharing experiences are revealed in changes in neurohormones, the heart and gut, as well as behavior (Charney, 2004; Craig, 2009). Anxiety, hope, trust, and attachment are shared qualities of families that are observable, in principle at least, at the level of genes, neurophysiology, behavior, cognition, and emotion. The dynamic changes in these family qualities in response to stress across levels and over time would be needed to capture resilience processes under way at home.

Communities also respond to a broad range of stressful events; some are acute disruptions, whereas others are chronic. Some of these stressors, such as discrimination based on income and race, lack of affordable housing, and/or jobs for residents, are deeply significant yet often partially hidden or denied. Others are relatively straightforward: a road closure, salmonella poisoning at the local elementary school, an acute shortage of gasoline. There can also be catastrophic threats to public health, such as a terrorist threat aimed at the water supply, or the sustained failure of the electric power grid during the hot summer months. The survival and well-being of individuals and their families depends on not only the resourcefulness of the people themselves but also the responsiveness of the community. Community responsiveness in turn can be impacted by deep and unresolved fissures of the types mentioned earlier.

As columnist Neal Peirce (2005) noted in his article about intergovernmental response to Hurricane Katrina, spending billions on recovery can be viewed as an enormous opportunity, if the best minds are brought to the table to develop scenarios for public debate, if desirable community goals and visions are derived from this process, and if long-term, effective communitywide investments are made. These natural experiments may lead us to uncover the best ways to assess and strengthen community capacity.

Examining Sustainability

Our second definition of resilience shifts our attention to those factors that preserve ongoing goal-related and highly-valued activities that are keys sources of psychological and community well-being. Ecologists remind us that time is a central factor in sustainability. Some systems and societies survive well in the short term, only to collapse later (Diamond, 2005). So too do some people appear unaffected by stressors, only to develop illness and emotional disturbance later. Most research examining the person's affective responses to stress focus on the extent of negative affects provoked. However, other outcomes may be more central to preservation of long-term functioning: the degree to which positive engagements continue uninterrupted, the maintenance of broad affective range, and evidence of clear purposeful steps forward, unimpeded by stress, even if taken only one at a time (Ong et al., 2004). However, with some notable exceptions (e.g., Bonanno, 2004; Bonanno et al., 2002; Ong et al., 2004, 2006), studies of sustainability are rare when compared to the rich literature on stress and recovery.

The adoption of a *two-factor approach* allows us the conceptual space needed to develop methods of inquiry into the processes of sustainability of goals, purpose, and life satisfaction independent of the study of the negative affective reactions to stressful change. Although stressors may increase psychological distress, they may have little or no effect on how much hope the person sustains for the future, personal efficacy expectations, and trust in social relationships. Similarly, hope, efficacy, and trust are also central to community health and at least partially independent of collective stress. In fact,

the role of crisis and disaster in forging positive public policy for the future is a frequent theme of the public policy literature (Vale & Campanella, 2005). A prominent American historian Kevin Rozario (2005) writes:

> Dominant colonial traditions encouraged a remarkably constructive approach to calamity, leading settlers on a constant search for silver linings. Disaster narratives became self-fulfilling prophecies, inspiring a faith in betterment, and generating the energy, will and capital commitment that made reconstruction viable—ultimately turning calamities into opportunities and thereby … making progress. (p. 34)

Communities have recently developed additional tools to build resilience while enhancing the quality of community life. Substantial progress in collaborative leadership, and efforts to develop communitywide goals and indicators of progress toward those goals in a range of community domains can be observed in projects across the United States. The best of these projects are inclusive longitudinal efforts that rest on the contributions of a diverse array of community stakeholders, institutions, and sectors (e.g., Sustainable Seattle Regional Indicator Program; *http://www.sustainableseattle.org*). These community efforts typically aim to enhance some combination of community social, educational, economic, physical, environmental, health, and quality-of-life domains. As such, these projects are inherently geared to build connections among people across central areas of community life, and promote interdisciplinary and cross-sector collaboration. An interdisciplinary focus on resilience offers additional insight when examined at the level of neighborhood and community.

Fostering Individual Resilience

When applying themes of resilience in the design of interventions, we sharpen the saw of current approaches and also encourage new frameworks that take as their principal aim the development of personal and community resources. For individuals there are many useful prevention programs, and many valuable therapies, but few interventions that have articulated a focus on resilience per se. Nevertheless, the skills and ingenuity of consulting and clinical practitioners have led to many methods that are likely to be proven highly successful in boosting individual capacity to recover from difficult times and sustain positive engagements.

One change is apparent with a focus on resilience: a shift away from exclusive attention on therapeutic methods and the endorsement of a broader scope of interactions designed to further strengthen existing talents. Alongside psychotherapy is a host of other potentially valuable interventions, including "coaching" (Hart, Blattner, & Leipsic, 2001), life course review (Viney, 1993), exercise, and mindful meditation, to name a few. Snyder (2002) advocated workshops to encourage pathways that strengthen the person's capacity for hope. With a resilience framework, the targets for lifting demoralization are made more explicit. From a two-factor framework, we know, for instance, that restoring hope does not demand exclusive attention to alleviation of psychological distress. A person can be hopeful even when still anxious. Optimism can be urged even for those who cannot (or will not) give up their fundamentally pessimistic outlooks. Attention to emotion regulation that includes embracing the positive extends the metaphor of the therapeutic beyond that of coping and adjustment to include encouragement of feelings of joy, pleasure, and exhilaration that come from pursuits of core values.

Reich (2006) identified three core principles to follow in developing resilience interventions following catastrophic events: sense of control, coherence, and connectedness. There is broad applicability of these "three C's," to which we might add a fourth: culture. Both social context and the interior

of the mind shape what constitutes a positive experience and distinguish it from that which is negative. We assert that resilience can be a universal outcome, with multiple methods and interventions that may be more or less effective depending on the challenges faced and individual, family, community, and cultural influences. Many of the interventions proposed and tested to date emphasize Western theories and values, and further development of interventions to foster resilience across cultures is needed.

A number of interventions within the positive psychology framework have been proposed in the last decade (see Snyder & Lopez, 2002). These interventions have focused specifically on fostering positive engagement, with attention to constructs such as "flourishing" rather than psychopathology and the alleviation of distress (e.g., Keyes & Haidt, 2002). Another approach has been to encourage methods of "forgiveness," thereby releasing restraints on the positive feelings that family members with a history of conflict still may have toward one another (e.g., McCullough, Pargament, & Thoresen, 2000). In a large Internet-based study of positive psychology interventions, Seligman, Steen, Park, and Peterson (2005) found that when individuals wrote about three good things that happened each day and used their identified signature strengths in new ways each week, they reported higher ratings of happiness and lower ratings of depression up to 6 months postintervention. These techniques are not new. Effective interventions for depression have often included positive activity "homework" for those with major depression (Lewinsohn & Graf, 1973). What is new is the paradigm: attention to the positive for the explicit purpose of enhancing well-being and not as medicine for troubled states of mind. When seen with a two-factor lens, this approach is not simply compensatory or even rehabilitative in nature, but a means to further human development along independent trajectories. Thus, the key to resilience is not only the capacity for calm but also the development of greater self-awareness, resulting in the attainment of personal hopes and social purposes.

Fostering Community Resilience

Resilience themes can be applied to the development of social and community interventions as well. Here, the focus is on furthering the expansion of social capital and strengthening connectivity by the reorganization of social exchange. Individual capacity to learn, achieve, and excel at work is strengthened by organizational reforms that shift responsibility (and accountability) for complex tasks downward. Programs in job enrichment (Herzberg, 1966), built upon an understanding of personal needs for mastery and growth on the job, can be highly beneficial to the company profits as well, building greater collective capacity and furthering the firm's social capital. These efforts are examples of effective resilience solutions in which personal development and organizational capacity are threaded together as a long-term investment strategy for a healthy and energetic organization.

A broad systemic view of intervention often is not taken. For a host of reasons, interventions often "morselize" (Lane, 1962) instead. They focus on narrow dimensions of "the problem" and immediate achievable measures of outcomes, such as quarterly profits or election validations, rather than building systemwide capacity for the long term. This is particularly evident in the proliferation of community activities designed to help people cope with problems in living. Marginal tinkering with programs and minor investments in neighborhoods are unlikely to foster resilient communities. In fact, many limited and targeted grant efforts do just the opposite, reinforcing separation and segregation, and in some cases even destroying communities (Chaskin et al., 2001; Churchill, 2003; Peirce, 2005).

Wildavsky (1988) explores the public policy implications of the fact that risk (danger) and safety are inextricably intertwined and should be viewed in a systems context. Wildavsky points to the danger of thinking in terms of "all good" and "all bad," and counsels a search for safety and development of the whole, which involves reduction but not elimination of risk overall. In advocating resilience over resistance as a central organizing theme for city planning and management, Churchill (2003) advises "conserving and investing in the human, social, intellectual and physical capital which constitutes its *protective factors*, rather than expending a large part of the energy of its leadership in short-term efforts" (p. 357, emphasis added).

Innovative resilience programs can change the structure of social exchange within our communities. The Experience Corps (Fried et al., 2004) is one example. This program engages retired senior citizens to advance the chances of young children within inner-city schools. The seniors are provided a way to participate meaningfully in bettering the lives of children in their community. In turn, the children have a surrogate, caring grandparent, who watches over them during part of the school day. Success is measured by markers of well-being among the seniors, as well as retention rates of the children in high school.

Saint Luke's Health Initiatives (2008), a public foundation in Phoenix, Arizona, has launched a 5-year, multimillion-dollar program that blends the authors' resilience model with strength-based community development as a key to resilience (Kretzmann & McKnight, 1993). Called Health in a New Key (HNK), this intervention awards community organizations that develop new partnerships to implement resilience-based interventions that focus on assets, not deficits. The effort is defined as "a way of identifying, framing and responding to issues that focuses first on existing strengths and assets … and avoids the pervasive culture and model of deficits and needs" (St. Luke's Health Initiatives, 2003, p. 22). This initiative marks an important step in providing funds to move beyond threat and response paradigms to funding resilience and assets-based research and interventions that can be sustained within communities.

HNK is based on a redefinition of health and measures of progress in that domain. According to the designers of HNK, in the traditional definition of *health* (health in the standard key), "health proceeds through diagnosis and treatment based on science, evidence and best practices. Illness, pathology, needs and deficiencies are identified. Treatment and services are provided. Patients and communities are restored to health" (St. Luke's Health Initiatives, 2003, p. 5). Juxtaposed to this definition is HNK: "Health is the harmonious integration of mind, body and spirit within a responsive community. Diagnosis and treatment, yes, but the focus shifts to strengths and assets first, not just deficits" (p. 6). By providing financial support in the form of nine 5-year partnership grants to collaborations of public and private nonprofit organizations throughout the vast Phoenix metropolitan area, Saint Luke's Health Initiatives hopes to promote resilience and better community health by nurturing exciting organizations, instilling a new approach to health in the region (St. Luke's Health Initiatives, 2008).

Examples from current funded partnerships include collaborative efforts designed to foster broad goals of community building and resilience, while meeting the following important targeted objectives:

1. Develop sustainable asset mobilization that improves community response to health challenges.
2. Increase the number of Phoenix Hispanic families that are willing and able to provide foster and/or adoptive homes for Hispanic children.
3. Identify *promotoras* to serve as leaders addressing community health priorities to improve measurably maternal and infant outcomes in South Phoenix and

Maryvale (Phoenix communities with large poverty populations) (St. Luke's Health Initiatives, 2008).

Other examples include the Healthy Communities Initiatives by the World Health Organization (WHO; 1997), as well as the National Civic League's All-American Cities awards and its development of the Civic Index (National Civic League, 1999). The Resilience Alliance is an international network of institutions and agencies that focuses on social-ecological systems, promoting adaptability and sustainability surrounding developmental policy and practice. The Community Resilience Project based in British Columbia has developed manuals and guides to enhance the capacity of individuals and communities in responding to change. These programs, and many more, represent a new era of public policy and programming that attend to both the needs and the deficits within our communities. Future efforts must strive to continue to unify theory and integrate social activism, with models of health and well-being built upon a solid empirical foundation.

Resilience: More Than a Metaphor

Resilience has become a powerful metaphor for human endurance in a wide array of literature, ranging from scholarly articles about ecology and urban affairs to the financial and sports pages of the daily newspaper. We hope we have shown that there is now substantial, if not universal, evidence of its paradigm-building strength among social scientists interested in models of health and well-being across the lifespan. As metaphor, resilience exerts a powerful influence on how we think about physical health, psychological well-being, and community functioning. In this chapter, our aim has been to develop resilience as more than a metaphor by providing guidance to scientific inquiry. We have advocated measurement methods, multilevel designs, and a two-factor approach to modeling health and well-being for individuals and their communities. In our view, only by gathering longitudinal data in studies of the turning points in the trajectory of an individual or a community, along with contemporaneous assessments of everyday life, and conducting controlled laboratory studies that provoke challenges to adaptation will we begin to specify the mechanisms that underlie resilience. By establishing urban observatories to mark progress along dimensions of resilience for collectivities, and testing the efficacy of interventions that seek to strengthen resilience for people and their social worlds, we may arrive at the point to declare, as Edward Jenner (1801) did with the smallpox vaccine, that the evidence favoring this approach to health was "too manifest to admit of controversy" (p. 75). Meanwhile, there will be plenty of criticism of resilience concepts, and much healthy debate about measures and methods of change. In science, this is as it should be.

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Note

1. To develop specific answers to these questions, the RSG of Arizona State University (*www.asu.edu/resilience*) has begun a comprehensive, 5-year study of residents of 40 diverse

"social worlds" in greater Phoenix, Arizona. Results from that study and related research may provide empirical evidence to support a community resilience index and a menu of most effective options for building resilience in communities.

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