

PREFACE

In 1976, I started the journey that brought me into the newly emerging science of resilience as I embarked on doctoral studies in clinical psychology at the University of Minnesota. Norman Garmezy recruited me to join his captivating research focused on understanding how children exposed to risks and adversities nonetheless managed to do okay in life. Garmezy was one of the pioneering investigators leading the nascent study of what would become the international and multidisciplinary study of resilience in child development. A group of investigators studying children at risk for mental health problems had already noticed striking variation in their adjustment and development, with some young people clearly thriving or at least holding their own despite their risky circumstances or adversity exposure. The questions and purpose of this new research movement intrigued me. I was curious about the roots of this observable evidence of resilience: How do some individuals fare so well while others struggle? Would it be possible to help other young people at risk if we could uncover explanations for their success?

Decades of research ensued as scientists and their students tried to understand resilience in human development. At first, they focused on describing the variation in adaptation observed in young people who experienced challenging circumstances, later advancing to studies of processes that might account for the variation, particularly the pathways to positive outcomes. From the outset, the driving motivation for resilience research was to inform efforts to improve the health and well-being of children and prevent or mitigate the effects of risk or adversity on their development. As the evidence accumulated about possible processes involved in resilience, studies began to test interventions based on resilience models. With

the onset of a new century, and armed with new technologies—including brain imaging, genetic assessment, and statistical methods for modeling complex systems—a new wave of resilience science emerged, marked by efforts to integrate knowledge across system levels to predict or promote positive adaptation in the context of adversity.

In 2001, I published an essay called “Ordinary Magic: Resilience Processes in Development,” which briefly summarized conclusions I had reached after 25 years of work in the field, beginning as a student. This essay would become my most cited article, and I soon realized that I wanted to elaborate on those conclusions. I began to plan this book, but ongoing research, teaching, and administrative responsibilities slowed the process of producing it. Over time, I felt a growing urgency to integrate the ideas and findings on resilience in children and youth that I had witnessed. I also knew that the science would keep evolving and improving, but with the fourth wave rising, the time was ripe for a book-length summation of progress to date. The Guilford Press published the first edition of this book in 2014.

A decade later, I realized it was time to update the book, not only due to the growing body of research on resilience in development, but also in response to a growing sense of collective urgency to build resilience in our children and societies for future threats. Over the past 10 years, research on resilience in multiple fields has surged along with growing concerns about multisystem threats to human life and development. The topic of resilience became ever more relevant in the face of a global pandemic, increasing dangers from natural disasters linked to a changing climate, and multiple conflicts generating unprecedented numbers of child casualties and refugees. At the same time, evidence was increasing that adversity during childhood could have lasting and even lifelong effects on development. This confluence of challenges energized responses at many levels and in many domains of science, policy, and practice, generating many efforts to protect the future of human life and well-being, as well as the environments that sustain all life on this planet. Not only does resilience in children depend on the resilience of families, communities, governments, economies, and ecologies, but also the future resilience of all societies everywhere depends in many ways on how we nurture resilience in our children.

APPROACH AND ORGANIZATION

My original goal in writing this book was to summarize the research on resilience in children and youth from the vantage point of an early

participant–observer. In this revised edition, my goal is to update the evidence about resilience and its implications for interventions to improve the lives of children threatened by adversity. I discuss the origins and progress in developmental resilience science, including recent advances in theory and methods, along with exemplary findings from illustrative lines of work, and the implications of what we know so far for practice and future science. I define fundamental concepts and illustrate them with case material and empirical examples.

It is not feasible to cover all of the research domains relevant to resilience in young people. I chose to focus on three major illustrative domains of research on resilience in children and youth: longitudinal studies of child adaptation in relation to stress and adversity; research on children in families experiencing homelessness and socioeconomic disadvantage; and studies of mass trauma related to war and disaster, including the COVID-19 pandemic.

Diverse studies from different countries and cultures, focused on many kinds of risks and adversities that pose threats to child development, point to an impressively consistent set of psychosocial factors associated with positive adaptation and recovery. These resilience factors suggest that fundamental adaptive systems account for much of the capacity that makes it possible for children to fare well or recover in the context of risk and adversity. This set of resilience factors, what I came to call the “short list,” provides important clues to understanding key systems and processes that play vital roles in the lives of young people, with implications for preventive interventions.

The focus of the book is on the resilience of children, viewed as living systems studied primarily at a behavioral level, but even in the initial waves of research it was clear that other systems, inside and around children, played an important part in their resilience. Chapters of the book highlight the rapidly emerging science on the neurobiology of resilience and research on three contexts of child development that are central to the lives and resilience of children: families, schools, and cultural communities. Where possible, I have tried to provide international perspectives and research examples. Although relatively neglected in early waves of resilience studies, international research is expanding rapidly with ever-greater attention to cultural contexts and resilience in economically less advantaged parts of the world.

Resilience science has transformed multiple fields of practice, shifting models and intervention strategies toward strength-focused models and goals. A broad resilience framework for intervention that evolved alongside the empirical research on resilience is described in Chapter 11. The

book concludes with an updated discussion of major takeaways, evolving controversies, and new questions on the growing edge of developmental resilience science.

As a believer that complex ideas need to be communicated in straightforward language, I have attempted to write in a style accessible to diverse readers while simultaneously doing justice to the complexities of human resilience and provocative research findings. Compelling case examples are included, including cases drawn from non-Western cultures and countries, such as Sierra Leone and Cambodia. Individual life histories serve the dual purpose of illustrating important points in the resilience literature and bringing the manifested evidence of resilience to life. At the end of this book I provide a glossary of terms as they are used herein, as well as a list of abbreviations.

AUDIENCE

This book is written both for scholars who already study resilience and for those who may want to get involved in this expanding domain of research, including students, as well as for those who want to improve the lives of children at risk struggling with exposure to trauma or adverse living conditions. I believe professionals in psychology, psychiatry, social work, education, sociology, nursing, pediatrics, public health, applied economics, humanitarian assistance, and disaster planning will find useful ideas and background for their work. Promoting resilience is a multidisciplinary endeavor.

CHAPTER 1

INTRODUCTION

Probably as long as humans have told stories to one another, there have been tales of individuals who overcame difficulties to succeed in life. Traditional folktales and fairytales portray themes of heroism and transformation in the face of adversity, especially young people of humble origins who rise in life through their wits and actions, often with a bit of help from guides, friends, or a little magic. These traditional stories have proven to be “irresistible” over the centuries to people around the world (Zipes, 2012). In the 21st century, when it is possible to share stories in many different ways—through social media, in books or newspapers, in cinema or television, through e-mails or blogs, on various digital communication devices—people remain intrigued with stories of youth who face grave danger or grow up in poverty and nonetheless manage to do well in life. Humans are fascinated by such accounts, which not only inspire a sense of hope about the future, but also reinforce our beliefs in human potential for overcoming challenges. I believe these stories capture insights about the human capacity to overcome difficulties in life that are at the heart of this book: *Resilience emerges from fundamental human capabilities that are both ordinary and powerful.*

Interest in resilience also rises, understandably, in troubled times. Thus, it is not surprising to observe the current levels of attention given to resilience in the popular media as well as in research. The early 21st century has witnessed an extraordinary sequence of calamities stemming from terror attacks, a global pandemic, wars and political conflicts, economic crises, industrial accidents, famine, and natural disasters, with the dangers of climate change becoming evident. The lives of children and

youth around the world today are threatened in staggering numbers by the consequences of these widespread adversities that can undermine essential conditions for healthy development, including the quality of caregiving, safety, nutrition, medical care, homes, emotional security and belonging, education, community support, and hope for the future.

It is not possible to prevent all the threats to child development. Thus, it is imperative to understand how to limit toxic exposures of children to risk, how to protect children from the worst ravages of adversity, and how to promote positive development when conditions for rearing children are not optimal. Research on resilience in child development can illuminate what makes a difference, for whom, and when, providing guidance for efforts to improve the chances for healthy development among children at risk for problems related to adverse life circumstances. This premise motivated the scientists who initiated the systematic study of resilience among children in the 1960s and 1970s.

The scientists who pioneered the study of resilience in human development were profoundly influenced by World War II. The war brought global attention to the plight of children exposed to bombs, death, starvation, genocide, displacement, and other adversities on a massive scale. The war motivated multiple waves of research on the effects of adversity on children and adults, including long-term follow-ups of those who experienced concentration camps, radiation, starvation, loss of parents, and other challenges.

A number of key individuals who would subsequently initiate influential studies of resilience in children were directly impacted by the war. Norman Garnezy, for example, participated in the war as a young American soldier and he was present at the Battle of the Bulge. Emmy Werner was one of the many children and adolescents who experienced the bombing of Europe firsthand, and then efforts after the war by humanitarian relief agencies to prevent millions of children from starving in the aftermath of the devastation. Michael Rutter was one of the “seavacuees,” British children who were sent across the ocean to safety in North America to escape the bombing. Eventually, each of these individuals became a leading scientist studying resilience in children at risk.

Emmy Werner also would write a deeply moving book about the war, *Through the Eyes of Innocents: Children Witness World War II* (Werner, 2000). Filled with photographs, the book is based on the recollections, letters, diaries, and journals of many children, including Emmy herself. She describes the kindness of strangers who sent millions of CARE packages from the United States to Europe, addressed “For a hungry person

in Europe,” and the joy of opening a battered CARE box full of treats like chocolate. Werner also describes the founding and efforts of the United Nations International Children’s Emergency Fund (UNICEF) right after the war, in their efforts to help the wounded, orphaned, cold, and often hungry child survivors.

After World War II, there was a rapid expansion of research in psychology, psychiatry, and related fields seeking to advance knowledge about the causes of mental health and behavioral problems, with the goal of better treatments or prevention. Scientists aiming to understand causes of psychological and behavior problems followed a public health strategy. They began by identifying *risk factors* associated with the negative outcomes of interest. The public health model addressed three questions (Gruenberg, 1981, p. 8):

1. Who gets sick, and who doesn’t get sick?
2. Why?
3. What can we do to make the sickness less common?

It was too expensive in resources to follow the development of a general population of children over time to observe who may or may not develop problems, particularly in the case of uncommon disorders or problems. Risk factors were a way to choose groups of children with higher than usual probabilities of developing a particular problem of concern. Scientists identified three major categories of risk factors or predictors of mental and behavioral problems: (1) genetic risk or being related to people with serious mental disorders (e.g., child of a parent with schizophrenia), (2) exposure to *stressors*, life experiences associated with physical or psychological *stress* (e.g., war, maltreatment, divorce), and (3) status indicators of precarious life circumstances (e.g., premature birth, low socioeconomic status [SES], low maternal education, unwed teenage parents). By studying the development of children in high-risk groups, risk researchers hoped to learn in an efficient way about the processes that lead to disorders, with the ultimate goal of informing prevention and treatment. Garmezy, Rutter, and Werner were among these risk researchers.

When investigators began to study high-risk children over time, it became clear that there was tremendous variability in the course of their unfolding lives (Masten, 1989; Sameroff & Chandler, 1975). A small but influential group of risk researchers was struck by the observable fact that numerous children in risk groups under study were thriving in the face of

formidable odds (examples are described in Chapter 2). They began to ask a somewhat different set of questions:

1. Who stays well or recovers well?
2. How?
3. What can we do to promote and protect health and positive development?

Leading scholars in psychology and psychiatry, including E. James Anthony, Emory Cowen, Norman Garmezy, Lois Murphy, Michael Rutter, George Vaillant, and Emmy Werner, began to talk and write about the importance of these questions and their observations about positive development among high-risk children and youth. These investigators would propagate the first wave of resilience research.

FOUR WAVES OF RESILIENCE SCIENCE

Over the past half-century, there have been four major waves of resilience science (Masten, 2007, 2024; Masten, Narayan, & Wright, 2023). The first wave was descriptive, as scientists began systematically to define, measure, and describe the phenomenon of good function or outcomes in the context of risk or adversity and attempt to identify the predictors of resilience. Wave 1 research is characterized by these types of questions: What is resilience? How do we measure it? What makes a difference? This phase of research pointed to a number of consistent attributes of individuals, their relationships, and other environmental supports associated with better functioning or outcomes in the context of risk or adversity.

With clues from Wave 1 research, investigators in the second wave shifted their attention to the *processes* of resilience and to *how* questions: What are the processes that lead to resilience? How do protective, promotive, or preventive influences work? How is positive development promoted in the context of risk? The rise of systems theory and thinking in developmental sciences had a strong influence on Wave 2 resilience research, underscoring the roles of many systems interacting across levels within and around an individual that influenced the course of a person's life (Masten, 2024). The second wave focused on the processes that might contribute to positive development or recovery in the context of risk or adversity. Potentially malleable resilience factors and processes held special interest for investigators with intervention in mind.

Wave 2 set the stage for the third wave, focused on promoting resilience through interventions. As knowledge accumulated about the processes that appeared to counter or mitigate risk, interest surged in intervention studies that could simultaneously offer help to young people at risk while also testing causal ideas and models emerging from the first two waves of resilience science. Randomized controlled trials and quasi-experimental intervention designs offered strong tests of resilience theory. Wave 3 of resilience science addressed these questions directly: Can we promote resilience? Are theories about the processes leading to resilience on target?

Advances in theory, knowledge, and technology—in genetics, statistics, neurobiology, and neuroimaging—gave rise to the fourth wave of resilience science. By the time I wrote my 2007 commentary on the state of developmental resilience science for a special issue on resilience in the journal *Development and Psychopathology*, it was clear that a fourth wave was emerging. Systems theory was now dominant in many sciences and powerful new methods of research and analysis made it possible to study resilience at multiple levels of analysis, from genes to socioecological contexts (Masten, Lucke, Nelson, & Stallworthy, 2021). Advances in technologies for research in genetics, brain imaging, neurobiology, remote data collection, ecological momentary assessment, and statistics for analyzing such data facilitated research at multiple levels of analysis and ways of measuring dynamic changes over time. In addition, a series of large-scale global disasters—including 9-11, massive earthquakes that generated destructive tsunami waves in the Indian Ocean and Japan in 2004 and 2011, Hurricane Katrina in 2005, and the Great Recession of 2007 to 2009—demonstrated with devastating clarity the multisystem nature of disasters that could threaten humanity along with the importance of multisystem responses. Subsequently, the COVID-19 pandemic and alarming increase in disasters associated with climate change further underscored the urgency of integrated multisystem approaches to these global threats.

Wave 4 is characterized by dynamic, systems-oriented approaches, with a focus on the interplay of multiple systems in shaping individual development, the interactions of genes with experiences and persons with contexts, the interconnections across systems and levels of analysis, and the necessity of integrating multidisciplinary knowledge. Fourth-wave questions began to emerge: How do genetic differences play a role in resilience? Is there a neurobiology of resilience? Do individuals have differential sensitivity to traumatic experiences? Are the same individuals also sensitive to positive experiences? Is there a biological price for striving to overcome adversity? How is brain development protected from high levels of stress and stress hormones? Is it possible to influence important human

adaptive systems to foster resilience? How do schools, communities, cultures, and societies nurture resilience? How is resilience transmitted across generations? The evidence, controversies, and lessons learned from each of these waves to date is examined further throughout this volume.

The great insight of the early pioneers in resilience science was their recognition of the potential significance of understanding positive outcomes among children and youth in groups with high levels of risk or adversity, for practice and policy as well as for scientific theory. They inspired their students and other investigators to study and understand the positive as well as the negative influences in children's lives, with the ultimate goal of tilting the odds toward positive development. Now, with more than half a century of research behind us and a host of global challenges in front of us, it is time to take stock of what has been learned from research on resilience in young people: the evidence and the surprises, the conclusions and the controversies, the gaps and the future goals, and the implications to date for practice and policy.

Ordinary Magic

The biggest surprise that emerged from the initial waves of research on children who overcome adversity to become successful youth and adults in society was the *ordinariness* of resilience (Masten, 2001). Captivating stories of resilient individuals may have created misleading perceptions that resilience was rare or required extraordinary talents and resources (perhaps symbolized by magic powers and helpers in myths and fairytales). Evidence strongly suggests, on the contrary, that resilience arises primarily from ordinary processes. There are exceptional cases, where children overcome heavy odds for developmental problems due to extraordinary talents, luck, or resources, but most of the time, the children who overcome adversity have ordinary human resources and protective factors in their lives. Resilience appears to emerge in large part from fundamental adaptive systems that evolved in human bodies, minds, families, communities, cultures, and societies around the world. Examples include a healthy human brain in good working order; close relationships with competent and caring adults; supportive families, schools, and communities; motivation to adapt; self-regulation skills; and hope, nurtured through opportunities to succeed and positive interactions with the world. Studies of resilience repeatedly point to very similar factors associated with positive adaptation or development in the context of risk or adversity, representing clues to what really matters for resilience. These findings highlight

the power of human and social capital for development and suggest priorities for those who aim to shift the odds in favor of good outcomes among children threatened by a variety of negative life circumstances.

The study of resilience has had transformative effects on the guiding frameworks for interventions and policies designed to help children at risk for academic and behavioral problems. Deficit models focused on risks, vulnerabilities, and problems were replaced or enhanced by more balanced models that included assets, strengths, protective factors, and indicators of positive development. It turns out that many of the most strategic ways to prevent and ameliorate problems in development may be to promote competence and success, which is also more appealing to parents and the general public as an objective than programs focused on “fixing” problems (Masten, 2011; Masten & Coatsworth, 1998).

Resilience research is also quintessentially developmental in nature. The science of resilience grew out of research on children at risk for mental disorders, and longitudinal studies played a key role in its history. Resilience science emerged from the same roots that gave rise to *developmental psychopathology*, an integrative and multidisciplinary approach to mental health theory and practice that emphasizes the full range of individual differences in adaptation and development over the lifespan (Cicchetti, 2006, 2010; Masten, 2006a, 2012a; Masten, 2024). The study of resilience in children at risk for psychosocial problems is one of the core domains of work under the broad umbrella of developmental psychopathology.

What Exactly Does Resilience Mean in Developmental Science?

The word *resilience* stems from the Latin verb *resilire* (to rebound). In colloquial English, the word *resiliency* retains a similar meaning, referring to the property of elasticity or springing back, much as a rubber band does after it is stretched and then released. In engineering science, materials are said to be resilient when they resist cracking or breaking under stress or return to original form after distortion by stress or load. In ecology, resilience refers to “the capacity of a system to absorb disturbance and reorganize and yet persist in a similar state” (Gunderson, Folke, & Janssen, 2006) or more broadly, “the capacity to persist in the face of change, to continue to develop with ever changing environments” (Folke, 2016).

In a review of the early research on resilience in child psychology and psychiatry, in an effort to encompass varying definitions of resilience, my coauthors and I noted that resilience in the literature referred to “the

process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances” (Masten, Best, & Garmezy, 1990, p. 426). Most investigators concurred that resilience was concerned with adapting adequately well to adversity, but they varied in their emphasis on resilience as a description of adaptive processes, adaptive capabilities, or positive outcomes. Some investigators defined resilience as a trait, an idea that was refuted early on by Rutter (1987) in a classic paper and by many other scholars since then (e.g., Kalisch et al., 2019; Masten & Cicchetti, 2016; Panter-Brick & Leckman, 2013). Nonetheless, this idea lingers on (discussed further in Chapter 12). The conceptual similarity among resilience concepts in multiple fields today probably stems from shared origins in general systems theory (von Bertalanffy, 1968).

As waves of research on resilience in developmental science advanced and matured, definitions of resilience began to coalesce around definitions focused on complex dynamic systems adapting effectively to disturbances, whether articulated as the resilience capacity of a system or the processes by which adaptive capacity is harnessed (Masten et al., 2021). Table 1.1 provides a sample of contemporary definitions of resilience in developmental science. This theoretical convergence was driven, I believe, by two major forces. One was the infusion of developmental systems theory in developmental science that began well before the first edition of this book (Bronfenbrenner & Morris, 2006; Gottlieb, 2007; Griffiths & Tabery, 2013; Lerner, 2006; Overton, 2013) and continues to unfold (Cantor, Lerner, Pittman, Chase, & Gomperst, 2021). The second was the growing urgency to integrate knowledge across scientific fields in order to respond and prepare at multisystem levels to catastrophic threats to human survival and development noted above (Masten et al., 2021; Ungar, 2021b). Large-scale multisystem threats posed by the global COVID-19 pandemic and surge in disasters related to a changing climate have further underscored the necessity of integrating knowledge about human resilience across levels, systems, and disciplines.

Given the need for a definition of resilience that is scalable across levels of analysis as well as portable across systems, I continue to favor a general definition of resilience that can be applied to an individual person as a living system, but also is applicable to resilience of other dynamic systems that interact with human individuals over the course of development, including families, schools, communities, economies, governments, and many other social and ecological systems (Masten, 2021c; Masten & Motti-Stefanidi, 2020; Masten et al., 2021; Masten, Narayan, et al., 2023). Currently, I would define resilience broadly as follows (Masten, 2021c, p. 1):

The capacity of a dynamic system to adapt successfully through multisystem processes to challenges that threaten the function, survival, or development of the system.

Capacity can refer to either potential or already manifested capacity. As discussed further below, successful adaptation must be defined or judged by criteria of some kind.

This book is focused on the resilience of children and youth. However, the resilience of children depends on the resilience of many other systems in their lives, ranging from the resilience of their immune systems to the resilience of their families, communities, and societies. The resilience of an individual child draws on multisystem processes, both within and around the child, that reflect not only current interactions among systems but also the capacities accrued over the course of development.

TABLE 1.1. Resilience Definitions Reflecting the Influence of Systems Theory on Developmental Science

Gartland et al. (2019, p. 2)	“. . . the <i>process</i> by which individuals draw on personal characteristics and resources in their environment to withstand and negotiate adversity—a dynamic process across contexts and over the life course.”
Luthar et al. (2000, p. 543)	“. . . a <i>dynamic process encompassing positive adaptation within the context of significant adversity.</i> ”
Masten (2007, p. 921)	“. . . the capacity of dynamic systems to withstand or recover from significant disturbances.”
Masten (2014b, p. 10)	“The capacity of a dynamic system to adapt successfully to disturbances that threaten system function, viability, or development.”
Mesman, Vreeker, & Hilligers (2021, p. 587)	“. . . a multisystemic dynamic process of successful adaptation or recovery in the context of risk or a threat.”
Ungar (2018, p. 1)	“. . . the capacity of a system to anticipate, adapt, and reorganize itself under conditions of adversity in ways that promote and sustain its successful functioning . . .”
Van Breda (2018, p. 4)	“ <i>The multilevel processes that systems engage in to obtain better-than-expected outcomes in the face or wake of adversity.</i> ”

From a general systems theory perspective, resilience does not necessarily connote “good” outcomes from the viewpoint of human rights or individual child well-being. It is possible for a “resilient” organization or government, for example, to commit atrocities against children. However, in developmental science, the concept of resilience does carry the connotation of good or desirable outcomes, requiring definitions and judgments about what constitutes positive or desirable outcomes for children. Identifying the criteria by which “good” adapting or desirable adjustment to adversity are judged is a central task in resilience research, discussed further below. Multilevel studies of resilience also reveal the possibility that observable resilience at one level of analysis or with respect to one criterion may co-occur with trouble at another level or for another domain of functioning (Chen, Jiang, Chen, & Miller, 2024), discussed further below.

From a developmental systems perspective, adaptive behavior is dynamic, changing over time with the ongoing interplay of numerous multilevel processes and changing contextual conditions. Resulting patterns of observable or measurable behavior assessed over time are described as *pathways*. Some patterns of behavior manifested during or following periods of adversity suggest resilience processes.

Patterns and Pathways of Resilience

Patterns of adaptive behavior observed by clinicians as well as researchers in the aftermath of trauma and other adverse childhood experiences played an important role in the evolution of developmental resilience science. Influential researchers documented positive patterns as well as patterns of psychopathology, describing the positive patterns as evidence of resilience (Cicchetti & Garmezy, 1993; Compas, Hinden, & Gerhardt, 1995; Luthar, Cicchetti, & Becker, 2000; Masten et al., 1990; Masten & Reed, 2002). Figure 1.1 illustrates a sample of basic life pathways or patterns encompassed by the construct of resilience, assuming that sufficient adversity has been experienced to potentially derail the normal course of development or functioning.

For youth on Path A, a relatively steady course of good functioning is maintained, even though there is an acute trauma experienced at time x , or there is a history of chronic ongoing adversity before and after time x , such as growing up in poverty, with domestic violence, or in a war-torn community. The adaptation of these young people may fluctuate but their function stays in the zone of normal adaptation, meeting the general expectations for healthy development as they move through life. It was often cases

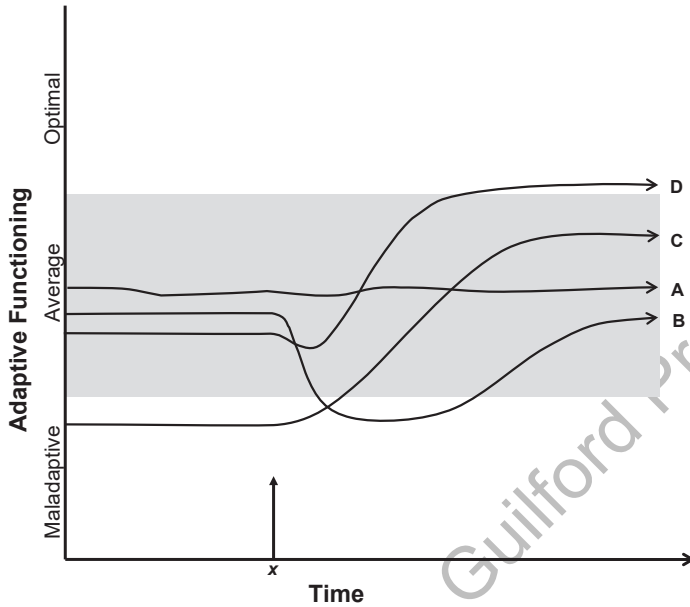


FIGURE 1.1. A sample of resilience pathways: (A) stress resistance in the context of either acute trauma occurring at time x or chronic adversity before and after time x ; (B) recovery following acute, overwhelming trauma at time x ; (C) normalization following marked reduction in adversity and/or increases in resources, supports, or protections at time x ; (D) posttraumatic growth following trauma at time x .

like these that captured the attention of pioneering scientists who were studying children at risk for psychopathology and other problems. School teachers often know of such children, growing up in chaotic households or poverty, who nevertheless do well at school, succeeding academically and socially. Initially, such children were described as “invulnerable” or “stress resistant,” as scientists wondered what could account for their positive functioning in the midst of extremely challenging circumstances. As research accrued, the secrets of their success looked less mysterious; powerful protective forces appear to be operating on behalf of such children.

Path B represents a different path of resilience, characterized by trauma and recovery. For these individuals, development is going fine until they encounter overwhelming adversity. Adaptive functioning declines, as one would expect in the face of disaster, but then improves as the individual recovers to normal functioning. This pattern can unfold relatively quickly, with an acute crisis and rapid recovery, or over more extended periods

of time, when it takes longer for individuals to recover, as often happens following a major disaster. Children do recover from the loss of parents, terrifying experiences, and other major blows in life.

Path C shows a major shift in the quality of adaptation or development over time, from poor functioning to good functioning. This “normalization” pattern is what one hopes to see if rearing conditions or resources substantially improve in the lives of individuals living in conditions of extreme deprivation or chronic adversity. One of the most dramatic examples of this situation in modern times occurred after the 1989 fall of the Ceauçescu regime in Romania, when many children from orphanages poorly suited to the developmental needs of children were adopted internationally. Although there were lingering problems for a number of these children, particularly those who lived for long periods in the orphanages prior to adoption, many internationally adopted Romanian orphans showed improvements in development following improved rearing conditions (e.g., Rutter, 2006; Rutter & the English and Romanian Adoptees Study Team, 1998; Rutter, Sonuga-Barke, Beckett, et al., 2010; Rutter, Sonuga-Barke, & Castle, 2010). Romania would make another major contribution to knowledge about risk and resilience when a remarkable intervention study was initiated in 2000: the Bucharest Early Intervention Project, discussed in later chapters.

Path D in Figure 1.1 represents posttraumatic growth (PTG), where adaptive function improves following trauma or adversity. This pattern is reported in the developmental literature, although research on posttraumatic growth in children or youth is limited in comparison to the large body of work on PTG in adults (Kilmer, Armstrong, & Billingsley, 2024; Masten & Narayan, 2012; Meyerson, Grant, Carter, & Kilmer, 2011). Tedeschi and Calhoun described this pattern decades ago; they emphasized that this kind of growth arises from the process of individuals engaging and struggling with extremely challenging life experiences (see Tedeschi & Calhoun, 2009).

Resilience is a broad concept and there are undoubtedly many other pathways. Given the complexity of human life and myriad influences on adaptation and development, one would expect diverse pathways of adaptive behavior. During the COVID-19 pandemic, which involved prolonged and fluctuating adversity for virtually everyone, I think many of us experienced pathways more like a roller coaster of adaptive functioning that likely reflected fluctuating resilience capacity as well as fluctuating challenges as the virus surged and receded in waves. Sometimes, we could mobilize “surge capacity” in response to an acute challenge posed by the

pandemic and sometimes we felt exhausted and depleted by the ongoing demands of life during the pandemic. Examples of diverse paths of resilience are discussed throughout this book.

Two Judgments: Initial Criteria Evidencing Resilience

Evidence of resilience in a person's life often begins with two judgments: (1) that there is exposure to adversity or circumstances that pose some kind of risk to functioning or development and (2) that the individual is faring okay despite this exposure (Luthar, 2006; Luthar et al., 2000; Masten, 1999, 2001, 2007; Rutter, 2012b). In other words, resilience is inferred from two judgments, one concerning the presence of threat posed by their life experiences (is there past or present risk?) and a second one about the quality of the person's functioning, adjustment, or development (is this person doing okay?). People make these judgments all the time in the course of daily life and most people, when asked, can easily think of a person from their own experience who has shown resilience by meeting these two criteria. Moreover, they also can tell you what they think made a positive difference in the lives of these individuals, representing their inferences about that person's resilience.

If a person has not experienced significant adversity or challenges in life or there is adversity exposure but little evidence as yet of recovery or a favorable outcome, then an individual is not typically described as "resilient" (someone who has manifested resilience). Nonetheless, resilience processes could be underway or not yet mobilized in responding to adverse circumstances. In other words, resilience capacity could be available but not evident as yet in successful adaptation to adversity. From this perspective, resilience can be viewed as an emergent phenomenon, manifested through the interactions of threats or challenges with responsive adaptive systems. Systems-oriented definitions of resilience, which define resilience in terms of adaptive capacity or processes, implicitly recognize the emergent nature of resilience.

Judging Threats to Child Development and Adaptation

Over the past century, investigators have studied many forms of risk to child development and functioning, ranging from premature birth to war (Evans, Lee, & Sepanski Whipple, 2013; Garmezy, 1974; Kopp, 1983; Obradović, Shaffer, & Masten, 2012; Sameroff & Seifer, 1983). *Risk factors* are established predictors of undesirable outcomes, where there is

evidence suggesting a higher-than-usual probability of a future problem. There are numerous well-documented risks for specific and general problems in the developmental sciences, including attributes of the child, family, or environment, and a wide variety of potentially stressful experiences. Examples include low birth weight, malnutrition, harsh or neglectful caregiving, domestic violence, divorce, poverty, community violence, natural disasters, armed conflict, school shootings, toxins (in water, air, or food), homelessness, and other forms of family displacement.

A risk factor can be highly specific to a particular outcome: exposure to the virus SARS-CoV-2 (severe acute respiratory coronavirus 2) is a risk factor for developing a COVID-19 infection. However, many of the most common risk factors of childhood (e.g., poverty, maltreatment, or birth to a very young, single parent) predict multiple problems of behavior, health, and growth. There are several likely explanations for this observation. First, risk factors are often related to one another and co-occur: risk predicts risk. Poverty, malnutrition, exposure to lead, low birth weight, low parental education, and child neglect often co-occur. Thus, when one risk factor is measured, there are likely to be a number of other unmeasured risk factors that also are present. Second, risk factors may reflect underlying processes that are so fundamental that they undermine more than one aspect of adaptation and development. Normal development requires basic nutrition; malnutrition can produce a broad array of problems in growth, brain development, and cognition (Fiese, Gundersen, Koester, & Washington, 2011; Walker et al., 2011). And third, it is likely that one problem leads to another, so that over time, the same risk factor could account for spreading or “snowballing” problems in multiple domains. A risk factor that negatively influences the development of self-regulation skills in the preschool years, representing essential tools for children to control their attention, impulses, emotions, or other behavior, can have profound consequences for subsequent success at school, interfering with learning, friendships, and relationships with teachers (Diamond & Lee, 2011; Masten, Herbers, et al., 2012; Zelazo, Blair, & Willoughby, 2016).

Almost immediately after risk research began, investigators realized that risk factors rarely appear in isolation in the lives of children, but often occur in batches or pile up over time. Investigators described this phenomenon in terms of *cumulative risk* (Masten et al., 1990; Rutter, 1979; Sameroff, Seifer, & Bartko, 1997). Moreover, it became clear that the likelihood of problems increased as the number of risk factors increased. Behavioral and emotional problems in children were much more common among those with multiple risk factors as compared with children who

had few or no major risk factors (Evans et al., 2013; Obradović et al., 2012). Further, investigators also recognized that most of the major risk factors (predicting very broadly or with large effects) were actually markers of much more complex processes embedded with many threats and stressors. Divorce, for example, is a general risk factor for a variety of child and adult problems, over both the short and long term, but it is not a simple experience (Amato & Anthony, 2014; Hetherington, 1979; Kelly & Emery, 2003; Thomas & Högnäs, 2015). Years of interparental conflict may precede and follow divorce, and there may be many additional threats associated with family breakup, including financial strains and disruptions in housing, schooling, and relationships with family and friends, as well as the stresses of parental dating or reconstituted families.

In the resilience literature, cumulative risk has been operationalized and studied in various ways. One popular strategy has been summing up a count of established risk factors or negative childhood experiences. Variations include summing up risk factors given different weights or summing up risk factors within distinct dimensions of adversity. Cumulative risk scores are then related to outcomes of interest, as discussed in more depth in Chapter 2 on models of risk and resilience. As cumulative risk levels increase, more problems typically are observed on average in a group of people (see discussion on *risk gradients* in Chapter 2).

Judging How Well Life Is Going: Developmental Tasks, Competence, and Cascades

To determine or study resilience, one must also judge how well an individual person (or system) is doing in terms of adaptive function or development, either in the short term or in the long term. In complex, living organisms like human beings, there are many potential criteria for judging positive function or development at multiple levels of analysis (Cicchetti, 2010; Masten, 2007; Masten & Cicchetti, 2016). Over the years, there has been controversy about the criteria for defining positive adaptation for resilience studies, including debates about whether to include internal well-being along with external achievements, who should define the criteria, and whether to use global or specific criteria (see Chapter 12; Luthar, 2006; Luthar et al., 2000; Masten, 1999, 2007, 2012a, 2013b; Schoon, 2006, 2021).

In recent theory and research, scholars have shed new light on the issues related to criteria for judging resilience by showing that an individual viewed as resilient in one domain or level of analysis may not be doing

well from the perspective of another criterion. Particularly compelling is the evidence for a biological “cost” for doing well in the world when high effort to attain success leads to allostatic load from stress (McEwen, 2020). Scholars have studied “weathering effects” or biological aging effects related to positive external adjustment in high stress contexts, including exposure to systemic racism, suggesting adaptive trade-offs that may occur in the process of striving to overcoming high levels of adversity (e.g., Brody, Yu, Chen, & Miller, 2020; Chen et al., 2024). The biology of resilience is discussed further in Chapter 7.

In behavioral studies of resilience, two popular kinds of criteria for judging outcomes focus on positive or negative function in terms of (1) competence or success in age-salient developmental tasks or (2) symptoms of psychopathology. Whether one focuses on desirable or undesirable outcomes or both, evaluations are made about how a person’s life is going in relation to established norms or expectations grounded in developmental, historical, cultural, and/or situational contexts.

It is not surprising that the absence of symptoms related to mental health problems has been popular as a criterion for defining good adaptation, given that the study of resilience arose from efforts to understand and prevent the development of psychopathology. If children at risk for mental disorders are studied, then it would be reasonable to define good outcomes in terms of avoiding mental health problems. However, if one were to ask ordinary adults in society to think of a person whose life is going well and then explain why they thought the person was doing okay, it is unlikely they would respond, “She is not mentally ill.” It is much more likely that they would describe positive qualities or achievements. Similarly, if one asks parents what outcomes they desire for their children, parents are likely to describe achievements, health, or happiness rather than the absence of problems. Parents typically want their children to succeed in relationships, in school, in jobs, and also in finding happiness, though implicitly they also want their children to avoid mental illness, teen pregnancy, drugs, or dropping out of school.

Developmental studies of resilience often define good adaptation in relation to success in age-salient developmental tasks (Masten, 2001; McCormick, Kuo, & Masten, 2011; Sroufe, 1979). *Developmental tasks* are the expectations for behavior and accomplishments shared by members of a community or society for people of different ages. The idea of developmental tasks has deep roots (see Masten, Burt, & Coatsworth, 2006) but it was popularized in education and human development by Robert Havighurst (1974) when he was a professor at the University of Chicago.

Some of these expectations for the behavior of children and youth are so widely held among human societies that they are labeled “universal.” All societies expect children to learn to walk and talk and follow the rules of the society. Other tasks are common among societies of similar industrial development or culture. For example, many communities worldwide expect children to attend school and to learn something useful there. Still, there are developmental tasks that are much more specific to a given region or cultural group, such as the expectation to learn weaving or fishing. Also, there are optional developmental tasks at some periods of life, when individuals in a particular society or culture have some leeway to choose alternatives (e.g., paid employment or unpaid family caregiver).

Developmental tasks usually include observable achievements, such as talking or academic achievement, but they also may include internal achievements, such as happiness or a sense of identity. Erik Erikson (1963, 1968), for example, viewed identity formation as the key developmental challenge of adolescence. Examples of developmental tasks common to many industrialized nations are provided in Table 1.2. In a given period of development, there tends to be a group of salient developmental tasks that are particularly important for judging how a person is doing. These salient tasks reflect both the capabilities of typical human individuals of a given age or level of experience, and also the collective wisdom of a culture as to important milestones and predictors of success in the future within that culture. As people mature, some tasks wane in importance while others emerge. During the toddler years, for example, crawling becomes less important as walking is achieved. Similarly, as children become adults, success in school becomes less salient and success in work or parenting becomes more salient.

Young children have little awareness of these developmental task expectations of their parents and society, but are judged by such criteria nonetheless. Older children and youth become quite aware of these criteria and may evaluate their own success, failure, or self-worth according to how well they perceive themselves to be doing on these tasks, or how they perceive others are judging their progress or success. Youth who become alienated from their families or society may pursue paths through life that are deliberately at odds with the developmental task expectations of the family or larger society. Erikson (1968) described this phenomenon in terms of “negative identity” formation. Young people who experience marginalization or discrimination at school or in the community may seek alternative contexts for acceptance with alternative developmental task criteria.

TABLE 1.2. Common Age-Salient Developmental Tasks

Infancy period

Forming attachment bonds with primary caregivers
 Learning to sit and crawl
 Emerging: learning to communicate by gesture and language

Toddler and preschool period

Waning: crawling
 Learning to walk and run
 Learning to speak the language of the family
 Obeying simple commands
 Learning to play with other children
 Emerging: self-control of attention and impulses

Early school years

Attending school and behaving appropriately
 Learning to read and write the language of the community
 Getting along with other children
 Respecting and obeying elders
 Emerging: making close friends

Adolescence

Adjusting to physical maturation
 Successful transitioning to secondary schooling
 Following the rules and laws of society
 Committing to a religion
 Forming close friendships
 Emerging: exploring identity, romantic relationships, work

Early adulthood

Waning: academic achievement
 Achieving a cohesive sense of self
 Forming a close romantic relationship
 Contributing to family livelihood through work in the home
 or community
 Establishing a career
 Establishing a family
 Emerging: civic engagement

Why do societies, parents, other stakeholders, and eventually children themselves care about competence in developmental tasks? I think it is because societies and families have observed over generations that these developmental milestones signify that a child is on track to do okay in the future. There is a popular belief that *competence begets competence* in these developmental tasks and this tenet also is central to developmental theories of competence and its development. The science on competence in development strongly supports this core idea (Heckman, 2006; Masten, Burt, & Coatsworth, 2006; McCormick et al., 2011).

The thesis that how well one does in one developmental task domain can spill over to affect other domains of adaptation has been examined most broadly in research on *developmental cascades*. Cascading, progressive, or snowball effects generally refer to spreading consequences over time from one domain of function to another, one level of function to another, one system to another, or even one generation to another (Masten & Cicchetti, 2010c). There can be positive or negative cascades in a child's life. Cascades are discussed further in later chapters on models, research findings, and interventions to promote positive or interrupt negative cascades.

Children or youth who are doing well in all the ways that children might be judged in the community and family in which they live could be said to be well-adjusted, competent, successful, or adaptive. However, such children would not meet the criteria for manifesting resilience unless they also had a history of high risk or adversity exposure. By definition, as described above, judging a person as "resilient" requires evidence of adversity as well as positive adaptation. It is conceivable to expect or forecast that a person is likely to manifest resilience in event of threat due to knowledge or evidence that a person has access to resources and protective systems that could be mobilized effectively in the event of an unexpected calamity. Nonetheless, definitive identification of a person as resilient requires evidence of adapting successfully (as judged by explicit or implicit criteria) despite exposure to challenges that are judged to threaten that person's life or well-being.

WHAT MAKES A DIFFERENCE?

The study of resilience ultimately has a practical goal: to inform efforts to change the odds in favor of positive adaptation and development. From

its inception, resilience research has been driven by this broad question: What makes a difference for children whose lives are threatened by disadvantage or adversity? The pioneers believed that understanding resilience processes—how it is that some children successfully overcome severe life challenges to grow up competent and well-adjusted—would provide important strategies for intervening to prevent or ameliorate the effects of adversity on child development and well-being. The first step on the road to understanding resilience was to identify the differences between those who made it and those who did not, searching for clues to what matters. There are a number of ways to do this, but the simplest is to compare people from the same background or with the same risk factors who turn out very differently. These groups often differ in ways that suggest adaptive processes at work.

The characteristics that distinguish resilient from maladaptive children and youth—differences in the children, their families, their relationships, or other aspects of their lives—are so consistent across diverse studies worldwide that it is possible to compile a “short list” of commonly observed resilience factors (Masten, 2001, 2007; described further in Chapter 6). These factors, including individual, family, and community qualities, are generally associated with better outcomes among young people who have experienced adversity. This list has important implications for uncovering adaptive processes that explain much of the resilience observed across diverse people and situations. At the same time, these general protections would not be expected to account for all cases of observed resilience. Undoubtedly, there are circumstances when unique configurations of individual risks and protections combine in a particular instance to yield resilience.

As the fourth wave of resilience science advanced, with its emphasis on multiple systems, multiple levels of analysis, and multidisciplinary perspectives, I began to realize that there were striking parallels between the short list I had observed in psychological studies of resilience in children and youth and the resilience factors identified by scholars studying resilience at the family, school, or cultural/community level (Masten, 2018; Masten & Motti-Stefanidi, 2020; Masten et al., 2021). Parallel resilience factors and processes observable at other system levels raise intriguing possibilities about the co-evolution of adaptive systems that provide higher-order multisystem capacity for resilience in human social systems, discussed in Chapter 6 and also in Chapter 12, where I discuss the possibility that a fifth wave of resilience science is emerging.

THE ORGANIZATION OF THIS BOOK

In the next chapter, I describe key models and methods that have guided research on resilience in human development, ranging from case studies to multivariate quantitative approaches, with a section on efforts to develop direct measures of resilience in young people. Part II of the book provides a concise overview of key evidence about resilience in children and youth from major domains of study, including examples from cases and research. It is not an exhaustive review (that would require multiple volumes), but rather it provides an overview of resilience research with illustrative examples. In these chapters, I selectively review literature on resilience in children exposed to a variety of risks and adverse experiences, including poverty and homelessness, as well as war and disasters, focusing on illustrative findings from my own and related studies of children exposed to both common and extraordinary adversities. I added new material on the COVID-19 pandemic, which provides a powerful example of both risk and resilience in the wake of an unexpected global catastrophe that came in exhausting waves. Research on human responses to the pandemic confirm many of the findings from earlier mass-trauma disasters, and also offer information about transformative changes and warning signs about disaster readiness.

In Part III, I describe the Short List of factors widely implicated in research focused on resilience in children and youth, and the significance of these factors for understanding adaptive systems and processes that drive resilience. Additional chapters in this section consider research on resilience from the perspective of different levels of analysis. One chapter examines the emerging neurobiology of resilience, a research area that has burgeoned over the past two decades. Additional chapters consider resilience in relation to important proximal contexts of child development, including families, schools, and culture.

Part IV summarizes the implications and lessons of research on resilience, both for efforts to promote resilience in practice and policy and also for future research. In Chapter 11, I present a resilience framework for action and guidelines for practice and policy that aim to promote positive adaptation and development in children at risk due to adversity or disadvantage. In the concluding chapter, I summarize major takeaways from research on resilience in development to date and implications of that knowledge for practice and policy. I review the enduring and new controversies in the study of resilience that have frustrated investigators as they

pushed resilience theory and methods forward. In closing, I describe new research horizons and consider the possibility that a fifth wave of resilience science is rising with a focus on integrated multisystem resilience. The pandemic and the rapidly unfolding global climate crisis have raised the stakes enormously for building an integrated science of multisystem resilience. In the appendix, I include a Glossary of terms defined as I mean them in this book, together with a list of abbreviations.

This book is focused on the development of individual children and youth, rather than the resilience of larger systems, such as families or communities, although clearly the resilience of the systems in which the lives of children are embedded influence the resilience of the children connected to these systems. Thus, I do address the roles of families, schools, culture, and communities in the resilience of individual young people. This book also focuses on resilience in the early decades of life, from childhood into early adulthood, when foundations for resilience are established. There is growing interest and research on resilience in adulthood (e.g., Greve & Staudinger, 2015; Hayslip & Smith, 2012; Infurna, 2021; Reich, Zautra, & Hall, 2010), but much of the initial research and my own studies were focused on the years from birth to maturity, rather than adult development or aging. Resilience in the middle and late years of life is a rapidly growing area of research. I give special attention to developmental transitions (e.g., into school, into adolescence, into adulthood), because these are crucial windows of both *vulnerability* and opportunity for young people at risk. I also discuss late bloomers, who shift developmental direction dramatically during the transition to adulthood.

The thesis of this book is a simple one: Resilience typically arises from “ordinary magic” and it is possible to understand where it comes from and how to foster it. However, this does not mean that resilience is simple to understand or study. Human adaptation and development are highly complex and the worlds in which children grow up are diverse and ever changing. As a result, the path to understanding resilience is not an easy journey. Nonetheless, there is progress. Moreover, there are children who cannot wait for scientists to understand the whole story. My hope is that this book provides helpful insights into what we know now that can guide efforts to help children overcome adversity and nurture the resilience that individuals and societies will need to weather coming storms.