

Karen R. Gouze
Joyce Hopkins
John V. Lavigne

Early Childhood Psychopathology

Developmental Models and Treatments

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Karen R. Gouze 
Northwestern University Feinberg School of
Medicine
Ann & Robert H. Lurie Children's Hospital
of Chicago
Chicago, IL, USA

Joyce Hopkins
Department of Psychology
Illinois Institute of Technology
Chicago, IL, USA

John V. Lavigne 
Northwestern University Feinberg School of
Medicine
Ann & Robert H. Lurie Children's Hospital
of Chicago
Chicago, IL, USA

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*To our children, each of whom, in their own
way, inspired our life's work*

Preface

In 1960 Philippe Aries wrote *Centuries of Childhood: A Social History of Family Life*, in which he argued that it was not until after the Middle Ages that childhood was conceptualized as a separate phase of life. Later, with the advent of schooling and the industrial revolution, laws to protect children firmly established this period of life as separate and worthy of study. At the turn of the twentieth century, G. Stanley Hall, often considered the father of developmental psychology, initiated the first systematic psychological studies of children. Working at the same time, Sigmund Freud highlighted the importance of events occurring in early childhood as the precursors of adult psychological distress. In 1909, the first child mental health clinic in the United States, the Institute for Juvenile Research, was established in Chicago, Illinois. Nevertheless, it was not until many decades later that the field of developmental psychopathology was born, and the social, emotional, and behavioral difficulties of young children were seen as worthy of study in their own right.

There were many reasons why the emotional and behavioral difficulties of young children were not always recognized as important. While the tantrums and noncompliance of preschoolers were difficult for parents to tolerate, they were behaviors that many professionals believed the child would eventually “grow out of.” Similarly, at one time, the anxiety that preschoolers experienced (“there’s a monster in my closet”) was uniformly trivialized as “just a phase” and the possibility that a preschooler might experience depression was not even considered.

After years of research, however, our understanding of early childhood psychopathology and its implications for the individual’s development into middle childhood, adolescence, and adulthood has expanded dramatically. For some children these problems do, indeed, dissipate relatively quickly; for others they persist well into adolescence and beyond. Given the growing burden of increasing mental illness on individuals, families, and society, it is essential that we understand how, when, and why some individuals struggle so much more than others with depression, anxiety, and behavioral regulation. Understanding continuities and discontinuities in symptoms over the life span, along with identifying the risk and protective factors that exacerbate or ameliorate these symptoms, is essential to improving the mental health and life chances of all individuals.

The authors of this book became interested in understanding the developmental trajectories of young children struggling with a range of symptoms as a result of over 25 years of clinical experience addressing the struggles, and accompanying pain, of emotional and behavioral problems that lead to functional impairment in children presenting in clinical settings. We recognized that effective early prevention and intervention efforts, at the individual, family, and societal levels, required a better understanding of the risk factors contributing to early and ongoing struggles with emotional and behavioral symptoms. Our interest in studying young children, specifically, stemmed from the knowledge that, often, preventing emotional and behavioral problems is easier than fixing them once they have emerged, that many psychological problems begin in early childhood and persist over time, and that frequently, children and parents are more responsive to intervention efforts when children are young.

Although there are a substantial number of papers published in refereed journals that identify various risk factors—ranging from those associated with the child’s socioeconomic situation to characteristics of parents including their mental health and parenting styles, and the child’s characteristics—most of this research focuses only on the association of a few of those factors with the child’s behavioral or emotional difficulties. While each of these studies is important in elucidating specific associations, our clinical experience made us aware that it was important to take a more comprehensive approach, one that involved looking at a wider range of risk factors and the pathways by which they influence the development of different types of emotional and behavioral symptoms. We expected that relevant pathways might be numerous and varied and could help us put the relative contributions of these risk factors into perspective. We further hoped that this perspective might improve our understanding of the development of emotional and behavioral difficulties during early childhood and, additionally, might inform decisions about designing treatment programs to address children’s mental health needs.

It was these efforts and a desire to improve the lives of all children and families that drove this research. In that context, we think it is important to say a few things about the use of language in this book. Although, ultimately, our interest is in promoting the mental health and well-being of children, we believe that we cannot do that without understanding what happens when children and families struggle with emotional or behavioral challenges. Although words like “psychopathology” and “disorder” can sometimes feel negative and pejorative, we maintain that it is important to name the struggles that children have and to recognize them, not as something wrong with the child but as something that interferes with their daily life and compromises healthier development and their life chances. As such, it is essential that we bring these struggles to light and address them as we would any other health problem; the stigma attached to mental health problems has gone on for far too long. That said, the struggles we are studying in this book are different in many ways from physical health issues and applying a medical model, the predominant model used in clinical psychology, is not always illuminating. It is partially for this reason that we view the emotional and behavioral symptoms children are struggling with dimensionally, that is, as continuous rather than categorical. For instance, we believe

that children do not have or not have anxiety; rather, anxiety exists on a continuum for all children and manifests with greater intensity or frequency as a function of many factors, many of which are explored in the models in this book. It is only when the anxiety interferes with the child's ability to "engage in the work of childhood," that is, when their anxiety prevents them from functioning well in their environment and with other people, that the anxiety becomes a problem. Furthermore, the term anxiety, like all mental health terms, is bound up in a myriad of social and cultural norms, many of which differ from place to place and from one historical moment to the next. As such, it is important to realize that we use the terms "developmental psychopathology," "normal development," and "emotional and behavior disorders," among others, throughout this book for clarity of language and to acknowledge that mental health struggles are real. Our intention is not to assert a reified notion of what is normal and what is not but, rather, to understand the subjective experiences of children and families whose ability to function well in the endeavors that are important to them, or vital for healthy development, is compromised. In constructing the models in this book, we thus sought to understand which factors at different levels and in different contexts contribute to risk for emotional and behavioral difficulties. We were interested in how combinations of risk factors and the mechanisms through which they operate lead young children to experience struggles in daily functioning, struggles which, at times, set the stage for cascading difficulties that profoundly affect their ongoing development and well-being, and the well-being of those around them. We want to stress that variations in child development are strongly impacted by culture, the historical moment, and the social milieu in which children and families live, learn, work, and play.

This book is the culmination of 20 years of research in which we made a significant effort to advance our understanding of the risk factors and mechanisms that impact mental health and family functioning during early childhood. Our goal was to take a more comprehensive approach than previous research by examining a wider range of risk factors and the pathways by which they have their influence on the development of different types of emotional and behavioral symptoms. Clearly, this effort is not exhaustive; we could not possibly examine all the variables we thought might be relevant. However, we expected that relevant pathways might be numerous and varied, and hoped the research would help us put the relative contributions of these particular risk factors into perspective—a perspective that might improve our understanding of the struggles experienced by so many children and families with whom we have worked clinically over the years. Ultimately, our goal was to gather information that could help in the development of more effective early prevention and intervention programs and in understanding the mechanisms whereby we might improve the life chances of young children.

This book is a true collaborative effort, and thus, the authors are listed in alphabetical order, not according to their relative contributions.

Chicago, IL, USA

Karen R. Gouze
Joyce Hopkins
John V. Lavigne

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About the Authors

Karen R. Gouze, Ph.D., is Professor Emeritus of Psychiatry and Behavioral Sciences at Northwestern University Feinberg School of Medicine and, formerly, a psychologist in the Pritzker Department of Psychiatry and Behavioral Sciences and the Center for Childhood Resilience at Ann & Robert H. Lurie Children’s Hospital of Chicago. For over 35 years she was the Director of Training in Psychology at Lurie Children’s Hospital (formerly Children’s Memorial Hospital) in Chicago where she also worked as a researcher and clinician. Her research addresses risk and protective factors related to healthy child development, particularly in early childhood, and the dissemination and implementation of prevention and intervention practices in community settings. As a clinician, she supports increased understanding of psycho-social stressors, cultural diversity, and developmental psychology to complement the use of empirically based treatment approaches with children and families.

Joyce Hopkins, Ph.D., is Professor Emeritus in the Psychology Department at Illinois Institute of Technology and, formerly, a Psychology Professor in that department for 29 years. She also served as Associate Director and Director of Clinical Training. Prior to that she was the Co-Director of the Parent-Infant Development Service in the Child Psychiatry Department at the University of Chicago Medical Center. Her research focuses on risk and protective factors in early childhood mental health, with a particular emphasis on the role of attachment and parenting. She was President of the Illinois Association for Infant Mental Health, served on that Board for several terms, and currently is a member of the Research Committee. Her other interests include maternal mental health issues during pregnancy and the postpartum periods. Her clinical work focuses on early intervention with young children and promoting maternal mental health during pregnancy and the postpartum period.

John V. Lavigne, Ph.D., is currently Professor of Psychiatry and Pediatrics at Northwestern University Feinberg School of Medicine and a Diplomate of the American Board of Examiners in Clinical Psychology. For almost 40 years he was the Chief Psychologist at the Ann and Robert H. Lurie Children's Hospital of Chicago (formerly Children's Memorial Hospital). For the last 25 years he has been conducting research related to the development of psychopathology in young children. His other interests have included psychological aspects of pediatric chronic illness, unexplained medical symptoms, and ways to improve the provision of psychological services for children and adolescents in primary care pediatric settings.

Chapter 1

Developmental Psychopathology: The Emergence of a Discipline



It is easier to build strong children than to repair broken adults.

Adaptation-Frederick Douglass

Current rates of mental illness are increasing throughout the life span (World Health Organization, 2022b), with some of the most alarming increases occurring during childhood and adolescence (Lebrun-Harris et al., 2022). Understanding the conditions leading to these alarming statistics is critical for designing early prevention and intervention programs that can change the developmental trajectories contributing to these negative outcomes. Yet, this is no small task. Early attempts at understanding psychopathology in children were derived heavily from conceptualizations of psychopathology in adults and, much like pre-Renaissance paintings that depicted children merely as miniature-sized versions of adults, this view ignored the many differences between children and adults. While there were notable exceptions, the early study of child psychopathology, like adult psychopathology, emphasized the role of underlying emotional and psychological conflicts in the development of psychopathology. In doing so, these studies tended to ignore other factors important in child development, such as the impact of physical, cognitive, emotional, and social development on child well-being. At the time, these factors were being studied actively, but completely separately, within the field of developmental psychology (Cicchetti, 1984; Sroufe, 2009). However, with the emergence of developmental psychopathology as a specific discipline in the 1970s, a stronger developmental perspective was incorporated into the study of child psychopathology. Questions such as “What does anxiety look like in a 3-year-old and how might that differ from how it appears in a 10-year-old? Can a 4-year-old be depressed? What factors contribute to extreme oppositional behavior at age 8 and what does this mean for adult functioning?” replaced assumptions about the similarities between child and adult mental illness. Understanding and exploring the risk and protective factors leading to continuities and discontinuities in adaptive functioning throughout the life span defined the work of the developmental psychopathology researcher.

The Emergence of the Field of Developmental Psychopathology

Essentially, in the last 50 years, developmental psychopathology emerged as a discipline in response to the need for a greater understanding of the emotional and behavioral difficulties observed during the first 18 years of life and for clarity regarding psychiatric diagnosis during this same period (Achenbach, 1974). As diagnostic systems for the classification of psychiatric disorders became integrated into general classification systems for diseases, such as The International Classification System of Diseases (World Health Organization, 2022a, b) and, in the United States, were increasingly codified into the DSM classification system (American Psychiatric Association, 2013), it became clear that many questions remained regarding the manifestation of emotional and behavioral disorders in children. Among others, these questions include the following. Are these emotional and behavioral manifestations in childhood continuous with adult disorder? Do the same atypical behaviors have the same meaning and impact at different ages and how do we understand these in the context of normal developmental phenomena? How do earlier problems in development impact later development? Do the same behaviors or emotional presentations have the same meaning in different cultures or at different times in history? In other words, how is psychopathology organized and how does it manifest at different ages, in different settings, with different external conditions, in different cultures, and during different historical periods?

The emergence of developmental psychopathology as a discipline constituted an integration of many other disciplines, principal of which were the fields of developmental psychology and adult psychiatry. Psychoanalytic theory, which dominated psychiatry from the 1890s through the mid-twentieth century, particularly in Europe where it began, was based heavily on the concept that psychological conflicts developing early in life have a profound impact on the later development of psychopathology. This understanding, however, was based primarily on work with adult patients and their retrospective reports of their childhoods. In contrast, behaviorism, which gained a foothold in American academic psychology and emerged as the dominant force in the American academic psychology of the 1950s and 1960s, emphasized a focus on patterns of observable behavior shaped by very specific environmental inputs (e.g., various types of reinforcement). As such it was not concerned with non-observable events (cognitions, emotions) or with patterns of adaptation and processes of development that became hierarchically organized over time. Both these fields of study neglected to address, in an integrated fashion, the increasingly robust body of knowledge emerging from developmental psychology, which addressed cognitive, emotional, and behavioral aspects of functioning in childhood at multiple levels, biological, individual, and societal, over time and in different contexts. The primary goal of the nascent field of developmental psychopathology was to develop a robust theory of development that brought together these strands of psychiatric, behavioral, and developmental thought into a coherent understanding of typical and atypical development of children and adults

longitudinally across the lifespan, in different environments, and at multiple, hierarchically integrated levels. Initially, the field was concerned not so much with the classification of childhood disorders as with understanding the processes by which these disorders emerge, the extent to which they are continuous with and, in turn, impact normal development, and how they become integrated over time to manifest in later mental disorder.

Historically, the field of developmental psychopathology began with the work of Thomas Achenbach in the 1970s (Achenbach, 1974). Achenbach maintained that the primary goal of developmental psychopathology was to establish a framework that could guide the study of development in a number of spheres—physical, cognitive, social-emotional—with particular attention to milestones and how development progresses over time. To accomplish this task, he asserted the need for a greater understanding of age- and sex-based norms against which clinicians and researchers could measure unusual or atypical behaviors and emotional presentations. Achenbach did not view these unusual behaviors as discrete or encapsulated entities but rather as continuous with normal developmental presentations, which might become problematic when occurring at certain ages or depending upon their frequency or intensity. This led to the development of the Achenbach Child Behavior Checklist (Achenbach, 1991), a factor-analytically derived measure of symptom clusters arrayed along a continuum of frequency of occurrence in a community sample. Initially normed on a community sample from the Washington, DC area, it was later re-normed on a nationally representative sample of children aged 4–16 in the United States and derived from empirical research on what constitutes typical behavior at different ages (Achenbach et al., 1995). Achenbach and colleagues later developed another checklist for younger children aged 1 ½–5 years, also based on a nationally representative sample (Achenbach & Rescorla, 2000). These instruments not only provided normative data for the classification of childhood problems in the context of age and gender but also facilitated an understanding of the ways in which developmental psychology provides a context for identifying critical discontinuities in development and, hence, those childhood emotional and behavioral presentations that should be a cause for concern. Achenbach's beginning explorations of continuity versus discontinuity in development and his premise that understanding atypical development or adaptation required an understanding of normative development sowed the seeds for the advancement of the field of developmental psychopathology. In its earliest iteration, however, it lacked nuance beyond understanding age and sex differences in development.

Further elaboration emerged from the work of Michael Rutter and Alan Sroufe (Rutter & Sroufe, 2000). They expanded Achenbach's conceptualizations of continuity and discontinuity in development to include the importance of etiological or causal factors that were potentially non-linear and included conceptualizations of the child as a developing organism that actively shapes their environment. These concepts include the notion that a given construct in early development is not necessarily directly related to that identical construct in later development but might, as a function of bi-directional or multiple ongoing influences, be more strongly related to some other construct. For example, early difficult child temperament manifesting

in oppositionality might interact over time with parenting attitudes and practices such that the ultimate outcome for that child is adult depression rather than conduct problems. The extent to which the child shapes their environment and how these changes further impact child outcomes is an example of non-linear causality and of the importance of the child as an active organism in their own development (Sroufe, 2009). Rutter and Sroufe posited that understanding normal developmental processes in the context of complex biological and environmental influences and ongoing transactional interchanges that become hierarchically integrated into new patterns of behavior over time is critical to understanding the emergence of maladaptive behaviors or psychopathology. As Sroufe (2009) maintained, psychopathology is not inherent in people; rather, it develops over time due to ongoing interactions between the individual and the environment forged in the service of adaptation. Each new adaptation is foundational and sets the stage for later adaptations. Sroufe emphasized the role that genes, environment, and personal history all play in future development. This conceptualization of developmental psychopathology required prospective longitudinal study in different contexts that allowed for consideration of the pathways leading to later mental health presentations. It further emphasized the importance of studying children at very young ages since early foundational experiences were posited to be critical in determining, or at least contributing to, future outcomes.

Consequently, early conceptualizations of psychiatric risk seen exclusively in diagnostic and categorical terms were viewed increasingly as inadequate to explain any number of empirical findings over time. For example, it became apparent that early psychiatric diagnoses were not necessarily isomorphic with later psychiatric diagnoses, that early risk factors led to psychopathology in some children but not others, and that the same early risk factors, including particular early psychiatric diagnoses, might manifest in different mental health or diagnostic outcomes in different children under different environmental conditions. This led to an expansion of developmental psychopathology theory and research to include an understanding of protective or buffering factors as well as risk factors. Additionally, developmental psychopathology researchers sought to account for maladaptive childhood behavior patterns that were not necessarily captured in current psychiatric categories. Over time, this burgeoning field of study developed a set of guiding principles that are perhaps best described in Ann Masten's 2006 article, "Pathways to the Future" (Masten, 2006).

Principles of Developmental Psychopathology

Masten (2006), like her predecessors, conceived of developmental psychopathology not as a singular theory but as an integrative field of study that encompassed theory and empirical study from a range of other disciplines. True integration requires a planful, well-thought-out, and coherent set of principles that, taken together, create a framework for past and future work. Clearly emerging from and consistent with

the work of those who preceded her, Masten established seven core tenets that both defined the field of developmental psychopathology and became guiding principles for the design of future research. These core tenets included the following: (1) the developmental principle; (2) the normative principle; (3) the systems principle; (4) the multi-level principle; (5) the agency principle; (6) the mutually informative principle; and (7) the longitudinal principle. In designing the research described in this book, we considered all these principles to be critical to understanding the risk factors contributing to the development and maintenance of poor mental health outcomes across three developmental periods: preschool, kindergarten, and formal school entry. Each of these principles is elaborated on below, and a discussion of their application to the research follows.

The Developmental Principle

The developmental principle, perhaps, is the most basic principle established in developmental psychopathology. As noted above, the field of developmental psychopathology emerged largely from the field of developmental psychology. The developmental tenet maintains that developmental psychopathology must adhere to the theoretical and empirical principles that guide its “sister” discipline. Among these principles is the fundamental notion that development is gradual and sequential, that it becomes increasingly complex and hierarchically integrated over time, that the significance of behavior changes over time, and that there are sensitive periods during which fundamental building blocks of development are established. For the most part, development is seen as continuous, with early and later influences acting in concert to produce behaviors that lead to healthy or unhealthy outcomes.

The Normative Principle

Emerging from the developmental principle, the normative principle posits that aberrant or less adaptive development can be understood only in the context of an understanding of normal development. This understanding does not rely on diagnosis or categorical determinations of normality and non-normality but, rather, on the principle that developmental outcomes manifest along a continuum. How can you know, for example, if a child’s tantrums at age 3 are worthy of concern unless you know more about the range in which the intensity, frequency, and appearance of tantrums occur for most 3-year-olds, and perhaps, more specifically, for most 3-year-olds in that child’s culture, at this point in history, and under these circumstances? Developmental psychology research promotes the understanding of those norms and provides a guidepost against which less adaptive behavior can be measured. As Masten (2006) notes, developmental tasks are more or less important at varying times depending upon such factors as development, culture, and context.

The Systems and Multi-level Principles

The third tenet, the systems principle, and the fourth tenet, the multi-level principle, operate together to capture the importance in developmental psychopathology of understanding that multiple systems at different levels work together to create hierarchically integrated and interactive processes leading to developmental outcomes. In other words, individuals are formed by a complex, transactionally integrated set of systems, ranging from biological to societal levels. Early developmental theorists such as Sameroff and Chandler (1975) and Bronfenbrenner (1977) first addressed the importance of understanding the transactional nature of these interacting systems. Since then, understanding that interacting systems of development ranging from the smallest biological cell (which might be turned on or off depending upon a range of circumstances) to the larger influences of culture and society has guided the fields of developmental psychology and developmental psychopathology. Organisms do not develop and exist in isolation; they are part of much larger systems that interact bi-directionally across levels. A full understanding of the development of less adaptive behavior requires an understanding of the biological influences a child brings to the table and the influences of the environment in which the child lives. For example, we know that a child who is behaviorally inhibited can become more or less anxious over the course of their early development depending upon the anxiety level of their primary caretaker, the actual behaviors that are encouraged or discouraged, and the expectations generated by the culture in which they live (Fox et al., 2005). Although their propensity towards anxiety might be genetically based, the response of their environment at the family level, i.e., parental response, and on up to the societal level (children in some cultures are encouraged to be more independent at an earlier age) can greatly impact the outcome for that particular child.

The Agency Principle

The agency tenet posits that children are active players in their own development—that they engage the environment in ways that alter the environment’s influence upon them. This transactional process, between the child and the environment, can lead to profoundly different outcomes for different children. We are reminded of a story we heard many years ago about the fraternal twin daughters of a colleague. This colleague relayed that her older daughter had asked her mother to bring her toddler twin sisters to her third-grade class for show and tell. During this event, the mother was struck by the extent to which the difference in the toddlers’ temperaments impacted how the event unfolded. One twin was temperamentally more outgoing and risk-taking; she engaged the world openly and adventurously with large smiles for anyone who greeted her. The other twin was naturally more reticent, particularly if there was a lot of noise and excitement. During this show and tell, the more engaging twin was actively engaged with the children in the class, while the

more reticent twin was much less responsive to the children who were calling out her name and saying hello. The mother reported that over time the children in the class completely ceased engaging the more reticent twin and spent all their time engaged with the more outgoing twin, who was laughing and giggling and responding with delight to the classmates. This story illustrates how, in the tiniest of ways, what a child brings to the world influences what they get back from it. Over time, one might hypothesize that these two girls will have significantly different experiences of the world, develop a different schema regarding what the world is like, and develop in significantly different ways.

The Mutually Informative Principle

The sixth tenet, the mutually informative principle, posits that understanding developmental outcomes, both adaptive and non-adaptive, requires a deep understanding of both normal and non-normal development. This, in fact, was one of the first principles of the field of developmental psychopathology, and along with the normative principle, it emphasizes that we cannot know what is problematic unless we understand the very broad range of normal development. The mutually informative principle extends the normative principle to an understanding of both developmentally-expected and developmentally-unexpected behavior. As noted earlier, developmental psychopathologists tend to view behaviors and emotions as occurring along a dimensional axis rather than as categorically “normal” or “abnormal.” The mutually informative principle requires understanding the interactions between more and less adaptive functioning. For example, research reveals that there is a range of compliance to caretaker commands during the preschool years, with most children adhering to about 70% of their parents’ commands (Johnson et al., 1973). To assess whether an individual child is non-compliant or oppositional at a level that warrants concern, it is critical to understand that typical functioning does not yield 100% compliance. Furthermore, the mutually informative principle suggests that evaluating the less expected aspects of this behavior (e.g., non-compliance closer to 100%) also requires understanding this “abnormal” behavior. For example, is it a function of the loss of a parent, a recent trauma, or another disruptive event that renders the behavior more expected? Without understanding how the developmentally expected and unexpected behaviors interact, it is impossible to determine whether intervention is indicated to right this developmental trajectory. In considering this principle, it is critical to recognize that what is “normal” development is partially determined by cultural norms. Thus, when applying the mutually informative principle, it is critical to understand not just normal development more universally but also the nuances of development in different cultures and sub-groups.

The Longitudinal Principle

Finally, a study of developmental psychopathology requires adherence to the longitudinal principle. The longitudinal principle states that a true understanding of risk and protective factors and developmental outcomes necessitates studying development over time. Without a longitudinal perspective, it is easy to posit assumptions or form inaccurate or misleading conclusions. An understanding of the temporal order of events and their impact and causality can only be accomplished by studying phenomena at multiple timepoints across many periods of time. In contrast, retrospective reports are subject to several biases, including recall bias, positivity bias, social desirability bias, and mood bias (Bell & Bell, 2018). These reports, in which adults recall past events, were more common in the field of child psychopathology prior to the emergence of the field of developmental psychopathology and may have resulted in spurious associations that are no longer apparent when groups of children are followed prospectively. Such associations can suggest outcomes and a need for intervention based on variables that are part of normal oscillations in development or wash out over time. In a well-known study (Offer et al., 2000), male adolescents who were assessed at age 14 and asked about a wide range of contemporaneous experiences were re-interviewed about the same experiences at age 48. The findings revealed considerable differences between the experiences reported in real time at age 14 and the memory of those experiences later in life. Although other studies have revealed somewhat better recall, with moderate correlations between reports collected contemporaneously and those reported retrospectively in certain areas (e.g., the effects of family environment) (Bell & Bell, 2018), differences in recall depending upon the nature of the information being assessed are found. In their article, “On the ‘Remembrance of Things Past’...” Henry and colleagues (Henry et al., 1994) found that in a large sample of 18-year-olds asked to report retrospectively on a range of variables that had been collected prospectively throughout their childhoods, the agreement between retrospective report and prospective data, particularly regarding psychosocial and family environment variables was very poor. Such findings drive home the importance of the longitudinal principle’s emphasis on research being conducted longitudinally and prospectively when feasible to get a clear picture of the factors impacting developmental trajectories and better versus poorer outcomes.

Developmental Psychopathology Principles Applied to Research: Critical Concepts

Based on these tenets of developmental psychopathology, we set out to design a study of the development and maintenance of both general and specific emotional and behavioral outcomes over the preschool years and early school entry. In doing so, we took into account several concepts critical to sound developmental

psychopathology research. These concepts included a longitudinal design, attention to multi-level transactional effects, an interest in cascading effects over time, and a search for understanding outcomes from the perspective of both multifinality and equifinality. Each of these concepts is addressed below.

The importance of a longitudinal approach was clearly elucidated in the discussion of the longitudinal principle of developmental psychopathology. Several issues were considered when designing a longitudinal study. First, what developmental period were we interested in studying? The period between preschool and early school entry was selected because there is considerably less research on children younger than 6 years of age than on those between the ages of 7 and 18. This dearth of information is particularly concerning from a developmental psychopathology perspective because, within this framework, early development is seen as foundational to later development, with early building blocks contributing to later development in a sequential way that becomes hierarchically integrated over time. Sensitive periods, in particular, refer to the phenomenon whereby particular variables exert a stronger influence on developmental outcomes when they occur during certain periods rather than others. Perhaps the best example of this is the concept of parent-child attachment. The formation of a secure attachment during the first year of life gives rise to multiple developmental sequelae in the areas of social development, cognitive development, and mental health (Sroufe, 2005). The inability to form a secure attachment during this sensitive period can have long term negative consequences, particularly in the context of additional risk factors (Sroufe, 1985). Furthermore, one of the critical issues in understanding developmental outcomes in mental health involves the point at which mental health variables are first measured. For example, if certain risk factors are identified as contributing to symptoms of anxiety at age 10, it is important to know whether those anxiety symptoms were present prior to the occurrence of these risk factors. If so, then continuity of symptoms must be considered as an important factor in the development and maintenance of anxiety over time. Issues of continuity and discontinuity in development, as well as a clear understanding of risk factors, can only be obtained by studying children over time, beginning early in their development.

Bi-Directionality and Transactional Effects

Another critical question in developmental psychopathology research is the extent to which effects and outcomes are bi-directional or transactional, i.e., to what extent do ongoing, dynamic interactions between the child and their environment influence each other reciprocally over time to generate particular outcomes? An outcome that appears static when studied at a later age might be better understood if the earlier transactional nature of influences can be seen. Take, for example, the experience of the third-grade twins observed at a “show and tell” event that was cited earlier. A researcher might wish to study the factors leading some children to be socially skilled and engage in a lot of extracurricular activities and others to be shy, spend a

lot of time alone, and develop depressive symptoms. Were that researcher to design a study examining a single early risk factor, perhaps, early temperament, for such behavior, she might attribute these personality differences solely to that difference in temperament. Such an understanding would negate the impact of the transactional effects over time, the fact that the early temperament of each twin, *in interaction with the responses they received from the environment*, led to differential outcomes. Identifying the environmental influences will be as important as understanding the temperament differences to fully understand the developmental sequence and design interventions.

Cascading Effects

The concept of cascading effects is somewhat more complicated and describes a process whereby developmental factors at one or more timepoints influence subsequent developmental risk or protective factors, which, in turn, contribute to particular developmental outcomes that do not appear, on the surface, to be related to the initial developmental antecedent. Developmental cascade models can vary, but all such models examine the developmental consequences of interactions of risk factors across and within domains and the ways in which their effects can manifest in other seemingly unrelated areas of development. Such designs have the potential to contribute to our understanding of the comorbidity of different types of psychopathology (Masten & Cicchetti, 2010).

To test for cascading effects, it is critical to measure several areas of behavior that are hypothesized to be related over at least three time points. This design controls for within-time covariance across domains while assessing change in each of the individual domains over time (Masten & Cicchetti 2010). This design, one in which researchers test change over at least three points while measuring multiple variables hypothesized to impact one another at each time point, is rare in developmental psychopathology research despite the richness of the information it can impart (Masten & Cicchetti, 2010). For example, developmental research supports the finding that early secure attachment leads to the development of better cognitive skills and better peer relationships during early childhood (Sroufe, 2005). Better cognitive skills at school entry then relate to more positive engagement with academic tasks, which, in turn, leads to higher achievement. Similarly, better peer relationships lead to engagement in many activities, which build skills and may protect against later depression. Thus, the effects of early secure attachment “cascade” through their impact on later important developmental achievements. There is not necessarily a direct relation between secure attachment and academic achievement in third grade. Rather, this outcome is a result of forces that operate through their impact on other developmentally important tasks. To fully test these relations, it is important to examine a developmental model that assesses all these variables at multiple points in time, considering that certain factors might mediate or moderate relationships that otherwise appear to be directly related. Furthermore, theoretical

concepts critical to developmental psychopathology such as stage theory, sequencing, and hierarchical integration over time suggest that selecting nodal transition points in development for study is likely to be most illuminating in promoting our understanding of the impact of risk and protective factors. In the example just provided, failure to achieve earlier developmental tasks is going to be problematic at school entry when the demands on the child change in such a way that having achieved the earlier skills is critical for success. Although the model described in this book does not fully meet the criteria for a “strong” cascade model (because it does not measure all variables at each data-collection time point), it does meet many of the criteria needed. Specifically, it examines the pathways by which multiple risk factors, within and across domains, lead to the development of child behavioral and emotional disorders in a longitudinal design that includes critical points of developmental transition such as school entry. As such it comprises a more robust developmental psychopathology model than much of the extant research.

Equifinality and Multifinality

Concepts of equifinality and multifinality are also critical to theories of developmental psychopathology and to understanding outcomes over time. Equifinality refers to the notion that different factors can contribute to the same outcome over time while multifinality refers to the idea that the same risk and protective factors can lead to different outcomes over time. So, for example, three different risk factors, insecure attachment, hostile parenting, and poor peer relationships, might lead to depression at a later point in development (equifinality), while insecure attachment and negative child affect might lead some children to develop depression, others to develop anxiety, and still others to be symptom free (multifinality). In our work, equifinality and multifinality were explored by examining the same risk factors in different domains over time in relation to different outcome variables, including both internalizing and externalizing symptoms.

The Omitted Variable Problem

Finally, much of developmental psychopathology research is limited in its scope, and even, at times, misleading due to the omitted variable problem. The omitted variable problem (Tomarken & Waller, 2003) refers to the concept that many of the psychosocial factors that an investigator might choose to study in developmental psychopathology share variance with one another. For instance, suppose there are three psychosocial variables that are intercorrelated with one another, and all three are also correlated with a developmental outcome of interest. If the investigator conducts an analysis in which two of those psychosocial factors are examined as predictors of the outcome factor, the variance they share with the omitted and the

third factor will be included in estimating the strength of their relations to the outcome. This could mislead researchers to believe that a particular variable has more impact than it actually does. A case in point is the literature on parent depression. Studies that examine the relationship between parental depression and child depression have consistently shown that parental depression is a risk factor for child depression (Brody & Forehand, 1986; Ghodsian et al., 1984; Weissman et al., 2016; Wolkind et al., 1980). However, studies that include other variables such as parenting reveal that it might not be parental depression per se, but rather the particular parenting skills or attitudes of depressed parents that impact child depression outcomes. In a single variable study, the parent depression variable might carry the variance for hostile parenting or parental withdrawal, thereby obscuring the impact of the actual parenting attitude or practice. Conversely, in a more robustly designed study that includes multiple variables, these effects might be teased out to provide a more precise picture of what contributes to particular outcomes. This question is important because it has implications not only for our understanding of risk factors theoretically but also for potential choices about intervention. In a study where it is believed that parental depression per se is the critical risk factor, intervention might include only medication and therapy to address the parent's depression. In a model that recognizes the impact of parental withdrawal or hostility, teaching specific parenting skills, such as following the child's lead or spending 30 min in play with their child per day, along with treatment of the parent's depression, would be the preferred intervention. There is always a tension in research between parsimony and complexity. It is frequently considered best to choose the most parsimonious, that is, the simplest, most straightforward, and least complex explanation of a phenomenon. This concept has guided the philosophy of science more generally and research in psychology specifically for many years (Boehner, 1975). However, it is critical to understand that calls for parsimony often misstate the goal of parsimony: providing *the simplest explanation that can account for the facts*. If the explanation does not adequately account for the facts or the world is, in fact, more complicated, then parsimony becomes misleading (as in the example above) rather than informative (Meehl, 1993).

The omitted variable problem (Tomarken & Waller, 2003) in psychology addresses the need to be sensitive to the complexity inherent in human development and develop testable models that are, in fact, more complex. Developmental psychopathologists, in their call for models that are multi-level, multi-domain, and attend to underlying latent continuity in variables that appear less continuous on the surface (e.g., early secure child-caregiver attachment as it manifests in later peer attachments), acknowledge the need for a more complex understanding of the multiple influences on development as it unfolds over time. Thus, in developing a testable model for understanding the development and maintenance of mental health outcomes during the preschool years, this research group struggled to find a balance between parsimony and complexity. In doing so, the first task was determining what outcomes were specifically of interest and how they should be measured.

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