CHILD AND ADOLESCENT PSYCHOPATHOLOGY

THIRD EDITION

EDITED BY
THEODORE P. BEAUCHAINE
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Contents

Foreword

The remarkable third edition of *Child and Adolescent Psychopathology* represents an academic tour de force presenting the science of development associated with progressions to mental disorder. These processes are typically multiple and interacting. Indeed, their importance is clear, as neurodevelopmental models of psychopathology are dominant today. Sadly, both stigmatization—primarily from profound misunderstanding of mental disorders—and low economic status remain barriers to research and treatment (Martinez & Hinshaw, 2016; Merikangas et al., 2011).

The chapters show remarkable breadth, including the challenge of integrating genetics, brain imaging, brain trauma, and prenatal and physiological as well as environmental variables in a clinically meaningful way. Clinicians have already benefitted from studies detailing patterns of continuity and discontinuity. Indeed, such investigations can help to prevent premature prediction and labeling that in itself may be harmful. These models, as well as the transactional nature of many dysfunctional behaviors, preclude simplistic causal pathways.

Brain imaging has yet to contribute to clinical diagnosis and care, even though longitudinal and large-sample cross-sectional studies are starting to indicate subpopulation developmental brain phenotypes that have integrative potential for developmental psychopathology (Giedd et al., 2015; Gur, 2016). For example, it is possible that different developmental trajectories in attention-deficit/hyperactivity disorder reflect alternate clinical forms, as delayed cortical developmental may well relate to greater improvement in adolescence (Shaw et al., 2013).

In our sister science of developmental neurobiology, true "clinical breakthroughs" have emerged, such as the use of rapamycin for tuberous sclerosis (Franz et al., 2006), and magnesium infusion for prevention of cerebral palsy (Rouse et al., 2008). These are large-effect-size interventions of interest to child psychiatrists because of associated psychopathologies in these conditions. Both were serendipitous discoveries, which by definition cannot be planned. At the same time, it remains troubling how much risk remains embedded in political arenas of community infrastructure (e.g., support for schools, housing, and law enforcement). We must transcend psychobiology to incorporate multiple levels of analysis, as amply shown in the following chapters.

The Research Domain Criteria (RDoC; Cuthbert, 2014), highlighted in a number of chapters, do not represent a truly new approach. Dimensional as well as categorical measures have been hallmarks of NIH-funded psychiatric research for decades (Weinberger, Glick, & Klein, 2015), and neurobiologically founded, multiple-levels-of analysis research has contributed to key advances in our understanding of etiology since at least the mid-20th century (Beauchaine & Thayer, 2015). Evidence is mounting for age- and category-related interactions with dimensional brain MRI measures (e.g., Wiggins et al., 2016). In all, the RDoC provides a useful and surprisingly interactive set of measures.

Finally, I found inspiration in the several authors who reviewed the predictive and possible treatment implications of regulatory physiological measures for developmental psychopathology. Ultimately, these models will be judged on when and how these regulatory processes can be changed, given the complexity of initial measurements and the potential for highly individualized treatment plans. One might read this entire volume as a basis for future personalized therapies, paralleling the present movement in medicine. In all, the chapters herald considerable promise for the future.

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Preface

As we noted in the preface of the second edition of *Child and Adolescent Psychopathology* (Beauchaine & Hinshaw, 2013), global costs of mental illness—in terms of morbidity, mortality, and other forms of human suffering—are staggering. In many developed countries including the United States, over one third of individuals suffer from a major psychiatric disorder at some point in their lives (Kessler et al., 2009). In low- and middle-income countries, mental disorders account for 25% and 34%, respectively, of total years lived with disability, yet most of those affected receive no treatment (WHO World Mental Health Survey Consortium, 2004). Although treatment rates are slightly higher in wealthy countries, mental disorders continue to carry significant stigma. As a result, many avoid seeking help, and a lack of treatment parity remains for mental disorders vs. other health-related conditions (Hinshaw, 2007; Martinez & Hinshaw, 2016).

When the two of us met nearly 18 years ago, knowledge of the causes of mental illnesses was quite limited compared to today. Although behavioral genetics studies had shown that most psychiatric disorders are at least moderately heritable, little was known about molecular genetic, neural, or hormonal mechanisms of heritability. Moreover, neither epigenetic alterations in gene expression, nor rare structural variants, had been identified as possible mechanisms through which environment might confer vulnerability to psychopathology. Many prevailing models of mental illness still pitted nature and nurture against each other as competing causes of psychopathology. Transactional models, in which biological vulnerabilities are presumed to interact with environmental risk factors to eventuate in mental illness, were few in number and limited in specification of neurobiological mechanisms, as advanced neuroimaging was in still in its infancy.

Given limitations in technology, most of what we learned about mental illness has traditionally been obtained through observation and classification of symptoms (see Chapter 2 [Beauchaine & Klein]). Although useful in early stages of identifying different forms of mental illness, symptom classification often tells us little if anything about underlying causal processes—be they biological or environmental—that lead to particular disorders. In editing this book, we therefore sought authors with expertise in the developmental psychopathology perspective, which emerged only about 35 years ago (see Chapter 1 [Hinshaw]). This perspective follows from

the observation that human behavioral traits—including those that predispose to psychopathology—almost always arise from complex transactions between biological vulnerabilities and exposure to environmental risks across development. For example, heritable conditions such as attention-deficit/hyperactivity disorder, depression, schizophrenia, and substance dependence are shaped strongly by environmental influences, and effects of environmentally transmitted risks such as child maltreatment are moderated by genes and other biological predispositions (see e.g., Beauchaine & McNulty, 2013). Furthermore, through epigenetic mechanisms, the expression of several genes that are implicated in behavior regulation can be altered by experience, including exposure to stress and trauma—findings that defy anachronistic distinctions derived from reductionistic models. Thus, we asked all authors to identify *both* biological *and* environmental contributors to psychopathology and to discuss how these *interact* and *transact* across development to amplify risk.

This dynamic view of mental disorders served as the impetus for both the first and second editions of this book, and continues as a driving force behind the current third edition, which includes substantially updated material. Before the first edition was published, most graduate-level psychopathology texts were organized around the symptom-based approach to classifying mental illness, with limited consideration of the genetic and neural underpinnings of behavior or the interplay between biological vulnerabilities and environmental risk factors across development. However, in the nine years since the first edition was published, appreciation for the complexity of such transactions in the development of psychopathology has increased, and many new and exciting findings have emerged (see e.g., Beauchaine & Goodman, 2015).

Elucidating causes of mental illness is an international public health concern. The better we understand etiology across all relevant levels of analysis, including genetic, neural, familial, and cultural (to name a few), the better position we are in to devise more effective prevention and intervention programs (Beauchaine, Neuhaus, Brenner, & Gatzke-Kopp, 2008). Thus, even though this text does not address treatment, we hope readers will keep in mind while digesting each chapter how important it is to identify causes of mental illness in our efforts to reduce human suffering. This motivation played a central role in the National Institute of Mental Health (2015) establishing the Research Domain Criteria (RDoC) project. RDoC is a collaboration between NIMH and researchers around the world to develop a neuroscience-informed system of characterizing psychopathology that identifies genetic, neural, hormonal, and social determinants of major behavioral systems that contribute to human function, and at the extremes, mental illness (see Chapter 2 [Beauchaine & Klein]).

Readers will likely note that some disorders that are often addressed in psychopathology texts are not included in this book. For example, we do not cover developmental disorders or intellectual disability. In omitting these disorders, we are not implying that they are unimportant. Rather, the vast literature on developmental disabilities makes it difficult to cover the topic adequately in a text that already includes 24 chapters. Thus, we were left with a difficult choice, and we

decided not to limit coverage of the conditions contained herein. We refer interested readers to other sources (e.g., Burack, Hodapp, Iarocci, & Zigler, 2011) for excellent coverage of this domain.

We now invite you to join us in the quest for a deeper understanding of the development of mental disorders, which almost always originate in childhood and adolescence. We hope that our emphases on genetic and other biological vulnerabilities, and how these interact with environmental risk factors and contexts will challenge any preconceived notions you may have about what is "biological" and what is "environmental" in relation to normal and atypical development. We hope as well that our coverage will prompt the next generation of investigators, clinicians, and policymakers to pursue the daunting but essential goal of explaining, treating, and preventing the devastation that so often accompanies psychopathology.

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Child and Adolescent Psychopathology

PART I

THE DEVELOPMENTAL PSYCHOPATHOLOGY APPROACH TO UNDERSTANDING MENTAL ILLNESS

CHAPTER 1

Developmental Psychopathology as a Scientific Discipline

A 21st-Century Perspective

STEPHEN P. HINSHAW

Information continues to accumulate, at an increasingly rapid pace, about the complex processes and mechanisms underlying the genesis and maintenance of child and adolescent forms of mental disorder. Our major goal for this, the third edition of *Child and Adolescent Psychopathology*—in chapters written by international experts on the topics of interest—is to present current information, particularly surrounding core vulnerabilities and risk factors for major dimensions and categories of behavioral and emotional problems of youth. As in our prior editions (Beauchaine & Hinshaw, 2008, 2013), we emphasize psychobiological vulnerabilities in the active context of environmental forces that shape development. Framed somewhat differently, an important objective for each chapter is to delineate potential *ontogenic* processes in progressions to mental disorder, signifying mechanisms underlying individual development, with the realization that multiple vulnerabilities and risk factors interact and transact in case-specific yet ultimately predictable ways (Beauchaine & Hinshaw, 2016; Beauchaine & McNulty, 2013; Hinshaw, 2015). Parallel to the first two editions, we do not prioritize assessment or treatment-related information in this book, given that such coverage would necessitate a second or even third volume (e.g., Mash & Barkley, 2006, 2007).

Although the book's title focuses on children and adolescents, I note immediately that psychopathology, in many (if not most) cases, unfolds across the entire lifespan. Most so-called adult manifestations of mental disorder have origins, if not outright symptom presentations, prior to age 18. Moreover, even the earliest-appearing forms of behavioral and emotional disturbance typically portend escalating symptoms and impairments that can persist for decades (e.g., Kessler, Berglund, Demler, Jin, & Walters, 2005). Because resilience is also a possibility (Luthar, 2006), lifespan

approaches to the topics of interest in this book are increasingly mandated for thorough understanding, carrying profound clinical as well as scientific implications. The child is the father of the man—and the mother of the woman—given that adults emerge from a cascading set of processes set in motion years before.

Before delving further, I immediately acknowledge the major debt that Ted Beauchaine and I owe to all of our contributors, as each is a major force in the scientific literature. We asked them to integrate state-of-the-art knowledge into the chapters that follow. Indeed, given the fast-escalating sophistication of mechanistic accounts of the development of psychopathology—which are now integrating genetic vulnerability and brain architecture in the presence of contextual forces across development, providing unprecedented levels of synthesis (Hinshaw, 2015)—no current compendium can afford to rest on the laurels of previous editions. The field's work is emerging at ever-more-detailed levels of analysis, with the promise of accounts that should, in the future, better inform evidence-based practice in the context of validated knowledge structures that can be applied to the clinical phenomena under consideration. In this initial chapter, I delineate the clinical and policy-related importance of the subject matter at hand, explicate core principles of developmental psychopathology (DP), and provide a general overview of the sequence of the chapters and their contents. In so doing I aim to set the stage for the cutting-edge advances and wisdom provided in the remainder of the volume.

RELEVANCE AND IMPORTANCE

The subject matter under consideration in this volume is at once clinically compelling and conceptually fascinating. Mental disorders yield substantial impairment, pain, and suffering for individuals, families, communities, and even cultures. The levels of personal and family tragedy involved are often devastating (Hinshaw, 2008a). At the same time, multifactorial vulnerabilities and risk factors—along with the complex, transactional developmental progressions that produce symptoms and impairments—challenge investigators from disciplines as diverse as neuroscience, genomics, public health, psychology, psychiatry, and public policy to emerge with new insights and syntheses. Overall, the clinical need is urgent and the scientific motivation compelling.

I begin with the concept of impairment. As elaborated in nearly every working guide to psychopathology (e.g., American Psychiatric Association, 2013; Wakefield, 1992), a designation of mental illness mandates, beyond behavior patterns or symptoms, that the individual in question display impairment or "harm" before a diagnosis is made. Clinically, then, attention must be paid to the often-excruciating pain and suffering attending to conditions as diverse as autism-spectrum disorders, various sequelae of maltreatment, severe attention deficits and impulsivity, interpersonal aggression, significant anxiety and mood disorders, thought disorders (including schizophrenia), eating-related conditions, self-destructive behavior patterns and personality configurations, and substance use disorders. Each is

linked to setback and suffering, societal reverberations, and significant costs, the latter measurable in terms of huge expenditures borne by society, not related just to treatment per se but to the long-range outcomes of interpersonal, educational, and vocational failure that often attend to mental disorders (for an example of the huge costs linked to attention-deficit/hyperactivity disorder [ADHD], see Hinshaw & Scheffler, 2014).

Of course, impairment and harm—whether personal or experienced by others—are not sufficient for designating individuals as suffering from a mental disorder. In the view of Wakefield (1992), both harm (which involves a value-laden component) and dysfunction (a scientific construct) are required before mental illness should be diagnosed. Per Wakefield, dysfunction is "the failure of a mental mechanism to perform a natural function for which it was designed by evolution" (p. 373). Although mental health fields lack the objective markers and pathognomonic signs[1] as those found in medicine and neurology (see Chapter 2 [Beauchaine & Klein]), our aim for the accumulated work in the present volume is to propel knowledge of dysfunctional mechanisms related to child and adolescent psychopathology. At the same time, findings from each chapter remind us that the origins of mental health conditions are reciprocal, dynamic, multilevel, and fully linked with processes linked to environmental context.

Not every aspect of psychopathology is necessarily impairing. At the level of evolution, it cannot be the case that mental disorder is inevitably or inexorably linked to personal failure or reduced fecundity; otherwise, how would conditions such as severe thought and mood disorders have perpetuated across human history (for evolutionary psychological explanations of mental disorder, see Neese, 2005)? Partial genetic loadings or vulnerabilities in biological relatives may well carry adaptive advantage; at least some aspects of symptoms could yield inspiration or thriving. Still, clinical and population-level facts regarding impairment linked to mental illness are stark. Emotional and behavioral problems among children and adolescents are distressingly prevalent and often lead to serious impairments in such crucial life domains as academic achievement, interpersonal competencies, and independent living skills (for thorough accounts, see Mash & Barkley, 2014). These conditions incur intensive pain for individuals, families, and communities at large, delimiting life opportunities and triggering major burdens for caregivers, school districts, and health care systems. In short, far too many young lives are compromised by mental illness.

Moreover, child and adolescent conditions and mental-health-related issues are growing in impact. As just one harrowing example, recent data from the World Health Organization reveal that, worldwide, the number-one cause of death for girls aged 15–19 years is now suicide (World Health Organization, 2014).

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1. A pathognomonic sign is an indicator, usually biological, that at once (1) proves that a person suffers from a disease of known etiology, and (2) eliminates all other disease processes as potential causes. For a detailed discussion of the role of pathognomonic signs in medicine vs. psychiatry/psychology, see Beauchaine and Thayer (2015).

Rates of self-injury have escalated rapidly over the past decades, and conditions like autism and ADHD are undergoing huge increases in diagnosed prevalence (e.g., Visser et al., 2014). The age of onset of serious mood disorders appears to be dropping, signaling the importance of contextual "push" in unearthing vulnerability (Hinshaw, 2009). In both the developing and developed world, serious mental disorder in youth portends major life consequences and even tragedy (see, for example, Sawyer et al., 2002).

Moving beyond childhood and adolescence per se, each year the Global Burden of Disease findings convey that a number of mental health conditions (along with neurological and substance use disorders) are among the world's most impairing illnesses (Whiteford, Ferrari, Degenhardt, Feigin, & Vos, 2015). Indeed, the variable called "years lived with disability" is dominated by individuals with mental disorders in our current era, on par with and often surpassing so-called physical diseases. By the time of adulthood, economic costs related to mental illness escalate with respect to employment-related impairments, yielding huge public-entitlement expenditures and lack of productivity. In short, from a number of important lenses, mental disorders are tragically impairing, robbing individuals of opportunities to thrive and be productive, often in the prime of their lives. If readers sense a call to action in these words, they have read my intentions precisely.

Crucially, mental health and physical health are inexplicably intertwined. It is now well known that serious mental disorder is associated with reductions in life expectancy averaging from 10 to 25 years (e.g., Chang et al., 2011). The reasons here are plentiful: high-risk lifestyles, lack of access to medical care, suicide, homicide, co-occurring chronic (e.g., cardiovascular disease; diabetes), and infectious (e.g., HIV) illnesses, and related unhealthy practices such as smoking and substance abuse. Even nonpsychotic disorders (e.g., ADHD; many forms of depression) are linked to long-term health risks (e.g., Barkley, Murphy, & Fischer, 2008). Recent findings reveal links between a range of mental disorders and a startling list of chronic physical illnesses (Scott et al., 2016).

Given this set of enormously costly, persistent, and deeply human consequences and needs, why not rely on traditional clinical efforts in psychology and psychiatry for solutions, given their long, venerable histories? As detailed in earlier accounts, however, these efforts have led to static views of psychopathology, with priority given to categorical diagnoses that inevitably lump together individuals with substantially different etiologic pathways into the same "condition" (e.g., Cicchetti, 1984, 1990). Moreover, the reciprocally deterministic nature of development, both typical and atypical, is not well captured by such static diagnostic systems (or nosologies, see Chapter 2 [Beauchaine & Klein]). Because of the huge expansion of knowledge in a host of related fields and subfields, the complex yet compelling perspectives offered by DP have taken hold with increasing rapidity, providing a call to investigators from a host of seemingly disparate disciplines regarding the promise of uncovering relevant mechanisms. Absent the multifaceted nature of DP models and paradigms, traditional perspectives are too often sterile