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About the Editors-in-Chief

Marc H. Bornstein, PhD, holds a BA from Columbia College, MS and PhD from Yale University, honorary doctorates from the University of Padua and the University of Trento, and is an honorary professor at the University of Heidelberg. Dr. Bornstein has professional positions at the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), the Institute for Fiscal Studies, London, and UNICEF. He previously held faculty positions at Princeton and New York Universities as well as academic appointments in Munich and Marbach in Germany; London, Bristol, and Oxford in the United Kingdom; Paris; New York; Tokyo; Bamenda in Cameroon; Seoul in South Korea; Padua and Trento in Italy; Santiago in Chile; Toronto in Canada; and Tufts University. Dr. Bornstein is president emeritus of the Society for Research in Child Development (SRCD), serves on the Executive Committee of the International Society for the Study of Behavioural Development (ISSBD), and is a past member of the SRCD Governing Council and Executive Committee of the International Congress of Infant Studies (ICIS).

Dr. Bornstein was a J. S. Guggenheim Foundation Fellow, and he has received a Research Career Development Award from the NICHD, the C. S. Ford Cross-Cultural Research Award from the Human Relations Area Files, the B. R. McCandless Young Scientist Award and the Division 7 Award for Distinguished Contributions to Developmental Psychology from the American Psychological Association, a United States Public Health Service Superior Service Award and an Award of Merit from the National Institutes of Health, two Japan Society for the Promotion of Science Fellowships, four Awards for Excellence from the American Mensa Education & Research Foundation, the Arnold Gesell Prize from the Theodor Hellbrügge Foundation, both the Distinguished Scientific Contribution Award and the Lifetime Achievement Award from the ISSBD, the Translational Research Award from the ICIS, and both the Distinguished International Contributions to Child Development Award and the Distinguished Scientific Contributions to Child Development Award from the SRCD.

Dr. Bornstein is editor emeritus of *Child Development* and founding editor of *Parenting: Science and Practice*. He has administered federal and foundation grants, sits on the editorial boards of multiple professional journals, is a member of a variety of scholarly societies, and consults for governments, foundations, universities, publishers, scientific journals, and media. Dr. Bornstein led the revision of children's toy and safety guidelines for the U.S. Consumer Product Safety Commission.

Dr. Bornstein has published widely in experimental, methodological, comparative, developmental, and cultural science as well as neuroscience, pediatrics, and aesthetics and is coauthor, editor, or coeditor of dozens of books as well as hundreds of scientific papers. He was named to the Top 20 Authors for Productivity in Developmental Science by the American Educational Research Association. Dr. Bornstein is also an author of children's books, videos, and puzzles in *The Child's World* and *Baby Explorer* series.

Prachi E. Shah, MD, MS, is a professor of pediatrics and psychiatry at the University of Michigan, Ann Arbor. Dr. Shah obtained her BA from Johns Hopkins University and her medical degree from Baylor College of Medicine in Houston, Texas. She completed a residency in pediatrics at Baylor College of Medicine, received fellowship training in developmental-behavioral pediatrics at Boston Medical Center, and pursued additional fellowship training in infant psychiatry at Tulane University School of Medicine. At the University of Michigan, Dr. Shah's clinical efforts focus on early child development and infant and early childhood mental health. In addition, Dr. Shah serves as the medical director of the Neonatal Follow-Up Program and the Fetal Alcohol Spectrum Disorders Diagnostic Clinic and is the associate program director for the Developmental-Behavioral Pediatrics Fellowship Training Program.

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Introduction: Pediatric Psychology, Developmental-Behavioral Pediatrics, and Developmental Science Meet

Pediatric psychology is concerned with fostering children's adaptation in the face of illness and hospitalization; developmental-behavioral pediatrics aims to improve the health of children through an integrated understanding of the biopsychosocial, educational, and cultural influences on them and their families; and developmental science focuses on theoretical and empirical understanding of biological, mental, verbal, emotional, and social aspects of child and adolescent development and their underlying and associated processes and contexts. Although these three specialties have heretofore evolved and largely function as distinctive disciplines, each with its own perspectives, traditions, training, and credentialing, at base all three are intimately involved with child and adolescent health and well-being. In consequence, their greater rapprochement to the ultimate advantage of youth and society alike should be patent. This *APA Handbook of Pediatric Psychology, Developmental-Behavioral Pediatrics, and Developmental Science* for the first time integrates the siloed sciences and practices of the three disciplines through exposition of the contemporary knowledge and practical applications of all three, speaking to one another in language and content accessible and advantageous to professionals and researchers, practitioners and trainees in these and related fields. In essence, this two-volume handbook humbly aspires to ignite a close interdisciplinary articulation in order to authentically advance a united and cohesive future of improved child and adolescent health and well-being.

When we conceived this handbook, with the vision of bringing the three disciplines of pediatric psychology, developmental-behavioral pediatrics, and developmental science into closer contact, we and the world were in a different place. We first envisioned this handbook in 2019, but little did we know how life would change, and with that change how our vision and mission regarding what we hoped to convey in this handbook would evolve. What transpired was, of course, the COVID-19 pandemic, caused by the SARS-CoV-2 virus, which overtook the world early in 2020, and in response brought to the fore a new coordination and mutual articulation among these three disciplines. We use the COVID-19 pandemic as a case study overture to illustrate briefly how pediatric psychology, developmental-behavioral pediatrics, and developmental science alone and together defined and responded to the coronavirus generally but especially for children and adolescents. In doing so, we hope to bring home our main message that, although historically, theoretically, and professionally separate, these three disciplines complement one another in integral ways and jointly forge a more complete comprehension and management of child and adolescent health and well-being. Following this analysis,

we return to a traditional introductory structure that addresses the purposes of this handbook, the design of its two volumes, the history behind the handbook, five themes that emerge in the handbook, and contributors and acknowledgments.

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A novel coronavirus was first isolated in December 2019; since then COVID-19 has resulted in over 775 million infections (World Health Organization, 2024a) and caused more than 7 million deaths worldwide (World Health Organization, 2024b). The pandemic created public health and medical calamities as well as developmental and psychological crises that have perhaps affected everyone on the face of the earth. The pandemic instigated multilevel societal challenges and radical changes in the way people live, and exposed individual, community, and national health and well-being vulnerabilities. For example, differential access to medical and mental health care, as well as to vaccines, exposed inequities and brought to light the reality that responses to illness and health resources vary dramatically with individual variation in biological and experiential characteristics and ecological contexts (Kawachi, 2020). Among them, developmental status turned out to be prominent.

The COVID-19 pandemic exposed several determinative developmental–psychological–pediatric intersections. Children and adolescents under 18 years of age compose nearly one-quarter of the U.S. and one-third of the world populations, respectively (ChildStats, 2024; World Bank, 2022), and although the pandemic affected people of all ages, infection, hospitalization, and mortality rates, as well as vaccination development, authorizations, and dosages, were all developmentally graded (Bornstein, 2021). Additionally, psychological and pediatric effects of the pandemic were moderated by other developmentally related social and ecological factors like economic class and ethnicity (Katikireddi et al., 2021). Unlike other coronaviruses, SARS-CoV-2 turned out to be less severe for children and adolescents than for adults or the aged (Morrell & Mikacenic, 2022) but youth still represented approximately 20% of total U.S. cases and more than 1,200 U.S. children and adolescents have (to date) succumbed to the coronavirus (perhaps 17,000 worldwide; UNICEF, 2023). As another example of developmental grading, vaccinations against COVID-19 were moderated by developmental considerations having to do with safety and dosing considerations as well as stringent requirements for U.S. Food and Drug Administration (FDA) approval in pediatric populations as much as technological decisions. Vaccines were initially developed for adults and the aged as pharmaceutical contended that they had to start with adults and “work their way down” to children. Thus, the FDA first granted full approval for the Pfizer/BioNTech COVID-19 vaccine for people aged 16 and older (The Medical Letter 2021b) and for the Moderna vaccine for people aged 18 and older (The Medical Letter, 2021a). Additionally, when approved for youth, adolescents aged 12 to 17 received the same dose of the Pfizer/BioNTech vaccine as adults. Eventually, the FDA authorized the use of the Pfizer/BioNTech vaccine for children as young as 5 years of age (The Medical Letter, 2021c). Children between the ages of 5 and 11 years also received smaller dosages than adults: Moderna’s vaccine dose for children is about one-quarter of the adult dose (U.S. Food and Drug Administration, 2023a), and Pfizer’s pediatric vaccine is one-tenth the adult dose (U.S. Food and Drug Administration, 2023b). Still overlooked, parents expressed frustration and apprehension about not being able to vaccinate children under 5, as young children had no other opportunity for protection and could still infect vulnerable others,

notably family members. Children aged 0 to 5 years represented the last segment of the U.S. population to have access to vaccination. Even then, Pfizer's initial two-dose vaccine proved ineffective for children aged 0 to 4, and the company eventually turned to a series of three administrations of a low-dosage version of their vaccine (U.S. Food and Drug Administration, 2023a).

Thus, 3 years after SARS-CoV-2 first appeared, all major aspects of the pandemic— infections, deaths, and vaccinations as well as individuals and groups affected—were moderated by developmental status. The COVID-19 pandemic itself and the measures taken to prevent or mitigate virus transmission resulted in multiple primary as well as secondary effects on child and adolescent physical and mental health. For example, virus circulation reduced opportunities for physical activity and increased social isolation, affecting children and adolescents detrimentally (Wunsch et al., 2022). The “physical distancing” response to the virus also curtailed some direct access to routine medical care and allied health services, diminished symptom monitoring, and gave rise to potential lapses in treatment adherence. Although children and adolescents were less susceptible to contracting COVID-19 than adults, and, if they did, they generally exhibited asymptomatic or only mild courses of illness, the worldwide COVID-19 pandemic was still a medical calamity for many children and adolescents (Amin & Parveen, 2022). The pandemic also proved a psychological disaster for many children and adolescents as academic and social developmental gaps widened and levels of psychological distress as manifest in increases in eating disorders, clinically significant depression, suicidal ideation and behavior, and some anxiety symptomatology grew (Meherali et al., 2021; Richard et al., 2023). Tragically, in excess of one million children worldwide are estimated to have experienced the death of a primary caregiver (Hillis et al., 2021).

Developmental scientists concern themselves with just these issues, studying and understanding what human beings are like and how they vary in their biopsychosocial development across the first phases of human ontogeny—childhood and adolescence—as well as the processes by which their social, contextual, and environmental embeddedness shapes aspects of their development. Developmental science considerations played a prominent role in all phases of response to the pandemic, from the foregoing biomedical considerations of vaccination, infection, hospitalization, and death to day care and school, access to play and peers, and compromises to mental health and family functioning. Of course, there is both risk and resilience in growth and development under normal circumstances, but widespread threatening phenomena like the coronavirus pandemic intersect with and challenge all constituents of normal ontogeny. Developmental-behavioral pediatricians (among other disciplines) were prominent in coordinating and marshaling biopsychosocial and educational forces in efforts to improve the health and well-being of children and adolescents during the pandemic.

As a profession, developmental-behavioral pediatrics is multidisciplinary in nature and concerns itself with the diversity of developmental and behavioral disorders that affect children. Developmental-behavioral pediatric care emphasizes clinical observations, communication skills, and behavioral and developmental data collected from children, families, schools, and therapists. The mission of these practitioners is to improve the health and well-being of children and families by helping them thrive in the home, school, and peer contexts that they inhabit. One of the principal conclusions to emerge from the coronavirus pandemic is that the “vulnerable are vulnerable.” Insofar as they concern themselves with behaviors, developmental delays, and care for the most

common developmental-behavioral pediatric disorders (e.g., attention-deficit/hyperactivity disorder, autism spectrum disorder, learning disability, and intellectual disability), developmental-behavioral pediatricians came during the pandemic to occupy an even more pivotal place in behavior management, medication supervision, and family navigation of health-related issues. With the transition to virtual schooling, increased reliance on digital experiences, and loss of in-person learning and social opportunities, a new context shaping learning and socioemotional development emerged. Developmental-behavioral pediatricians entered into this “living laboratory” and began to observe how these novel contexts impacted child and adolescent health and well-being and as a specialty helped to identify and implement innovative strategies to improve clinical care delivery for an increasingly vulnerable population.

To respond to public health recommendations to minimize in-person encounters and to comply with “stay at home” mandates in many states during the pandemic, clinical care delivery rapidly pivoted to home-based telehealth procedures (Ripp et al., 2022). Of course, telehealth implementation came with challenges and costs related to provider and family acceptance, professional training, and attendant questions about technology and clinical effectiveness in addition to logistical and legal issues. (Developmental-behavioral pediatricians eventually reintegrated in-person assessments because some standardized developmental assessments were difficult to conduct using extant measures via telehealth.) On the whole, however, telehealth afforded developmental-behavioral pediatricians with some convenient and accessible opportunities to observe children’s behavior and development in naturalistic settings, and allowed increased access to developmental specialists for families living in geographically remote areas. Indeed, the pandemic had ramifications for the ways that developmental-behavioral pediatric care is delivered and potentially altered the future model of care in the profession in terms of certain diagnostic assessments, medication management follow-up, and therapeutic interventions for children and adolescents.

While developmental scientists and developmental-behavioral pediatricians were defining COVID-19 issues as relevant for children and adolescents and working to prevent exacerbation of the pandemic, respectively, pediatric psychologists were drawing on their special skills and remit in distinguishing normative from higher risk reactions to stresses instigated by the pandemic, those that posed a risk of increased impairments in youth mental and physical health and well-being. Pediatric psychologists focus on encouraging and promoting children’s and adolescents’ coping and adaptation to illness and hospitalization. These professionals also help families with access to special education, health care and personal care, and mental health resources in light of exposures to virus-caused traumatic events. Pediatric psychologists (along with other professionals) provided clinical assessments and interventions, worked to identify family-based and community-level resources, and developed and implemented adherence-promotion efforts to support youth and their families in achieving and sustaining optimal disease management; along with developmental-behavioral pediatricians, they advocated for rights under federal disability law to best ensure child and adolescent safety and continuity of care.

The pandemic mobilized pediatric psychology and developmental-behavioral pediatrics workforces. Coming full circle in articulating with developmental scientists, pediatric psychologists conducted research and outcome measurement notably having to do with COVID-19 pandemic effects on parenting, adaptation, and experiences as

well as child and family system outcomes. When youth's self-management responsibilities outweigh their cognitive capacities to successfully administer treatment regimens, adherence and self-management action suffer. Pediatric psychologists' data and analyses have implications for future improvements in service delivery and policy by identifying effective from ineffective strategies as well as individual and systemic risk and protective factors that influence outcomes in pediatric adherence and self-management in health care. Like developmental-behavioral pediatricians, pediatric psychologists possess expertise in child and family adaptation, especially in the context of chronic health conditions, and so had a unique opportunity to support at-risk children and adolescents with chronic conditions and their families during the COVID-19 pandemic.

Altogether, the COVID-19 pandemic exposed deep pediatric and psychological issues that occupy the intersection of pediatric psychology, developmental-behavioral pediatrics, and developmental science. Delays in offering vaccines to children led to stresses on the pediatric health care system and workforce as well as changes in public health containment measures. Over time, COVID-associated inequities also rose in prominence, and developmental and mental health gaps and disparities became more obvious. The three disciplines—pediatric psychology, developmental-behavioral pediatrics, and developmental science—responded to these separate yet interrelated crises each in their own way, but also in important complementary and coordinated ways. Moreover, acknowledgment grew that child and adolescent health and well-being are influenced by the experiences and reactions of families, communities, and society, by public health policies, by media coverage, and by the availability of professional pediatric psychological and developmental-behavioral pediatric services. Lessons learned from responses of developmental scientists, developmental-behavioral pediatricians, and pediatric psychologists are that youth and their families can adapt to seemingly endless and distressing uncertainties, establish new constructive routines, access health care (e.g., medications, medical interventions, medical services), and use new technologies (e.g., telemedicine, adherence apps) to combat poor health outcomes and promote disease management.

These unfolding interlocked revelations helped to consolidate our vision and magnified in our minds the need and value for this handbook—specifically to expose and knit together the multilevel characteristics and contexts of three historically separate and independent disciplines that mutually address child and adolescent health and well-being. Manifestly, to improve future child and adolescent health and well-being, the provinces of theoretical and empirical developmental science must be melded with clinical conditions and existing systems of care traditionally associated with pediatric psychology and developmental-behavioral pediatrics. As stated at the outset, developmental science, developmental-behavioral pediatrics, and pediatric psychology all have the health and well-being of children and adolescents at their core.

The COVID-19 pandemic is not the subject of this handbook. Rather, the pandemic served to instantiate, motivate, and reify our goal to bring these three heretofore artificially disparate disciplines and their respective practitioners into closer contact and communication to improve the health and well-being of youth everywhere.

THE PURPOSE OF THIS HANDBOOK

Ensuring child and adolescent health and well-being is a principal desire of parents and is a public health goal. The factors that underlie child and adolescent health and well-being are manifold and relate to conditions that are foundational to family and

societal systems. Challenges to child and adolescent health and well-being are sources of significant stress to the family system. Optimizing offspring development requires an integrated understanding of, on the one hand, biological threats to health and well-being and the pathophysiology of disease and, on the other hand, threats to human development and the caregiving and environmental contexts that mitigate risks and foster resilience. Regarding the three disciplines that this handbook addresses, Volume 1 draws from theoretical and empirical traditions in developmental science and highlights developmental origins of risk and resilience across early phases of the life course, including developmental science framing and processes, biopsychosocial systems in development, and social and material contexts of child and adolescent health and well-being. Volume 2 focuses on clinical applications of developmental science in pediatric psychology and developmental-behavioral pediatrics as well as in family systems and ecological contexts, child health conditions, and developmental-behavioral mental health.

The three disciplines coordinated in this handbook have emerged as complementary approaches to better meet the biopsychosocial needs of children and adolescents. As a specialty, pediatric psychology is grounded in the practice of psychology in health care environments and seeks to address developmental and behavioral issues that are uniquely relevant to children who are hospitalized or living with illness with a unifying aim to optimize children's adaptation. Concurrently, developmental-behavioral pediatrics grew out of the recognition that developmental and behavioral concerns constituted a "new morbidity" in pediatrics (the prevention, early detection, and management of behavioral, developmental, and social functioning problems encountered in pediatric practice), and a new specialty was needed to address these risks to youth development. This subspecialty evolved to improve developmental and behavioral health in youth through an integrated understanding of biopsychosocial, educational, and cultural influences on individual youth and their families. Common to these two disciplines is an understanding of the contexts that underlie successful adaptation to physical and behavioral health and disorders in childhood. Developmental science represents an evidence-based empirical approach to child and adolescent development and is principally concerned with understanding the dynamics of biological, mental, verbal, emotional, and social growth as well as the multiple contextual determinants of individual and group consistency and change in these developmental domains over time.

We have therefore designed this *APA Handbook of Pediatric Psychology, Developmental-Behavioral Pediatrics, and Developmental Science* to deepen connections and exchanges among these three fields and to integrate their diverse, but fundamentally converging, perspectives in one academic resource that addresses the range of prominent and recurring issues and problems that occupy child and adolescent health and well-being. Our handbook considers that biological and contextual factors converge to challenge children and adolescents psychologically and medically and elucidates how adaptive processes in the many family and ecological systems enveloping children and adolescents help to mitigate risks and promote health and wellness. The novel, needed, and authentic contribution of this handbook is to elucidate how adaptive processes from three disciplines must eventually coordinate to ensure child and adolescent health and well-being as well as to mitigate risks of child and adolescent illness and disease. Chapters in the handbook explicate and integrate current and emerging basic research and clinical evidence across the three disciplines.

THE DESIGN OF THIS HANDBOOK

Following this Introduction, the handbook offers 57 chapters in two volumes. As editors, we have endeavored to ensure cohesiveness across these volumes, their parts, as well as individual chapters. Contributors were enjoined to follow a similar general outline in preparing their chapters so consumers would find navigating chapters and their contents reader-friendly. Although chapters in these volumes are individually organized to best represent their substantive topic, we worked to ensure that each chapter introduces its substantive topic; defines its terms, scope, and public health impact; describes screening and assessment tools; addresses epidemiology with ethnic, U.S., and global statistics; discusses moderating factors, disparities, theory, ecological contexts, and development as well as risk and resilience factors; takes up individual and family outcomes; and centrally relates all these topics to the roles and responsibilities of pediatric psychologists, developmental-behavioral pediatricians, and developmental scientists. Treatment and interventions are also covered as relevant. In an effort to be practical and constructive, each chapter also concludes with an up-to-date set of resources that include URLs, links to significant papers, societies, nongovernmental organizations, global efforts, interventions, and the like.

In greater detail, Volume 1 concerns Developmental Science and Developmental Origins of Risk and Resilience in Childhood and Adolescence, highlighting foundational aspects of developmental science and their implications for pediatric psychology and developmental-behavioral pediatrics. Volume 1 therefore focuses on the physical, mental, emotional, and social aspects of child and adolescent development as influenced by family and socio-cultural-ecological contexts but extends into clinical applications and implications of developmental science. Volume 1 includes three sections, respectively, on developmental science framing and processes (the bioecological-contextual framework, cascades in child development, and adverse childhood experiences); biopsychosocial systems in development (brain and central nervous system [CNS], psychoneuroendocrinology, stress, language, executive functioning, attachment, sociality and morality, sibling and peer relationships, promoting resilience in children and families, and the transition from adolescence to maturity); and social and material contexts of child and adolescent health and well-being (digital media; health disparities; diversity, equity, inclusion, and social justice; adoption and foster care; immigrants; homelessness; poverty and socioeconomic adversity; child maltreatment and trauma; parental substance use and incarceration; and preparation and response to natural disasters). Volume 1 operates out of a developmental science framework, and so chapters in Volume 1 tend to organize reviews of the literature, methods, and findings from a developmental science perspective and then articulate with and make recommendations to pediatric psychology and developmental-behavioral pediatrics.

Volume 2 concerns Pediatric Psychology and Developmental-Behavioral Pediatrics: Clinical Applications of Developmental Science, emphasizing situations and diagnoses of children and adolescents set in the contexts of connections between them and foundations of child development from developmental science. Volume 2 addresses children's and adolescents' adaptation to acute and chronic illnesses and family and ecological situations that impact early developmental and behavioral health. Volume 2 includes four sections on, respectively, family systems and ecological contexts (outcomes in children with chronic health conditions, treatment adherence,

pain, traumatic stress, and death, dying, palliative care, and bereavement); child developmental contexts and child health conditions (gender identity and gender dysphoria, genetic disorders, congenital conditions, CNS disorders, sickle cell disease, cancer, pulmonary disorders and congenital heart disease, Type 1 and Type 2 diabetes, and pediatric obesity); developmental-behavioral and mental health conditions (autism spectrum disorder, prematurity, neurosensory disorders, sleep, elimination disorders, attention disorders, internalizing and externalizing behavior problems, eating disorders, and suicidal thinking and behavior); and assessments, interventions, and treatments (concepts and psychometric issues; learning, cognition, and intellectual disorders; psychological consultation; integrated behavioral health; and relationship-focused interventions and psychotherapy). For a fuller representation, see the table of contents.

This American Psychological Association (APA) handbook delivers a solid foundation and working knowledge of pediatric psychology, developmental-behavioral pediatrics, and developmental science. This handbook will serve multiple purposes as a go-to library source, a practical resource and guide for pediatric psychologists, developmental-behavioral pediatricians, and developmental scientists, and a valuable desk reference in language accessible to broad targeted readerships of practitioners and clinicians, researchers and policymakers, students and trainees, and professionals in all fields concerned with child and adolescent health and well-being. The thematic integration of each chapter facilitates the successful attainment of these aims. As the health care system inevitably evolves and becomes more integrated, populated with more informed and collaborative pediatric psychologists, developmental-behavioral pediatricians, and developmental scientists, this handbook will become increasingly indispensable to professionals in these and related disciplines as well as to their child and adolescent patients.

A LITTLE HISTORICAL CONTEXT

The central theme that motivated this work is hardly new. The 18th-century physician George Armstrong is credited as the father of modern pediatrics. After 20 years of general medical practice, his published text entitled *Essay on the Diseases Most Fatal to Infants to Which Are Added Rules to Be Observed in the Nursing of Children, With a Particular View to Those Who Are Brought Up by Hand* (Armstrong, 1767) anticipated Armstrong establishing the first dispensary for the care of sick children, once described as the most important step ever taken toward the care of sick children (Still, 1931). Armstrong's biographers praised his book but contended that his magnum opus was opening the first institution for the treatment of sick children, which instigated the movement to raise the study and understanding of childhood diseases through the accumulation of specific experiences not otherwise obtainable (Bloch, 1989; Dunn, 2002). Almost a century ago, Anderson (1930) advocated to the American Medical Association that pediatrics and child psychology should work together on mutually important issues. Later, in 1941, Arnold Gesell chaired the American Academy of Pediatrics' first roundtable on growth and developmental studies of children. Gesell boldly declared that "development as well as disease is now a recognized concern of clinical pediatrics" (Senn, 1975, p. 58). Gesell, who set up the Yale Psycho-Clinic (now the Child Study Center) was also instrumental in promoting collaborations among pediatricians, psychologists, and others concerned about all aspects of children's health and well-being.

FIVE THEMES OF THIS HANDBOOK

Consumers of individual chapters in this handbook will at close range appreciate in-depth treatments of the many substantive topics from the three disciplines and recognize how tightly in practice they are interwoven. Stepping back for a more encompassing perspective, however, the reader will come to appreciate as well at least five common themes that bridge the two volumes. They are behavioral health and developmental science, systems and whole-child biology and experience, developmental differences and lifespan development, synthesis and interdisciplinarity, and intervention and policy.

Behavioral Health and Developmental Science

What are the core arguments for embracing interdisciplinarity when it comes to child and adolescent health and well-being? Many serious psychological, medical, and social problems have their origins, and potential preventive solutions, in health behaviors developed in early life. Substantively, many contemporary leading causes of death in adults—heart disease, cancer, stroke, injury, chronic lung disease, diabetes, liver disease, and mental illness—are partially related to risks and adversities experienced in childhood. To prevent these and other causes of morbidity and mortality, maladaptive health behaviors that begin earlier in life need to be acknowledged and modified. These issues are best appreciated in the contexts of whole-child biology and experience and family and societal systems.

Systems and Whole-Child Biology and Experience

Contemporary models of human development incorporate two levels of systems thinking. On a larger interpersonal plane, systems thinking contends that human health, well-being, and development reflect ongoing reciprocal relations between the individual and the proximal-to-distal environments that envelop the individual. On a local intrapersonal plane, systems thinking contends that all the different domains of development—biological, physical, mental, emotional, and social—articulate with and influence one another.

The larger systems perspective is defined by two complementary models. One is the transactional model that asserts that neither biology nor experience alone or at any one time explains health, well-being, and development, but the two continually interact over time. Biological and experiential factors cannot therefore be separated when addressing wellness or illness. Relational developmental systems theory (i.e., reciprocal relations between these life forces) leads to a more valid and realistic understanding of development. The second tenet of the systems perspective is the biopsychosocial ecological model which asserts that the individual sits at the center of a hierarchy of nested subsystems that mutually interact and either directly or indirectly influence the health, well-being, and development of the individual. Subsystems proximal to the individual and that shape the individual directly include those people and environments with which the individual comes into immediate and consistent contact; in the case of children and adolescents they consist of interactive experiences with parents, siblings, and the home. Individuals are also shaped by subsystems increasingly distal from the individual that influence health, well-being, and development directly or indirectly. For children and adolescents, they consist, serially, of child care and school, parents' work and the family neighborhood, socioeconomic status and ethnicity, and the laws and customs of the

society. Pediatric psychology, developmental-behavioral pediatrics, and developmental science are influenced by both these models, and all three disciplines individually and as a collective will improve in the future to the extent that each more deeply embraces the tenets of these models.

In turn, the local intrapersonal systems perspective asserts that the many psychological domains that compose the individual mutually interact. Chapters in these two volumes separate domains of biological and physical from mental and socioemotional development from diseases of the mind and body, but this representation of the individual is merely a heuristic means of organizing and presenting information. In real life, all domains of development, just as mind and body, are inextricably linked. Changes in one domain of development reverberate in other domains of development, just as experiences operate across the whole child. Health and well-being are best appreciated as a holistic and integrated state. Because of these reciprocal influences within and across domains, biological, mental, emotional, and social aspects of health and well-being cannot be disaggregated. All domains of health, well-being, and development are related and intertwined. Pediatric obesity is today a global public health concern affecting hundreds of millions of children and adolescents. Pediatric obesity is associated with poor physical and mental health outcomes, which might be related to individual differences in higher-order neurocognitive processes. For example, differences in reward-related decision making, working memory, and cognitive flexibility all have been documented in children and adolescents with obesity compared with age-matched peers with healthy weights. Behind this integration, contributing to weight gain and increased body mass index, reward evaluation might influence food intake and eating behaviors. Pervasive in all systems theory are developmental differences and a life course outlook.

Developmental Differences and Lifespan Development

Two perspectives on development emerge from jointly considering pediatric psychology, developmental-behavioral pediatrics, and developmental science. The first concerns developmental differences, and the second concerns the meaningfulness of health and well-being in childhood and adolescence for the balance of the life course. Developmental differences extend across spheres of pediatric psychology and developmental-behavioral pediatrics. Developmental status places multiple significant constraints on health and well-being. For example, young children cannot make decisions about their own medical treatment (it is not until they reach maturity or emancipation that they are legally so entitled).

An additional perspective on development relates to how health and well-being in childhood and adolescence are associated with health and well-being across the lifespan. Significant issues here concern prevention, family support, and health promotion; understanding the principles of behavior change as they relate to healthy development; health-risk behavior; and prevention of disease in adulthood. The two perspectives of developmental differences and lifespan development anticipate future integrations of research and practice across the three disciplines.

Synthesis and Interdisciplinarity

Together, the two volumes in this handbook call for a synthesis of scientific research and clinical practice in a developmental framework to promote health and well-being and remediate illness and disease in children and adolescents. The case is made repeatedly

across chapters that collaborations among pediatric psychologists, developmental-behavioral pediatricians, and developmental scientists in clinical research and practice are more than desirable; indeed, these disciplines have vital complementary and coordinated roles to play in optimizing health care service-delivery systems for their youthful clients. Historically, the development of vaccines for a variety of childhood diseases altered the remit of health practitioners. In turn, the demise of once-common and occupying illnesses freed practitioners to address other issues of childhood, adolescence, and family life, such as social, emotional, and developmental antecedents of health and well-being. Working in concert, pediatric psychologists, developmental-behavioral pediatricians, and developmental scientists can better optimize diagnoses and therapeutics. Promoting collaborations among these three categories of professionals can only result in better treatment of all aspects of child and adolescent health and well-being. In turn, issues of synthesis and interdisciplinarity inform and naturally prompt decisions about intervention and policy.

Intervention and Policy

The several considerations of behavioral health and developmental science, systems and whole-child biology and experience, developmental differences and lifespan development, and synthesis and interdisciplinarity have important implications for programs that promote prevention and intervention and underpin policy. For example, training and consultation in each field need to be informed by interdisciplinarity, evidence of the efficacy of the integration of clinical research and practice, and confirmation of the effectiveness of multilevel interventions in diminishing societal costs related to pediatric conditions broadly construed.

One exemplary policy domain concerns professional–parent partnerships: Because children and adolescents do not make their own health care decisions, someone else must. The people most likely to be involved in these decisions are parents and the professionals they consult. Moreover, pediatric conditions have emotional/psychological aspects, so presenting problems requires integrated medical–psychological solutions. Today, children’s and adolescents’ health care providers need to adhere to principles of family-centered care and transparent joint decision making, a circumstance in which providers, patients, and parents share information to collaboratively reach a diagnosis and treatment consensus.

CONTRIBUTORS TO THIS HANDBOOK

Contributors to the two volumes of this handbook include esteemed seasoned and expert investigator and practitioner pediatric psychologists, developmental-behavioral pediatricians, and developmental scientists. Singly and in teams, their chapters apply contemporary principles and research from their respective disciplines to articulate and advance interdisciplinary perspectives on specific problems in child and adolescent health and well-being.

A FINAL WORD

We hope that the perspectives represented in this *APA Handbook of Pediatric Psychology, Developmental-Behavioral Pediatrics, and Developmental Science* will prompt researchers and practitioners concerned with child and adolescent health and well-being to explore

new ways to understand and foster wellness and to identify and combat illness, as we hope this handbook fosters deeper interdisciplinary collaborations—where “the action is”—in future instantiations of pediatric psychology, developmental-behavioral pediatrics, and developmental science. Professional attention to this handbook should also lead to more direct clinical applicability and creative translation for more effective preventive policies and therapeutic interventions.

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—Marc H. Bornstein
Prachi E. Shah
Editors-in-Chief

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