

Chapter 1

Unearthing the Developmental and Intergenerational Dynamics of Stress in Parent and Child Functioning

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No doubt, life is stressful. In this modern time, we associate our stress with work commitments, financial obligations, relationship tensions, and meeting biological needs, to name but a few of its sources. Most of all young- and middle-aged adult humans are in positions to somehow manage and/or balance their levels of stress emanating from these sources on a daily basis. For many of these same individuals, an additional and potent source of stress enters their lives when they become parents. Stress associated with parenting reflects “a set of processes that lead to aversive psychological and physiological reactions arising from attempts to adapt to the demands of parenthood” (Deater-Deckard, 2004, p. 6). Parenting stress is not the exception—it is the rule. Being responsible for the care and well-being (both psychologically and physically) of infants, toddlers, children, adolescents, and/or young adults is challenging, and at times, overwhelming. Furthermore, it arises not only from more extreme acute and chronic stressors that are unique to the parenting role, but is part and parcel of the ongoing experience of daily stressors over which we have only limited control (Crnic, Gaze, & Hoffman, 2005).

So what is “stress” and is it always toxic? For important reasons, stress is best defined as a “state of mind” involving both the brains and bodies of those experiencing adverse, negative, and/or threatening conditions (McEwen et al., 2012). Whether or not any given event is “stressful” depends critically on the perceiver of the event, their history with respect to the event, their current state of psychological and physiological well-being, and their intentions, goals, and aspirations. Often, short-term stress promotes plasticity and resilience (e.g., physical exercise and its

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benefits for immunoprotection; Dhabhar, 2014). Periodic exposure to stressors operates by keeping us “tuned up,” so that our bodies and minds are able to respond nimbly and effectively (most of the time) when stressors are acute—and maintain resources for prolonged periods of time if stressors are chronic (e.g., coping; Compas, 1987; Holahan, Moos, & Schaefer, 2006).

Thus, keys to healthy development of individuals in general and parent–child relationships in particular include a certain degree of plasticity or flexibility in stress processes, along with some exposure to acute and occasional chronic stressors. However, longer-term chronic stress is a major contributor to disease, impairment, and psychological risk (e.g., allostasis; Lupien et al., 2006; but see also Ellis & Del Giudice, 2014). The scientific evidence is clear with respect to pervasive deleterious effects of chronic stress on developing systems of the body over the entire lifespan (Danese & McEwen, 2012).

One of the most powerful sources of broad deleterious allostatic effects is poverty and its covarying factors such as ethnicity and social capital (Evans, 2004; Kawachi, 1999). These sources carry with them a host of other covarying factors, ranging from family and neighborhood structures and processes, to security of income, food, and shelter. Their effects accumulate, and over time create changes in individual’s bodies and minds, as well as in their social relationships. In the longer run, it becomes more and more difficult to repair damage to cells and selves (Evans, Li, & Whipple, 2013). However, the very same stress reactivity and self-regulation process, even within chronically stressful environments, is the very same “natural experiment” that evolution may be using to produce novel and highly adaptive phenotypes (Blair & Raver, 2012). Stress is probably one of the crucibles in which evolutionarily conserved adaptations are forged.

As mentioned in the preface, as editors of this volume we were specifically keen to invite perspectives that would clearly flesh out the complex, bidirectional, and multifaceted nature of parental stress and its effect on children’s developmental trajectories that begin at conception, and for some processes even prior to that. Beginning with the parent prior to becoming a parent, the individual’s stress reactivity and regulation already has potential influence on the future child’s own stress reactivity and regulation, via epigenetic modifications of DNA—in ova and sperm cells, and prenatally for the child’s own somatic and germ cells. These epigenetic modifications also can occur postnatally, as a result of the child’s exposure to a distressed and harsh parenting environment. As the postnatal relationship unfolds, the parent’s and child’s own stress reactivity and regulation influence parent and child behavior directly. Furthermore, each partner in the dyad—the parent and the child—and her or his own stress reactivity and regulation—is influenced by the partner’s behavior that serves to socialize reactivity and regulation while also serving as a stressor itself. Finally, these developmental and interpersonal processes can be altered by transient and temporally stable contextual factors, such as poverty, cultural beliefs and practices, social statuses, and physical environments.

Thus, acquisition and execution of adaptive responses to stress develops throughout our lifetimes and extends to the next generation. This includes aspects of our experiences prenatally, during infancy and childhood, during our

adolescence, as young adults, and the effects we have on the next generation as we become parents ourselves (Archer & Kostrezewa, 2013; Radley, Morilak, Viau, & Campeau, 2015). Accordingly, we have organized the volume into three major sections: Part I (Chaps. 2–5) explores important sources of parenting stress, including sociocultural factors, such as poverty, ethnicity, gender, and parenting ideology, and child characteristics, such as temperament and disability. Part II (Chaps. 6–10) focuses on the consequences of parenting stress for children’s neurological, physiological, cognitive, affective, and behavioral development as well as their own parenting behavior. Part III (Chaps. 11–12) examines pathways to managing parenting stress via parental self-regulation of social cognition and emotions. As readers will realize over the course of the three sections of the book, the intergenerational transmission of stress reactivity and self-regulated coping involves biological *and* psychosocial processes, *within* and *between* the parent and child in each family, but also *within* and *between* adjacent and lagged generations in families, groups of families, and even broader communities of people (e.g., cultural practices and beliefs, Boyd & Richerson, 1988; self-regulation, Bridgett, Burt, Edwards, & Deater-Deckard, 2015; depression, Goodman & Gotlib, 1999).

Part I: Common Sources of Parenting Stress

Adaptive functioning in the face of stressors requires capacities to accurately perceive stressors and behave in ways that effectively reduce and or eliminate stress before it registers negative effects on health and well-being. Although the stress process is dynamic, there are a number of sources of stress common to most parents who are exposed to them. The first section of the volume brings to the forefront current theory and compiled empirical evidence regarding some of the most powerful and common of these sources. These factors include, but are not limited to, poverty and restriction or lack of access to socioeconomic resources, social contexts surrounding the parents such as race-ethnicity, marital status, gender and sexuality, welfare-state regime, embodied psychological tendencies represented in temperament and personality, and the extra demands placed on caregivers of children with special developmental and health needs.

The sociocultural and physical environment in which the parent and child are embedded sets the stage for many aspects of the stress and coping parents will experience—and the effects of stress on the child’s development. At the time of publication of the current volume, the USA and most other developed economies in the world were still experiencing the aftermath of a deep global economic recession spanning 2007–2010. This downturn was part of a much longer, ongoing trend of underemployment, flat wages and growing economic inequality—processes that disproportionately affect ethnic minority families and children living in poverty (Bell & Blanchflower, 2011; Shapiro, Meschede, & Osoro, 2013). Cassells and Evans (Chap. 2) consider the effects of both actual and perceived lack of access on to basic necessities for poor parents. These authors systematically examine several

of the most powerful factors that account for the effects of poverty and minority status on parenting function (e.g., neighborhood features, household composition or structure, and family members' chronic depression) via the family stress model. At its core, this model makes clear the reciprocal and negative effects of poverty on parenting as mothers and fathers face expanding failure in meeting the basic needs of their children. Cassells and Evans also address many current challenges to the health and well-being of families, such as the plight of parents who have emigrated due to geopolitical or economic forces and the stressors that arise from that experience. In keeping with a theme that is covered by Nomaguchi and Milkie in Chap. 3, Cassells and Evans also discuss how poverty appears to differentially manifest in parental stress depending on racial and ethnic context and contingencies (e.g., the relationship between parenting stress and parenting behavior appears to differ between low-income Black and Hispanic mothers). They conclude with specific recommendations for how researchers and policy makers can reconsider the contexts of poverty in ways that more accurately reflect the daily lives and experiences of children and parents.

Nomaguchi and Milkie (Chap. 3) turn a sociological lens on parenting stress and its effects, with an emphasis on social structures, statuses, and culture (e.g., socioeconomic status and social class, race, ethnicity, gender). Some of these factors are stable over time and contribute in powerful ways to shaping parenting stress within families and among groups of families in similar socioecological niches. Other factors are emergent, forcing modern-day parents to reorganize and adapt to stress in new and productive ways (e.g., increases in mothers' participation in the labor force; increased incarceration rates among modern parents). Importantly, this chapter also addresses the associations between parenting strain and racial/ethnic disparities, not only emanating from socioeconomic challenge, but also from differences in cultural ideology and structural resources that carry across generations. Nomaguchi and Milkie also emphasize the sources of family and individual resilience that are supported by the broader extra-familial context. Their chapter serves to remind us that prevention and intervention efforts that do not address the causes and consequences of parenting stress at the community and regional level are less likely to have sustaining effects on the next generation of parents growing up in that community.

Another important source of parenting stress arises from relatively stable individual differences in parents' and children's temperament-based emotions and behaviors that pertain to stress reactivity and regulation. McQuillan and Bates (Chap. 4) present theory and empirical evidence for internal state influences on parenting stress, bringing to the fore the novel yet growing emphasis in the literature on parents' and children's sleep problems and their connections with temperament. Although the responsibilities of childrearing convey some of the stress that is unique to the parenting role, the experience of coping with the stresses of parenthood is made all the more challenging with children who are high in negative emotionality and lack self-regulation (e.g., increased feelings of parental incompetence and lack of control). McQuillan and Bates present evidence that these hard-to-manage behaviors in children impact parenting stress and harsh reactive

parenting, which only serves to elicit and reinforce these challenging behavioral and emotional problems in the child. This dyadic stress process is further enhanced when one or both partners experience chronic sleep problems, with sleep deprivation itself influenced by other factors within and beyond the immediate family context. At a more conceptual level, this emphasis on the dyadic nature of stress management (and dysfunction) between parents and children supports a critique of the family stress model by Cassells and Evans (Chap. 2); they call for a revision to the model to include a more child-as-active force in the research on stress and parenting dynamics. McQuillan and Bates' chapter contributes to this revision by emphasizing a "coercive" family stress model, bringing to light the importance of considering temperament in both parent and child, the importance of considering chaos in the home, and the importance of the cognitive skills of both parents and children in emotion regulation and cognitive functioning.

Another manifestation of the bidirectional, dynamic interplay between parents, parenting, and stress is made exceptionally clear when considering the various challenges of caring for a child with an intellectual or developmental disability (IDD). Neece and Chan (Chap. 5) highlight the experience of parenting a child with IDD and summarize evidence that the impact of the child's functioning and health on parenting stress varies widely. Consistent with McQuillan and Bates' discussion on temperament in typically developing children (Chap. 4), Neece and Chan note that it is the child's level of behavioral and emotional problems that most consistently and strongly predicts the levels of parenting stress in families raising a child with an IDD. The literature on IDD and parenting stress also provides evidence that chronic parenting stress in the face of these challenging child behaviors serves to increase harsh reactive parenting which further exacerbates child and behavioral problems. Like the previous chapters, Neece and Chan emphasize the importance of developing interventions for families that address parent and child stress and coping, given the dyadic transactional nature of the family stress process (which also dovetails nicely with (Chap. 12) by Havighurst and Kehoe on remediation strategies).

Part II: Consequences of Parenting Stress for Children

The goal of the prior section was to highlight common sources of parenting stress, and for these chapters to serve as models for future review and theory chapters and papers that can highlight other common sources not captured in the current volume (e.g., work–family role conflict, parental mental and physical health problems). Though common, these and other exogenous factors and forces can push typical parenting stress and coping processes into the realm of chronic stress and failure of coping. If not mitigated, this chronic stressful state becomes instantiated in parenting and child developmental trajectories that are maladaptive. Parenting stress transpires within parent–child dyads, but there is a need to focus specifically on the consequences of chronic parenting stress on the developing child. The chapters in

this section of the book examine prenatal and postnatal maternal stress and its effects on child health and functioning via neurobiological and socialization mechanisms.

The bulk of the extant literature explicitly or implicitly implies that the effects of parenting stress on children begin in infancy. However, parenting stress exists before birth—as does its effects on fetal neurobehavioral organization. The largest body of human research evidence is from prospective and retrospective longitudinal studies across the birth of the child. These show that the largest and most consistent predictors of postnatal maternal and paternal depression, anxiety, and stress are their own symptoms during the pregnancy (O'Hara & Swain, 1996; Paulson & Bazemore, 2010). Neuenschwander and Oberlander (Chap. 6) describe mounting evidence from human prenatal studies that certain fetal adaptations that increase vigilance to the environment or response to stress could be maladaptive in one context but adaptive in another; thus, prenatal exposure to maternal stress can shape developmental outcomes for better *and* worse. Neuenschwander and Oberlander detail studies that emphasize how the prenatal environment plays a crucial role in subsequent (i.e., postnatal) neurocognitive regulation of stress reactivity. For those pregnant women who experience high levels of acute or chronic stressors, and those who have sustained depressive or anxious symptoms during pregnancy, the mother's bodily stress response exposes the fetus to high levels of hormones that can fundamentally alter the developing child's own stress response system. Neuenschwander and Oberlander focus on the particular example of women's antidepressant use during pregnancy and its potential lasting effects (via epigenetic modifications) on infants' serotonin regulation—a neurotransmitter that is critical to adaptive regulation of reactions to stressors. They emphasize that this entire system of prenatal stress exposure and its lasting effects have evolved to increase the flexibility and adaptability of the child's developing homeostatic self-regulation—a system that instead yields maladaptive outcomes when the prenatal exposures to stress hormones or serotonin disruptors are too extreme.

The epigenetic pathways to consider are many and varied. Much of the research to date has examined selective site methylation that alters gene expression by silencing genes or causing other changes in a complex system of neurotransmitters. Mulder, Rijlaarsdam, and Van IJzendoorn (Chap. 7) offer a comprehensive review of parental stress effects on children's development via these kinds of epigenetic changes. Findings are complex, and results are mixed, in these early and exciting days of longitudinal epigenetic research with humans. As the authors point out, ultimately our field will need to complete more definitive human and animal studies that explicitly test the mediating effects of epigenetic changes pre- and postnatally that bridge early acute and chronic parental stress exposure in the infant and its lasting effects on the growing child's neurobiological, cognitive, affective, and behavioral functioning. The research that needs to be done will challenge many current methods used in molecular biology and developmental science. The future work also will require changes in prevailing theories of what genes and phenotypes are and how they work, within a constantly evolving landscape of organisms, environments, and their ongoing transactional cascades (Pigliucci, 2007).

As hotly debated as contemporary theory may be regarding the status of evolutionary explanations for developmental processes, there is by comparison something akin to consensus (if not real consensus) that the frontal and prefrontal cortex is one of the most recently evolved regions of the brain. Furthermore, the growth and change in neocortex in evolutionary time may have brought with it the emergence of inhibitory cognitive processes that served to dampen reactive responses to the environment, while also providing novel skills involving theory of mind and planning that coevolved in humans and perhaps other higher primates (Dunbar, 2003).

One domain of these phylogenetically recent neural functions and cognitive capacities is executive function (EF). In their chapter, Finegood and Blair (Chap. 8) focus on stress and its effects on the developing system of EFs in childhood that serve self-regulation of thought, emotion, and behavior. EFs are complex, effortful cognitive capacities that develop rapidly over early childhood. It is during this same period of development that early exposure to chronic parenting stress is likely to instantiate lasting alterations to neurobiological and psychosocial factors that contribute to deficits in executive functions development. Finegood and Blair review the emerging empirical evidence and theories on the role of early social relationships with parents and other caregivers, with emphasis on the deleterious effects of poverty on children's executive function that are mediated by harsher and more reactive parenting behavior that is most prevalent in impoverished contexts. This chapter calls our attention to the importance of applying intervention experiments to refine our understanding of caregiving processes that can mitigate the deleterious consequences of chronic poverty on parents and children alike.

Continuing on the theme of caregiving as the postnatal mediator of parenting stress effects on children, Leitzke and Pollack (Chap. 9) focus specifically on parenting that is chronic and extreme in its harshness, unpredictability, or negligence. Child maltreatment comprises a variety of caregiving behaviors spanning physical and psychosocial forms of severe punishment to chronic neglect. The etiology of maltreatment is complex, but elevated parenting stress and insufficient coping play crucial roles. Leitzke and Pollack provide an overview of the growing literature on some of the ways in which parenting stress and maltreating behaviors perturb the child's developing systems of cognitive, social-emotional, and physical functioning. Consistent with several of the prior chapters' authors, they emphasize that the effects of maltreatment operate via alterations to children's learned behaviors, cognitions, emotions, and neurobiological systems. As these developmental processes become more clearly articulated, the hope is that our field will develop and refine prevention and intervention tools that effectively reduce the risk of maltreatment and mitigate its effects when it occurs.

Ontogenetic development and transgenerational transmission of parenting stress also operates "under the skin," and is codified at multiple levels of dynamic psychobiological function. Epigenetic and other prenatal and early postnatal environmental influences on gene expression have effects on the next generation through prenatal biological transmission at and after fertilization, and via that child's own caregiving behavior once she has reached sexual maturity and becomes a parent.

Mileva-Seitz and Fleming (Chap. 10) highlight foundational animal studies, as well as more recent studies with humans, that indicate that the wide variation seen between individuals in their stress reactivity and self-regulation is transmitted to the next generation. Capitalizing on the wealth of studies using the female rodent as a model for mothering dynamics, Mileva-Seitz and Fleming unpack many critical factors that influence complex interactions between chronic and acute stressors at key points in prenatal and postnatal development, as well as genomic and early postnatal caregiving differences. What becomes clear is that parental abuse, neglect, and/or deprivation not only have serious consequences for the health and well-being of immediate offspring, but on that of subsequent generations as well. Through these intergenerational processes, parenting stress is functionally “inherited” by subsequent generations in terms of increased probabilities that parenting stress will manifest in their own lives. This kind of inheritance is not purely through “simple” socialization and/or genetic transmission, but through complex interactions that produce lasting changes in neurological structures and functions that influence parenting behavior. Importantly, this chapter also deals with important neurobiological and neurophysiological factors that seem to increase resilience and buffer individuals from otherwise dire negative outcomes of negative parenting (see also Chap. 7 by Mulder, Rijlaarsdam, and Van IJzendoorn).

Part III: Pathways to Managing Parental Stress

Parenting stress is ubiquitous, but effective management of that stress and its effects on parenting and children’s functioning is not. Some of the variability in parenting stress arises from individual differences in parents’ self-regulation of thoughts, emotions, and behaviors in the face of acute and chronic stressors. For most parents most of the time, managing the stressors arising from the parenting role is a manageable challenge most of the time. However, sometimes the stress process overwhelms parents—and for a sub-group of parents, difficulties with stress reactivity and self-regulation chronically constrain effective management of stress. The book ends with an emphasis on stress management and self-regulation, because of their importance for prevention and intervention efforts that seek to create lasting change in parenting environments and children’s developmental outcomes.

Crnic and Ross (Chap. 11) tackle the complex transactional associations between stress and self-relevant social cognitions, with particular emphasis on self-efficacy in the parenting role. Parenting is hard but rewarding work, and yet, it is sometimes even harder and less rewarding than anticipated. Crnic and Ross make the case for why and how the parent’s own sense of competence and effectiveness as a caregiver and socializer can become deflected or impaired in the face of chronic parenting stress—and, how lower self-efficacy can itself increase exposure to parenting stress. Furthermore, an individual’s own thoughts and feelings around parenting self-efficacy intersect with the parenting partner’s self-efficacy as part of a broader family system. These coparenting social cognitive processes may differ

systematically by parent's gender. Crnic and Ross integrate these ideas into a conceptual model that emphasizes parenting stress and its effects as part of a system that changes as the child develops and parenting demands and stressors evolve in the family's lifespan.

Bringing us full circle to where the volume began on transgenerational mechanisms, Havighurst and Kehoe (Chap. 12) examine emotion regulation and its role in emotion socialization, with implications for the next generation's own emotion and stress regulation. As complex social beings, humans have evolved embodied affective states (e.g., anger, fear) and motivational stances (e.g., to approach a potential reward or withdraw from a potential risk). Affect and motivation enhance survival and well-being through children's social worlds by enhancing communication and social bonding with caregivers and other members of their social worlds. However, these very same emotions and motives tend to occur as reactive responses to the environment and need to be regulated in order to provide appropriate and timely responses to the environment. Havighurst and Kehoe emphasize the instrumental role that parents play in the socialization of children's regulation and expression of emotion—and how normative emotion socialization processes can be impeded or even become deleterious in their effects, for parents who are chronically stressed and struggle to regulate their own emotions and behaviors. Their chapter also is unique to the volume, in its presentation of a specific example of the development and testing of a parenting intervention, *Tuning into Kids*, as a potentially fruitful approach to enhancing parents' own emotion regulation and psychological well-being in ways that reduce stress and enhance parental emotion socialization of children.

Parenting Stress and Children's Development

In sum, our hope is that the current collection of chapters will convey to readers that stress is a process that is continuous throughout development, and that it operates within each of us and between us in our social relationships including the parent-child dyad. Our bodies and social systems have evolved to respond rapidly to avoid potential dangers that threaten and approach opportunities that enhance the well-being of our children and ourselves (Elliot, 2006; Taylor, 2006). With regard to the processes “under our skin,” scientists have focused primarily on the autonomic nervous system with its sympathetic and parasympathetic branches, and the more recently evolved neocortex brain regions that regulate reactivity (Harrell, Hall, & Taliaferro, 2003; Thayer & Lane, 2009). But “under the skin” is also “outside the skin”—the space between the faces and voices of caregivers and children. The evolution of these neurophysiological systems for reactivity and self-regulation has coevolved with changes in social and family groups and social communicative behavior (Porges, 2011). The development of these embodied internal and social external processes occurs in tandem for better or worse, wherein each can

compensate for damage or limitations in the other, as seen in the literature on resilience in the face of severe chronic stressors (Cicchetti & Rogosch, 2009).

In the spirit of the dynamic systems' approach that runs throughout the excellent contributions to this volume, we end our introduction with another hope. We hope that the science that is represented in these chapters will challenge and inspire current and future investigators of human development and family sciences to continually evaluate the rigor of our methods, interpretations of data, and the processes we use to make inferences and translate those conclusions into practice. All fields of science continue to adopt the newest technologies that improve the precision of measurement of their phenomena of interest. In doing so, scientists find themselves confronting new levels of complexity of the systems they study and their need to recruit diverse research teams to describe and explain them (Ledford, 2015). Most who study families, and who develop and deliver prevention and intervention tools to improve their lives, will not become biological scientists or anthropologists—but increasingly, they will read work from a broader range of disciplines in order to wisely consume the science of parenting stress and children's development. The current collection of chapters demonstrates that this is not only feasible, but that it sharpens the eye and the mind of inquiry. There could be no more important subject for such efforts than the development of healthy and happy families—past, current, and future.

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