At the start [the child] absolutely needs to live in a circle of love and strength [with consequent tolerance] if he is not to be too fearful of his own thoughts and of his imaginings to make progress in his emotional development.

—Donald Winnicott

D onald Winnicott, Daniel Stern, John Bowlby, and other relational theorists have emphasized the critical importance of the early caregiving relationships in shaping child development. Their developmental theories have emphasized that the primary caregiving relationship not only influences the child’s behavior but also sculpts the foundation for the child’s future interpersonal relationships and eventually the child’s relationship with his or her own offspring. Mary Ainsworth’s seminal work used these theories to operationalize the construct of attachment security, thereby permitting experimental evaluations of this relationship. Using clearly defined measurements, attachment security was linked to maternal sensitivity, the understanding of and responding to a child’s needs. Subsequent research then demonstrated the association between attachment security and multiple facets of child development. Studies have demonstrated how parents represent their own childhood attachment relationships predict their attachment to their own child. Perhaps more importantly, this retrospective representation of their own experience as a child predicted how their child understood complex emotions at 6 years of age. Although it is clear that parenting is affected by early life experiences, only recently have studies begun to examine the neurobiological mechanisms and pathways involved in parenting. Defining these mechanisms offers insight not only into the impact on the child’s behavior but also a child’s physiology.

Clear, consistent evidence has documented that adverse caregiving is associated with increased risk for psychopathology. Research spanning animal models, normally developing children, and at-risk children has further demonstrated a significant association between the caregiving relationship and biological outcomes, particularly the regulation of the hypothalamic-pituitary-axis (HPA) axis. Treatment studies of high-risk infants and toddlers have demonstrated a dual effect—that attachment-based theories not only improve the dyadic function and child behavior but also normalize cortisol reactivity. These studies have indicated that although negative caregiving can result in lasting biological changes in the child, repairing this critical relationship may reset the HPA axis and perhaps other biological processes. The study by Gonzalez et al. adds a new dimension into this model by demonstrating that a mother’s own experiences as a child affect her parenting ability through alterations in her own biology. In this study, maternal self-report of the consistency of their caregivers predicted maternal sensitivity to their own children through alterations in the HPA axis and executive functioning. Not surprisingly, these same two domains, the HPA axis and executive function, have been linked in previous studies to early experience, attachment, and caregiving. Thus, not only does the early parenting relationship have implications for the child, but attention to early parenting and attachment experiences may affect subsequent generations.

Interestingly, the hypothesis for this study was derived from a significant body of translational work in animal models. This approach to the generation of research hypotheses highlights the important nature of basic science and the need for continued efforts to draw on those findings in our own field. The quality of caregiving in animal models and human studies has
been associated with alterations in stress reactivity, psychopathology, and, most recently, alterations in attention and executive functions. As neuroscience and translational studies converge, the potential to discover underlying mechanisms continues to grow.

McGoron et al.6 leveraged the strength of the Bucharest Early Intervention Project, a randomized controlled trial of foster care compared with institutional care, to examine a causal pathway linking early caregiving, attachment security, and psychopathology. In this second study, of which I am a coauthor, caregiving quality, assessed by observer ratings of the child interacting with a primary caregiver at 30 months of age, predicted multiple types of psychopathology at 54 months of age. In addition, the study demonstrated that the decrease in psychopathology was mediated by the development of a secure attachment relationship at 42 months. The impact of this pathway across domains of psychopathology indicates the critical nature of this relationship in child development. It also raises the possibility that it is insufficient to simply remove threat or adversity for at-risk children. Resilience or recovery may require interventions focused on supporting a secure attachment relationship to enhance positive outcomes.

One obvious limitation to these studies and most studies of maternal sensitivity is that somewhere along the line the dads got lost. Although there remains a dearth of research examining the impact of fathering on child development or the impact of being a parent on the father, hope is on the horizon. Similar to studies of the maternal brain, the paternal brain also seems to undergo remodeling with parenthood.7 Evidence of increases in vasopressin receptors and dendritic spines in the pyramidal neurons in the prefrontal cortex has been demonstrated in primate fathers.8,9 In humans, similarities and differences in the underlying biology between a father and a mother’s responses to their children exist. These correlations have specifically been demonstrated in relation to oxytocin and vasopressin, key neurohormones involved in parenting and pair bonding.10,11 It appears that being a good-enough father may be not only beneficial for the child and the child’s neurodevelopment, it may also be good for the paternal brain.

What can we conclude so far? These two studies and the additional literature demonstrating the lasting impact of early adversity across health domains highlight that the caregiving context surrounding at-risk children deserves greater attention. In his seminal work in 1974, Anthony12 described three dolls—one of glass, one of metal, and one of rubber. He noted that each doll would respond differently to hypothetical early adversity—a hammer blow. Perhaps the studies in this issue of the Journal provide an important addition to his provocative and luminous idea—that if each doll were surrounded by the bubble wrap of a secure attachment figure, a caregiver who buffers that hammer blow? Perhaps all three dolls would survive the hammer blow. The rubber doll would not be dented and the glass doll would not shatter. And perhaps that doll would be able to use the same bubble wrap to protect its own child in the future. Unfortunately, exposure to early adversity and traumatic events is far too common for our youngest and most vulnerable children. Although the prevention of exposure to these events is urgent, this will never be feasible for all cases. However, current research has suggested that interventions and treatments focused on improving the sensitivity of a child’s caregiver and enhancing attachment security have the greatest potential to buffer the lasting impact of “toxic stress” for this generation of youth and perhaps the next generation.13
REFERENCES


