



Pediatric Adverse Childhood Experiences: Implications for Life Course Health Trajectories

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LIFE COURSE HEALTH science integrates the extensive literature on early brain development, childhood trauma and adversity, epigenetics, developmental psychology, and mental health and teaches us that many adult health problems have their origins early in life.¹ The timing, intensity, and cumulative burden of adversities, especially in the relative absence of protective factors, can affect gene expression, the conditioning of stress responses, and the development of immune system function. Individuals affected by a high burden of adverse experiences may adopt compensatory high-risk behaviors that can further erode their health and mental health. Not all adversity occurs in childhood (eg, military combat), but a high burden of cumulative intrafamilial (child maltreatment, domestic violence, impaired caregiving) and other adversities (income and food insecurity) in childhood can have profound lifelong effects unless mitigated by protective factors within the family or the community, or through specific interventions.

Two of the articles in this issue indicate that the impact of intrafamilial adverse childhood experiences (ACEs) on health and mental health begin to manifest in childhood. Kerker et al² used the nationally representative longitudinal National Survey of Child and Adolescent Well-Being study to assess the ACE scores of children under the age of 6 years who remained at home after child protective investigation and found they were similar to those of children who were removed and placed in foster/kinship care. The authors also reported that higher ACE scores in this population were associated with more mental health (Child Behavior Checklist score >64) and chronic medical problems, and, for preschool children, lower social scores. Earlier studies of children informally placed with kinship caregivers after child welfare investigation showed a high prevalence of health problems, although fewer mental health problems, compared to children in nonrelative foster care, indicating that almost all children involved with child welfare are at high risk for poor outcomes that may be rooted in cumulative childhood trauma.³ In a second article in this issue, Thompson et al⁴ used LONGSCAN longitudinal data to show that health worries and health care use in a population

of children at risk for maltreatment were proportional to their burden of childhood ACEs, that the burden of chronic ACEs was very high (70%), and that the ACE scores were highest in children under age 6 years, the period of most rapid brain development. In fact, the mean ACE scores in this age group approached 4, the threshold for extremely poor outcomes in the original ACE studies in adults. Those with chronic ACEs were also more likely to have parents with depression and substance abuse issues, implying that impaired caregiving plays a role in the chronicity of ACEs in this population. The implication of these studies for pediatricians is that child welfare involvement, even when a child remains with their family or extended family, is an indicator of potentially poor health, mental health, and developmental trajectories.

Although the above studies focus on children involved with child welfare, the original ACE studies (<http://www.cdc.gov/violenceprevention/acestudy>) retrospectively assessed a population predominantly comprised of white, middle-income adults with at least some college education. Its headline finding was a dose-dependent relationship between childhood adversities and lifetime medical and mental health morbidities and early mortality. Thus, although children involved with child welfare are at higher risk for multiple and chronic adversities in childhood, other children are not immune, and it may not always be obvious who is affected.

Pediatricians are well positioned to promote child and family resilience and to identify, assess, and intervene with families and children experiencing adversities, stressors, and/or trauma. We meet families when their children are young or not yet born. We see children in the context of their families. And we are experts in child health and development. Yet as the article by Flynn et al⁵ in this issue points out, pediatrics has made only a modest shift toward addressing the causes and health development consequences of traumatic stress. Their systematic literature review found only 10 studies about addressing traumatic stress in primary care that were worthy of inclusion. The authors concluded that existing studies focus on screening and identification with little longitudinal outcome data, and

that there is very little evidence about “what is feasible, effective, and sustainable in primary care.”

Since Felitti et al⁶ postulated that traumatic stress leads to the adoption of high-risk behaviors as a means of symptom management, resulting in poor health, mental health, and social outcomes, a scientific framework explaining the processes whereby early adversities and toxic stress lead to poor outcomes has been elucidated.^{1,7,8} As Garner et al⁸ note, all physicians need to become familiar with the pathophysiology of traumatic stress because it has implications across the spectrum of pediatrics and across the lifespans of individuals. Primary care pediatricians have an abiding relationship with children and families over time, are the professionals parents most trust to advise them about raising their children, and are child development experts who can identify risks as well as promoting and protective factors, and help parents improve their child’s life course trajectory.

The articles about childhood adversity and traumatic stress in this issue have significant implications for the field of pediatrics and for individual pediatric clinicians, researchers, and educators. The scientific framework of traumatic stress and resilience indicates that pediatricians will need to adopt a 2-generation model because effective intervention requires insight into parenting skills and attitudes, family stressors, and parent and child strengths and needs. Validated, efficient tools to assess family functioning and risk and protective factors can be used to help with risk identification and stratification. However, we will also need packages of interventions with proven effectiveness if we are to shift life course health development trajectories. Developing risk-stratified anticipatory guidance packages that promote positive parenting should be a high priority. New value-based purchasing and payment models, enabled by the Affordable Care Act and encouraged by the Centers for Medicare and Medicaid Services, can support the integration of other professionals (mental health providers, parenting experts, case managers) into pediatric practices and enhanced collaborative partnerships with community-based organizations, public health, early education, schools, and mental health.

Research may help us to determine whether screening for adversities and trauma should be universal or targeted

based on our patient population, what specific screenings are best at identifying at risk children and families at various developmental stages, and how we can best implement screening and disseminate it widely among different types of pediatric practices. Research can help us determine how to stratify families based on risk, how to tailor appropriate levels of intervention, and when to reassess children and families because risks may abate or adversities and trauma may accrue over time.

Finally, academic pediatrics is responsible for educating future generations of pediatricians. Childhood trauma and life course health science should be an integral part of pediatric and medical education. The pediatrician assessing the 4-year-old with hyperactivity and aggression and the internist interacting with the 55-year-old obese, diabetic patient who is noncompliant with his or her diet and medications may each respond more effectively when the patient’s symptoms are viewed through the lens of trauma—when we ask “what happened to you?” rather than “what is wrong with you?”

REFERENCES

1. Halfon N, Larson K, Lu M, et al. Lifecourse health development: past, present and future. *Matern Child Health J.* 2013;18:344–365.
2. Kerker BD, Zhang J, Nadeem E, et al. Adverse childhood experiences, mental health, chronic medical conditions and development in young children. *Acad Pediatr.* 2015;15:510–517.
3. Stein RE, Hurlburt MS, Heneghan AM, et al. Health status and type of out-of-home placement: informal kinship care in an investigated sample. *Acad Pediatr.* 2014;14:559–564.
4. Thompson R, Flaherty EG, English DJ, et al. Trajectories of adverse childhood experiences and self-reported health at age 18. *Acad Pediatr.* 2015;15:503–509.
5. Flynn AFK, Wilcox HC, Coleclough E, et al. Primary care interventions to prevent or treat traumatic stress in childhood: a systematic review. *Acad Pediatr.* 2015;15:480–492.
6. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) study. *Am J Prev Med.* 1998;14:245–258.
7. Marie-Mitchell A, O’Connor TG. Adverse childhood experiences: translating knowledge into identification of children at risk for poor outcomes. *Acad Pediatr.* 2013;13:14–19.
8. Garner AS, Forkey H, Szilagyi M. Translating developmental science to address childhood adversity. *Acad Pediatr.* 2015;15:493–502.