

The Health Consequences of Adverse Childhood Experiences: Role of the Family Physician

JERRY FRIEMOTH, MD, *University of Cincinnati Department of Family and Community Medicine, Cincinnati, Ohio*

Imagine an intervention for children that has the potential to dramatically lower future morbidity and mortality rates caused by a wide range of health problems, including cardiovascular disease, asthma, chronic obstructive pulmonary disease, autoimmune diseases, depression, posttraumatic stress disorder, suicide, and substance abuse. This intervention is the prevention and treatment of adverse childhood experiences, which family physicians can provide through routine counseling, stress management, and other supportive care.¹

Adverse childhood experiences are an important component of the social determinants of health, along with adequate housing, access to medical care, and other factors. In the 1990s, studies showed a dramatic dose-response impact of adverse childhood experiences on subsequent physical and mental health problems in adulthood.^{1,2} The experiences studied included abuse (emotional, physical, and sexual), neglect (emotional and physical), and household dysfunction (domestic violence, parental substance abuse, parental mental illness, separation or divorce, and incarceration). A brief adverse childhood experience screening tool is available at <http://acestudy.org>. Family physicians commonly treat children going through these experiences, as well as children living in extreme poverty, which produces similar health effects. An estimated 7.5% of children two to five years of age are abused or neglected; postpartum depression occurs in 3% of new mothers; and parental substance abuse occurs in about 10% of households with children younger than five years.³

More recently, studies have illustrated some of the mechanisms that underlie these long-term health problems, as well as more immediate effects on childhood

development. The pathologic effects of adverse childhood experiences can occur as early as in utero and extend throughout a lifetime. Chronic exposure to these experiences produces severe stress, which, in the absence of supportive and nurturing relationships, produces toxic stress.⁴ This leads to serious disruptions in brain architecture and functioning.⁴ It also leads to chronic disruptions in neuroendocrine, cardiovascular, and immunologic systems.⁵ Without intervention, toxic stress also causes a “biological memory” of these pathologic changes into adulthood, including epigenetic changes in gene expression, which accounts for serious threats to long-term health.

Fortunately, evidence shows that these disruptions can be mitigated: healthy brain changes of neural plasticity, neurogenesis, and reversal of epigenetic changes do occur. Interventions to lessen the effects of adverse childhood experiences are more effective for children up to preschool age, but some interventions can be beneficial for teenagers and even young adults.⁶⁻⁸ Family physicians are in a great position to offer help because we care for children and their parents. Patient-centered medical homes with integrated mental health services are ideally suited for this, because many interventions relate to mental health issues.

Many interventions are parts of the routine office practice of family physicians: providing preconception and prenatal counseling that emphasizes proper nutrition, stress management, and involvement of the father in the pregnancy; encouraging the avoidance of alcohol and recreational drugs; recommending adequate exercise; and stressing the importance of breastfeeding. A two-part series published previously in *American Family Physician* provides information on well-child care.^{9,10} Early well-child visits need to include conversations about parental risk factors of adverse childhood experiences, such as maternal depression and substance abuse. Several evidence-based interventions are available to help at-risk children who ►

have mothers facing these issues. For example, identifying and treating maternal depression help prevent psychiatric disorders and improve developmental outcomes in children.^{11,12} Another article published previously in *American Family Physician* outlines the family physician's role in detecting and managing alcohol problems.¹³ The harms of parental substance abuse include fetal alcohol syndrome, neglect, and abuse. Treatment programs that address the needs of the woman and her family demonstrate improved recovery rates. Older children in these programs have also demonstrated improved school performance and decreased rates of substance abuse.¹⁴

Other approaches to managing adverse childhood experiences focus on lessening the effects of toxic stress, including home visits and interventions to increase parental nurturing. Physicians should consider arranging home visits by nurses or social workers for first-time mothers facing adversities such as poverty, domestic violence, depression, and substance abuse. Outcomes include higher cognitive function and improved social behavior in preschool children, as well as fewer arrests as teenagers.¹⁵

A simple office activity in infant well-child visits is to observe the interactions between the infant and parents; reciprocal exchanges of smiles and “going and cooing” are critical in the secure attachment and brain growth of the infant.¹⁶ If the parents are not interacting with their infant like this, family physicians can easily model this behavior in the office, inform parents of its importance, and consider screening for parental risk factors. Likewise, when discussing childhood discipline with parents, physicians should emphasize the importance of reducing harsh and punitive punishments. When counseling parents of older children and adolescents, physicians should highlight the importance of setting limits and monitoring behavior.¹⁷

Addressing adverse childhood experiences has been called the ultimate health promotion and preventive medicine intervention. Family physicians have an opportunity to prevent and intervene in children's exposure to these experiences by focusing on safe, stable, and nurturing relationships between parents and children,¹⁸ leading to improved health for generations of patients. As stated in a quote widely attributed to Frederick Douglass, “It is easier to build strong children than to repair broken men.”¹⁹

The author thanks Joseph Kiesler, MD, for his assistance.

Address correspondence to Jerry Friemoth, MD, at friemoj@ucmail.uc.edu. Reprints are not available from the author.

Author disclosure: No relevant financial affiliations.

REFERENCES

1. 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(4):245-258.

2. Centers for Disease Control and Prevention. Injury prevention & control: Adverse Childhood Experiences (ACE) Study. <http://www.cdc.gov/violenceprevention/acestudy/index.html>. Accessed August 25, 2014.
3. Maschinot B, Cohen J. Supporting infants, toddlers, and families impacted by caregiver mental health problems, substance abuse, and trauma: a community action guide. Rockville, Md.: Substance Abuse and Mental Health Services Administration; 2012. DHHS publication no. SMA12-4726.
4. National Scientific Council on the Developing Child. The science of early childhood development: closing the gap between what we know and what we do. 2007. http://developingchild.harvard.edu/resources/reports_and_working_papers/science_of_early_childhood_development/. Accessed May 2, 2014.
5. Shonkoff JP, Garner AS; Committee on Psychosocial Aspects of Child and Family Health; Committee on Early Childhood, Adoption, and Dependent Care; Section on Developmental and Behavioral Pediatrics. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*. 2012;129(1):e232-e246.
6. Loman MM, Gunnar MR; Early Experience, Stress, and Neurobehavioral Development Center. Early experience and the development of stress reactivity and regulation in children. *Neurosci Biobehav Rev*. 2010;34(6):867-876.
7. Slopen N, McLaughlin KA, Shonkoff JP. Interventions to improve cortisol regulation in children: a systematic review. *Pediatrics*. 2014;133(2):312-326.
8. Shonkoff JP. Leveraging the biology of adversity to address the roots of disparities in health and development. *Proc Natl Acad Sci USA*. 2012;109(suppl 2):17302-17307.
9. Riley M, Locke AB, Skye EP. Health maintenance in school-aged children: part I. History, physical examination, screening, and immunizations. *Am Fam Physician*. 2011;83(6):683-688.
10. Riley M, Locke AB, Skye EP. Health maintenance in school-aged children: part II. Counseling recommendations. *Am Fam Physician*. 2011;83(6):689-694.
11. Center on the Developing Child at Harvard University. Maternal depression can undermine the development of young children: working paper no. 8. 2009. http://developingchild.harvard.edu/resources/reports_and_working_papers/working_papers/wp8/. Accessed May 2, 2014.
12. Weissman MM, Pilowsky DJ, Wickramaratne PJ, et al. Remissions in maternal depression and child psychopathology: a STAR*D-child report [published correction appears in *JAMA*. 2006;296(10):1234]. *JAMA*. 2006;295(12):1389-1398.
13. Mersy DJ. Recognition of alcohol and substance abuse. *Am Fam Physician*. 2003;67(7):1529-1532.
14. National Center on Substance Abuse and Child Welfare. <https://www.ncsacw.samhsa.gov/>. Accessed August 29, 2014.
15. Center on the Developing Child at Harvard University. A science-based framework for early childhood policy: using evidence to improve outcomes in learning, behavior, and health for vulnerable children. 2007. http://developingchild.harvard.edu/index.php/resources/reports_and_working_papers/policy_framework/. Accessed August 29, 2014.
16. National Scientific Council on the Developing Child. Early experiences can alter gene expression and affect long-term development: working paper no. 10. 2010. http://developingchild.harvard.edu/resources/reports_and_working_papers/working_papers/wp10/. Accessed May 30, 2014.
17. Biglan A, Flay BR, Embry DD, Sandler IN. The critical role of nurturing environments for promoting human well-being. *Am Psychol*. 2012;67(4):257-271.
18. Centers for Disease Control and Prevention. Safe, stable, and nurturing relationships may shield children against poor health later in life. http://www.cdc.gov/ViolencePrevention/pub/healthy_infants.html. Accessed May 30, 2014.
19. Kristof ND. A poverty solution that starts with a hug. *The New York Times*. January 7, 2012. <http://www.nytimes.com/2012/01/08/opinion/sunday/kristof-a-poverty-solution-that-starts-with-a-hug.html>. Accessed September 3, 2014. ■