



childhood stress: a ticking time bomb

Findings of the Adverse Childhood Experience (ACE) Study
Oklahoma KIDS COUNT Factbook, 2006-2007 Issue Brief 1 of 5

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For decades, child advocates have known that children who suffer from abuse and neglect are more prone to a myriad of emotional and developmental challenges. We have discovered that for some children, the pain and rage of childhood can turn inward, and lead to maladjustments in adulthood. For other children, the pain and rage turn outward, and lead to violent behaviors. In Oklahoma, untreated child abuse and neglect may have played a significant role in two major crises: the highest occurrence of mental illness in the nation, and the fourth largest prison population per capita of any state.

A new study now adds an additional element to this mix, and provides even more motivation to invest in the health and well-being of our children. The Adverse Childhood Experience Study, or ACE Study, is showing a direct correlation between the traumas and family dysfunction suffered in childhood with poor adult health status decades later. This may help explain why Oklahoma ranks so poorly in health indicators. In fact, Oklahoma was the only state in the nation whose health status got worse during the 1990s, and has not improved significantly in recent years.

the study

The ACE Study is a collaborative research project of the Centers for Disease Control and Prevention (CDC) and the Department of Preventive Medicine at Kaiser Permanente (KP) in San Diego, CA. The study was prompted by the observations of Dr. Vincent J. Felitti in the 1980s, as he was conducting a weight loss program at Kaiser Permanente. He noticed that some of the patients who were most successful at losing weight were dropping out of the program. In follow-up interviews with over 200 of these patients, he made a series of startling discoveries: child sexual abuse was very common among these patients, and always preceded the onset of their problem with obesity. In addition, many patients indicated their conscious awareness of an association

between their childhood abuse and their current obesity. Finally, and perhaps most counterintuitive, Dr. Felitti reported that for many of these patients, obesity was not their problem—it was their protective solution, a way to deal with problems they could not talk about.

From these clinical observations, Dr. Robert Anda at the CDC designed the research protocols that would compare current adult health status to childhood experiences decades earlier. With the help of over 17,000 members of the KP Health Plan, who agreed to cooperate through detailed biomedical and psychological evaluations, the ACE Study produced remarkable insight into how our experiences as children evolve into risky behaviors, which, in turn, evolve into disease and death.

findings

The Study affirmed the long-held belief that risk factors do not occur in isolation, but are interrelated and appear in clusters. If a child lives in a home where domestic abuse occurs, for example, it is unlikely that the rest of the household functions well. In fact, the ACE Study found that given an exposure to one adverse childhood experience, there is an 80% likelihood of exposure to another, suggesting that studying each risk factor separately might lead to limited understanding of the true burdens carried by children into their adult lives.

The ACE Study further concluded that adverse childhood experiences are much more common than recognized. The Study draws an unsettling connection between ACEs and a myriad of risky adult behaviors (alcoholism,

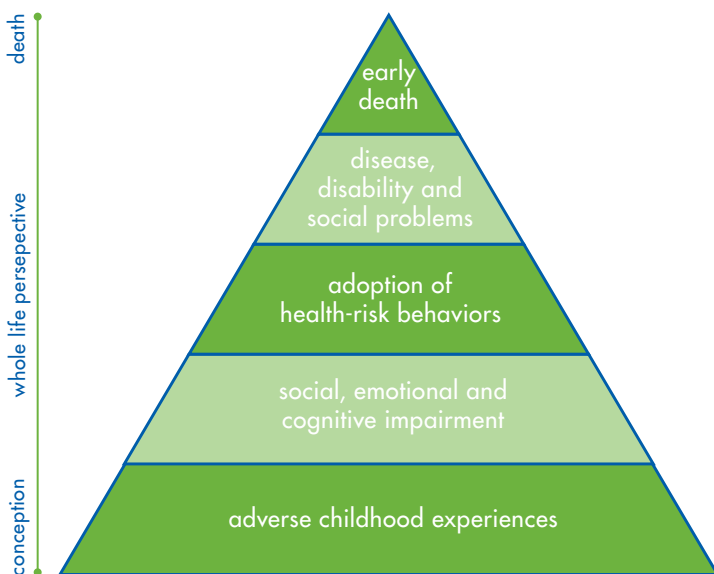
drug abuse, suicide attempts, smoking, multiple sex partners, obesity, and so on). The greater the number of harmful experiences suffered by a child, the higher the likelihood that the child will adopt any one or several of these risk behaviors as a means to cope or cover their pain. In adulthood, the resulting behaviors directly link to the chronic diseases that are the most common causes of death and disability in Oklahoma, including heart disease, cancer, stroke, diabetes and mental illness. These findings suggest that the impact of adverse childhood experiences on adult health status is strong and cumulative, making ACEs a leading cause of morbidity and mortality in adult life.

The ACE Pyramid represents the conceptual framework for the Study. It

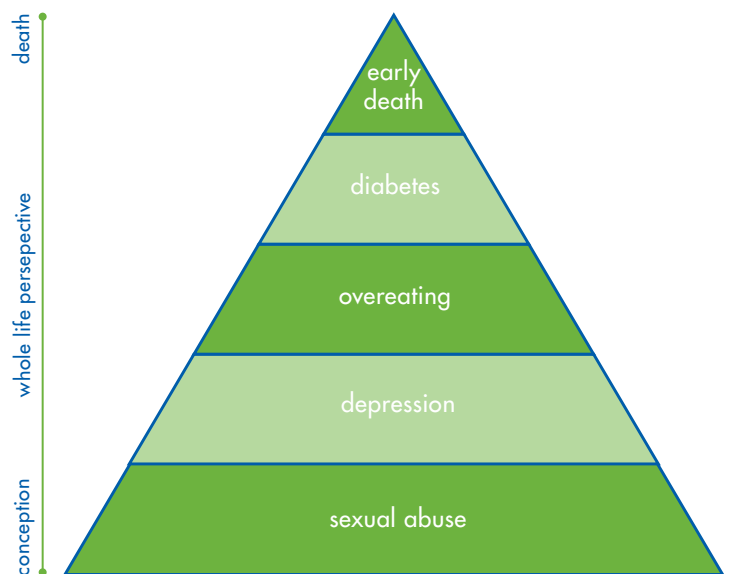
demonstrates how the study assesses the “scientific gaps” about the underlying reasons for risk behaviors that lead to health and social consequences higher up the pyramid. The pyramid below demonstrates a possible real life scenario.



ACE Pyramid



ACE Pyramid Real Life Scenario



implications

Traditionally, reports concerning the causes of disease link problem behaviors, such as tobacco use, with the resulting consequences, such as lung cancer. You will find a relationship between the use of seat belts and the motor vehicle death rate; between lack of physical activity and high blood pressure and stroke.

Our response to these findings has been to educate the public to change their behaviors—to quit smoking, wear seat belts, and get moving.

Yet the ACE Study indicates that what we view as *problem* behaviors, such as tobacco use, may indeed be *solution* behaviors to people trying to comfort themselves and cope with trauma. The Study found a direct and graded association between the number of ACEs in a person's history and incidents of regular smoking. The higher the ACE score, the higher the likelihood of current

smoking, and the earlier children take up the habit. Smoking underlies some of the most prevalent causes of death in America, such as chronic obstructive pulmonary disease (COPD) and heart disease. This is just one example of the direct relationship between ACEs, risk behaviors and disease.

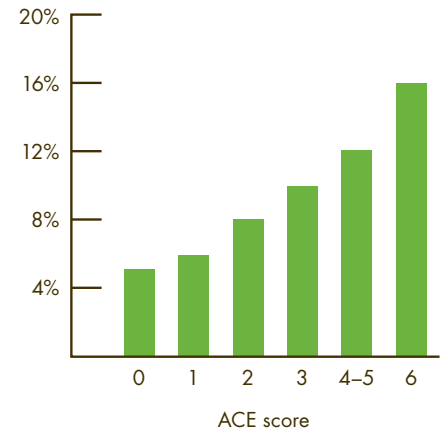
For years, public health campaigns have attempted to reduce smoking by asking people to change their behaviors. These efforts have been successful with people who took up the habit for social reasons. But the ACE Study suggests that for some people, smoking is a form of self-medication, and our efforts to reduce their consumption will not be successful without first understanding and dealing with the underlying reason for their behavior. This finding requires a different kind of response from the medical, public health and social sciences communities.

conclusion

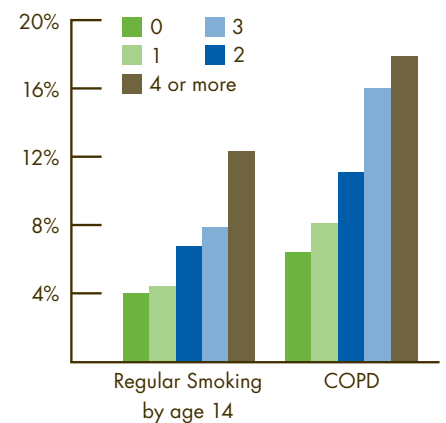
It is apparent from the ACE Study that time does not heal the wounds of childhood. Additionally, many of the adverse childhood experiences may go undetected because of shame, secrecy and social taboo, preventing young victims from revealing their trauma. Yet without intervention and treatment, the study projects a predictable path toward disease and disability. Further, the connection to future rates of mental illness and incarceration paint a daunting picture for Oklahoma.

The findings from this study make it imperative that Oklahoma invest in its young children and families, that we provide appropriate interventions for young people, and that we create new diagnostic tools and training for health professionals. Otherwise, with our current levels of divorce, child abuse, domestic violence and substance abuse, Oklahoma is sitting on a ticking time bomb.

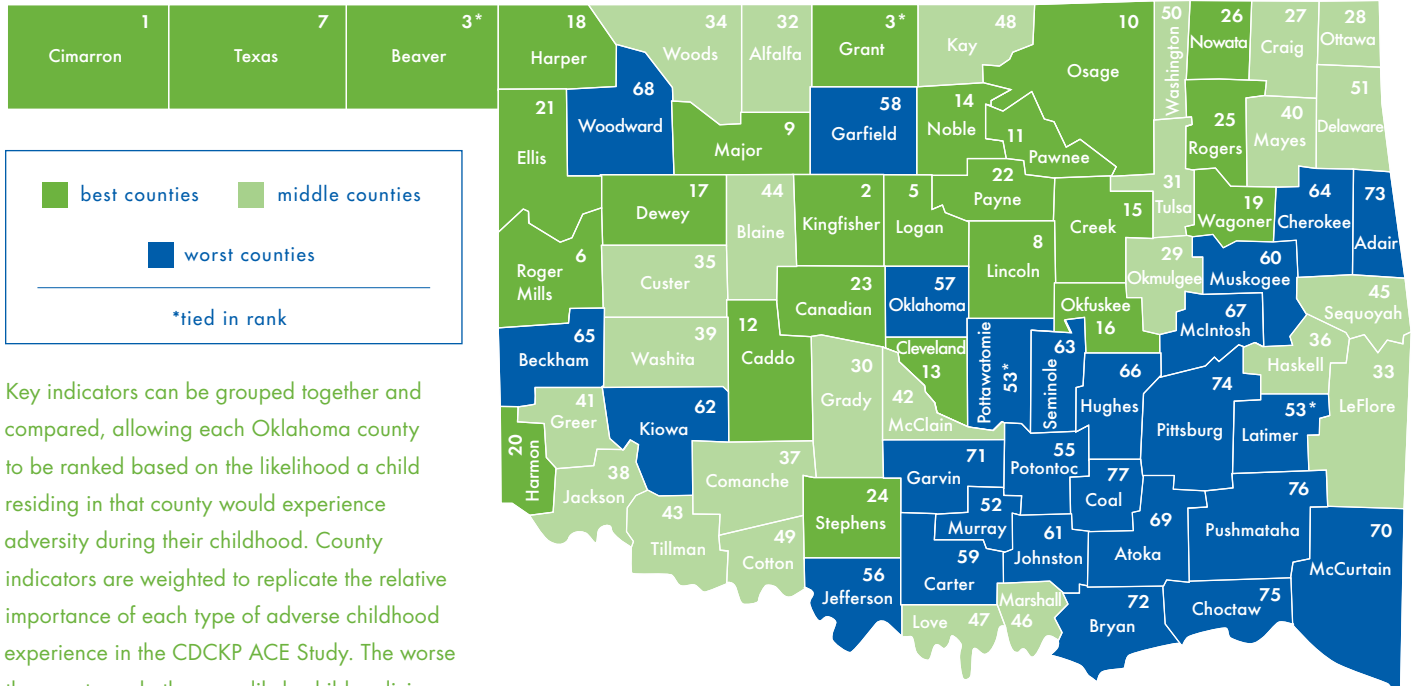
ACEs & current smoking



ACEs, smoking & COPD



ranking of county adverse childhood experience indicators oklahoma counties, 2002–2005



Key indicators can be grouped together and compared, allowing each Oklahoma county to be ranked based on the likelihood a child residing in that county would experience adversity during their childhood. County indicators are weighted to replicate the relative importance of each type of adverse childhood experience in the CDCKP ACE Study. The worse the county rank, the more likely children living there will accumulate ACEs.

the population

The study group consisted of typical, middle class, employed adults with health insurance, more or less evenly divided between males and females. Because the average participant was 57 years old, the study had the ability to measure the effect of adverse childhood experiences on adult health status a half-century later.



ACE risk factors

The ACE Study identified ten risk factors, or adverse childhood experiences, that were frequently mentioned in the weight program. Five ACEs were related to abuse or neglect of the child:

- emotional abuse
- physical abuse
- sexual abuse
- emotional neglect
- physical neglect

The other five ACEs related to dysfunction within the household where the child was growing up:

- mother treated violently
- household substance abuse
- household mental illness

- parental separation or divorce
- incarcerated household member

The Study constructed a “score” by which to analyze the findings: a person exposed to none of the 10 factors had an ACE score of 0; a person exposed to any four factors had an ACE score of 4, and so on. The ACE Study revealed that almost three-quarters of this middle-class population had experienced one or more of the ten categories of adverse childhood experiences. One in six experienced two ACEs; one in 8 experienced four ACEs. So the Study was able to assess the relationship of co-occurring traumatic or stressful experiences in childhood to mental and physical disease in adults.

ACE Category	Definition for Inquiry Into Childhood Experience
Child Maltreatment	
Emotional Abuse	Often or very often a parent or other adult in the household swore at you, insulted you, or put you down and/or sometimes, often or very often acted in a way that made you think you might be physically hurt.
Physical Abuse	Sometimes, often, or very often pushed, grabbed, slapped, or had something thrown at you and/or ever hit so hard that you had marks or were injured.
Sexual Abuse	An adult or person at least 5 years older ever touched you or fondled you in a sexual way, and/or had you touch their body in a sexual way, and/or attempted oral, anal, or vaginal intercourse with you and/or actually had oral, anal, or vaginal intercourse with you.
Emotional Neglect	Respondents were asked whether their family made them feel special, loved, and if their family was a source of strength, support, and protection. Emotional neglect was defined using scale scores that represent moderate to extreme exposure on the Emotional Neglect subscale of the Childhood Trauma Questionnaire (CTQ) short form.
Physical Neglect	Respondents were asked whether there was enough to eat, if their parents' drinking interfered with their care, if they ever wore dirty clothes, and if there was someone to take them to the doctor. Physical neglect was defined using scale scores that represent moderate to extreme exposure on the Physical Neglect subscale of the Childhood Trauma Questionnaire (CTQ) short form.
Household or Family Dysfunction	
Mother Treated Violently	Your mother or stepmother was sometimes, often, or very often pushed, grabbed, slapped, or had something thrown at her and/or sometimes, often, or very often kicked, bitten, hit with fist, or hit with something hard, and/or ever repeatedly hit over at least a few minutes and/or ever threatened or hurt by a knife or gun.
Household Substance Abuse	Lived with anyone who was a problem drinker or alcoholic and/or lived with anyone who used street drugs.
Household Mental Illness	A household member was depressed or mentally ill and/or a member attempted suicide.
Parental Separation or Divorce	Parents were ever separated or divorced.
Incarcerated Household Member	A household member went to prison.

This issue brief is the first in a series describing the impact of adverse childhood experiences on adult health status. These briefs are made possible through Project ACT (All Children can Thrive), a project of the Oklahoma Institute for Child Advocacy funded by INTEGRIS Health, in partnership with Oklahoma KIDS COUNT. All five issue briefs and the Oklahoma KIDS COUNT Factbook will be available online at www.oica.org in January of 2007.