As the Twig Is Bent

Understanding the health implications of early life trauma

by Mary Sykes Wylie

While it's common knowledge that childhood trauma can have far-reaching and sometimes dire consequences for adult mental health, it's less obvious that abuse, neglect, parental alcoholism, severely dysfunctional family patterns, and other stresses in childhood can severely affect adult physical health, and even mortality. However, a path-breaking epidemiological survey called the Adverse Childhood Experiences (ACE) Study, initiated jointly by the Kaiser Permanente HMO in California and the Centers for Disease Control and Prevention in 1995–1997 and still continuing, demonstrates an astonishing correlation between childhood maltreatment and later-life medical illnesses and premature death.

The ACE study was based on detailed interviews with more than 17,000 Kaiser Permanente members about their childhood experiences of neglect, abuse, and family dysfunction. As the health profiles of these participants have been tracked through the years, about 70 scientific articles have been published linking childhood adversity to a host of mental and medical conditions, including among the latter autoimmune, heart, lung, and liver diseases, cancer, hepatitis or jaundice, diabetes, bone fractures, and sexually transmitted diseases.

The study came about almost by accident: it was the entirely unexpected consequence of a Kaiser Permanente weight-loss program that went strangely awry. During the mid-1980s, Vincent Felitti, founder of Kaiser Permanente's Department of Preventive Medicine, began directing a new obesity-treatment program, based on the technique of "absolute fasting"—no solid foods, only liquids supplemented by 420 calories daily derived from vitamins, essential amino and fatty acids, and electrolytes. At first, the program seemed to be a smashing success. People lost 50 pounds and up. The weight loss for some of these patients, many of whom were morbidly obese, was a staggering 300 pounds, which even exceeded what's ordinarily accomplished with bariatric surgery.

But within a year or two, Felitti reports, he and his colleagues began having "a very unusual problem." There was a high dropout rate, not among people who were eating in secret and failing to lose weight, but almost exclusively among those who were successful and losing a great deal of weight. "This was driving us nuts," he recalls. "These kinds of weight reductions led us to believe we knew what we were doing. We had this great opportunity to establish a

noteworthy weight-loss department, and these damn people were ruining it by fleeing what they wanted to accomplish!"

Jan, a young woman who entered the program in 1985 at 408 pounds, exemplifies what Felitti was encountering. Fifty-one weeks into the regime, she'd dropped down to a svelte 132 pounds. But a short time later, she suddenly began gaining again—37 pounds in three weeks, which Felitti would have thought physiologically impossible if it hadn't been documented. Asked what she thought had triggered this massive eat-a-thon, she replied that she had a history of sleep-walking and thought she was now "sleep-eating." She lived alone, and when she awoke in the morning, her kitchen was a mess of open food boxes, tins, and jars from her pantry, scattered among dirty pots, pans, and plates. "Since I'm the only person living there," Jan said, "nobody else can be eating the food—that's the only reason I can think of for gaining weight."

But why now, Felitti wanted to know. What was going on in her life that triggered her gorging? She said a married coworker, a much older man, had complimented her on her new, slim, attractive appearance, and then suggested they start having sex once or twice a week. That had begun her three-week "sleep-eating" binge. Felitti was still mystified—the proposition was crude, the guy sounded like a jerk, but was this bad enough to derail her astonishing, life-saving progress? Slowly, Jan revealed the story behind the story: as a child she'd been severely molested for many years by her grandfather, and since then, her entire life had revolved around not allowing herself to ever be sexually vulnerable again. Even her job fit the bill. She worked as a nurse's aide in the night shift of a convalescent hospital—paid to stay awake, on her feet, and safe while her elderly charges were asleep in bed.

Then Jan disappeared. She returned 12 years later—once again weighing more than 400 pounds—and rejoined the weight-loss program. This time, her family had saved $20,000 for her bariatric surgery. She had the surgery, lost 96 pounds, and once again completely fell apart. She became intractably suicidal, was hospitalized five times in the next year, and given three courses of electroconvulsive therapy.

A year after this, Jan's weight had dropped to 250 pounds and she became calmer and more peaceful, but not because of any conscious attempt to lose weight: she'd developed primary pulmonary fibrosis, which causes severe weight loss, and was now dying. "At this point," says Felitti, "Jan felt more comfortable because she knew she wouldn't live much longer—she felt her life sentence was finally over." In a video made before her death, she explained what losing her protective fatty cushion had meant to her. "The weight was coming off faster than I could stand. My wall was crumbling."

And so it went. Another woman lost 150 pounds, but instead of being thrilled, she became stricken with terror and had anxiety attacks. As it happened, she'd been sexually abused by multiple people in her household, as well as the school-bus driver. At age 15, she married a brutal husband, got divorced, and then married somebody who was crazed with jealousy—he thought that she was sexually posturing to attract men in the neighborhood when she hung the wash up to dry outside. Gaining weight, she noticed, took the pressure off—he wasn't jealous of her when she was fat. Ultimately, she regained all her weight and seemed calmer, and even happier, in her fleshy cocoon.

As the program directors began a detailed exploration into the life histories of other patients whose very success seemed to undo them, some curious facts came to light. Virtually none of the patients was fat as a child and, while most overweight people gain pounds slowly over the years, they'd gained their weight abruptly, usually in response to a difficult life event. But the shocking news was that the interviews revealed an unsettling pattern of childhood sexual abuse, trauma, family suicides, brutality, and other evidence of severely dysfunctional family relationships. In a study of 286 obese people in the program, for example, Felitti discovered that half had been sexually abused as children—more than 50 percent higher than the normal rate reported by women and 300 percent higher than the rate reported by men. In fact, for these people, overeating and obesity weren't the central problems, but attempted solutions. Food was an old, reliable friend that soothed and calmed them, while being fat protected them from a hostile world. The bigger they were, the more invisible they seemed—a good thing if being "seen" had too often been synonymous with being hurt. As one woman, who gained 105 pounds after she was raped at 23, said, "Overweight is overlooked, and that's the way I need to be."

Having discovered what he thought was a fundamentally new and more accurate way of understanding obesity, Felitti presented his data in 1990 to a large meeting of the National Association for the Study of Obesity. He remembers being "wildly attacked" by many of the psychiatrists and psychologists in attendance and told that he was being na•ve to believe these people. They'd probably invented these tales to provide cover for their failed lives, said many of the critics, as if, says Felitti sardonically, "we all make false attributions of incest for social self-aggrandizement." However, one person at the meeting, an epidemiologist with the Centers for Disease Control and Prevention (CDC), found the data intriguing, but said nobody would believe any of it was true on the basis of 286 cases—Felitti needed to do a larger, epidemiological study.

From that little acorn of a conversation grew a mighty oak: the largest research study ever done

on the effects of childhood abuse, neglect, and other serious stressors on adult mental and physical health. The ACE Study was led by Felitti and Robert Anda, a CDC medical epidemiologist researching the psychosocial origins of unhealthy behaviors, including overeating, alcohol abuse, smoking, high-risk sexual activities, and illicit drug use. They asked 26,000 consecutive Kaiser Permanente patients receiving a non-illness-related comprehensive medical exam if they'd be willing to answer a series of questions regarding unpleasant childhood experiences. Seventy-one percent agreed, yielding 17,337 study participants after exclusions for incomplete data and duplications.

This group comprised a mainstream, middle-class population: the average age was 57, Caucasians made up 77 percent, 74 percent had attended college, half were men, and half were women. The researchers surveyed and interviewed these people in candid detail about 10 categories of negative childhood experiences, subdivided into 3 major divisions (abuse, household dysfunction, and neglect) and each incorporating numerous questions: Were they sexually, physically, or emotionally abused? Did someone in the household commit suicide, go to prison, engage in crime, and/or abuse drugs or alcohol? Was someone chronically depressed, institutionalized, mentally ill, and/or suicidal? Did they witness their mother being threatened or beaten by a spouse or boyfriend? Did they feel loved, protected, and well cared for? The researchers then looked for correlations between what had happened to the participants as children and their health, well-being, and risk factors for disease as adults. Each category, not incident, was given a score of 1.

The results were stunning—both the prevalence of maltreatment and adversity and their impact on health and well-being 40 to 50 years later. The researchers found that adverse experiences in childhood were very common—only 33 percent had a score of 0, meaning that none of the categories had applied to them. More important, adversity usually came as a package deal—if one category (say, alcoholism) had been present, there was an 87-percent probability that at least one other (say, sexual or emotional abuse) was also present. One in six participants had an ACE score of 4 or more (maybe sexual abuse, alcoholism, physical abuse, and witnessing household violence). One in nine had an ACE score of 5 or more. As Felitti and Anda note in a chapter of *The Impact of Early Life Trauma on Health and Disease: The Hidden Epidemic*, "Every physician sees several high ACE score patients. Typically, they are the most difficult patients of the day."

It's dramatic enough to learn that 66 percent of a large, representative sample of a middle-class, predominantly white, educated population with good health insurance has suffered maltreatment and/or family dysfunction as children. But it's positively astounding to see laid out, again and again, the profound relationship between childhood adversity and so many of the

mental, physical, and social disorders plaguing our society. As of fall 2009—15 years since the ACE project began—60-plus different peer-reviewed studies had been published, with about 10 more in the works, not to mention probably scores of other non-ACE-related studies, demonstrating connections between childhood adversity and adult health.

Intuitively, it seems obvious that childhood adversity increases the risk for mental and emotional problems in adult life—and so it proves. People with higher ACE scores (let's call them "Acers") suffer disproportionately from chronic depression and suicidality. A person with an ACE score of 4, for example, is 4.6 times likelier to be depressed than a person with a score of 0; a male child with an ACE score of 6 is *46 times as likely* to use intravenous drugs in adulthood than one who scores 0. Acers suffer more from anxiety, panic reactions, poor anger control, sleep disturbances, dissociation, hallucinations, alcoholism, drug addiction, and somatization. ACE-related research demonstrates that childhood trauma and neglect are strongly associated with personality disorders, particularly borderline personality disorder. Again, ACE studies, as well as other research, indicate that the greater the number of traumatic stressors, the higher the risk for psychiatric illnesses.

What wasn't—and still isn't—so intuitive is that ACE scores have a vast and profound influence in the development of biomedical conditions, even half a century after the childhood events occurred. Childhood adversity radically increases the risk for physical illnesses and disabilities, including heart and lung disease, autoimmune disease, liver disease, cancer (48 percent greater chance), diabetes, sexually transmitted infections, HIV, hepatitis, and chronic pain. It's shocking to learn, though it probably shouldn't be, that ACEers with a score of 6 or more die, on average, *two decades earlier* than those with a score of 0.

Part of the reason that Acers develop so many biomedical disorders is that, as these studies repeatedly confirm, maltreated children are much likelier to become hooked on the self-soothing habits—smoking, drinking, overeating, promiscuous sex, drug abuse—that are known risk factors for most illnesses. Compared with male children with an ACE score of 0, for example, those with a score of 6 are 2.5 times as likely to smoke and 46 times as likely to use drugs, while those with a score of 4 carry 5 times the risk of becoming an alcoholic and 12 times the risk for suicide attempts. As Felitti and Anda point out, this all makes perfect sense—long-term addictions temporarily "fix" problems like anxiety, fear, anger, depression, low self-esteem, loneliness, and despair, although at sky-high risk to health and longevity.

Particularly compelling is that high ACE scores are correlated with diseases, including cancer, coronary artery disease, and chronic obstructive pulmonary disease, even controlling for or without conventional risk factors like smoking, air pollution, or high cholesterol. In other words,

diseases that were once considered exclusively hard-core structural, biomedical conditions arising in adulthood may have unsuspected origins many decades earlier in physiological stress reactions arising from childhood abuse and trauma—as Felitti says, "a very big concept."

As a result of the ACE study, childhood adversity and its lifetime effects on health and well-being are often cited as America's most important public health issue. You would think, therefore, that this research, generating a virtual cottage industry of studies over the past 15 years, must have revolutionized the American medical system and the way physicians approach patients. You would, of course, be wrong. Felitti, as you might expect, receives numerous invitations to speak at professional medical meetings with audiences of hundreds. As the presenter, he clearly sees the faces of his listeners and their reactions to what he's saying. Predictably, he notes, 8 or 10 minutes into his presentation, these upturned faces collectively express "a level of anguish that exceeds anything attributable to what you'd expect from a purely empathic response." Several will leave the room in fits of spastic bronchial coughing, he adds. Felitti believes this is at least partly due to personal ghosts in their own lives: maybe pungent memories of their own childhood difficulties being awakened.

Overall, Felitti finds a lot of intellectual interest in what he's saying, but minimal real engagement. In fact, it isn't easy to imagine, under the present system, an internist or gastroenterologist or cardiologist, seeing perhaps 20 to 30 patients a day—most absolute strangers—pausing during a brief, standardized interview and casually saying, "I notice from the questionnaire you filled out that you were molested by your father for seven years starting when you were 6—um, do you want to tell me something about that?" Felitti finds doctors' automatic, defensive response to the suggestion that they explore childhood stressors quite understandable, since they're unprepared to dive into such turbulent waters. He often hears reactions like, "We can't do that, open Pandora's box. I only have twenty minutes, not three hours,' or, 'Patients would be furious if you asked questions like that,' or 'If I'd wanted to be a shrink, I'd have been one.'"

But, once Kaiser doctors began administering the ACE questionnaire, after getting some basic coaching on how to broach sensitive issues, they found the interview process to be quick (a few minutes per patient), surprisingly painless, and astonishingly positive. Considering that no actual therapy was involved, the process was even therapeutic for patients. Only a small minority were referred to a psychiatrist or a weight-loss or smoking-cessation program. Not only were the patients willing to talk to their physician about the most fraught issues of their childhoods, they clearly felt relieved and gratified by even this small acknowledgement of their past suffering. Furthermore, they apparently derived benefits that seemed disproportionate to the amount of face-to-face attention they received. A data-mining firm compared ACE participants with other

Kaiser members—120,000 people altogether—and found that one year after the survey, the former showed a 35-percent drop in doctor's visits, an 11-percent drop in emergency room visits, and a 3-percent drop in hospital visits. If the ACE program had been in place for all Kaiser members, Felitti estimates it might potentially have saved outpatient services $4 billion.

Two years later, however, in the absence of any follow-up whatsoever, the percentage of medical outpatient utilization had reverted to normal. Reviewing the ACE participants' charts, Felitti found that, "Almost never did anybody try to integrate this knowledge into a patient's ongoing care. The information might as well have been printed in invisible ink."

In fact, notwithstanding all the bean counters obsessing about cost containment, the vast implications of this study—medical, social, political—seem to trigger a kind of cognitive dissonance in the world of healthcare. The medical profession isn't designed, organized, or financed, much less philosophically ready, to grapple with these facts. Rather than exploring amorphous, hard-to-measure psychosocial and emotional factors lost in the mists of time and patients' unverifiable memories, both medical researchers and clinicians focus on what's directly in front of them—current physical symptoms and directly preceding causes. So the traumatic "insults" in childhood to complex neurobiological systems remain "silent" until the middle-aged or elderly patient brings her obesity and diabetes, his high blood pressure and clogged arteries, to a physician half a century or more later.

"If you believe information, then you realize that this calls for a paradigm shift," says Felitti. "The truth is right there, just under the surface—you just have to ask the right question." But as he's fond of saying, "Most people spend their whole lives not asking the basic questions."

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