

The Health and Social Impact of Growing Up With Adverse Childhood Experiences:

The Human and Economic Costs of the Status Quo

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The common stressful and traumatic exposures affecting the (neuro)development of our children are referred to as *adverse childhood experiences*, or ACEs. ACEs represent a constellation of experiences including: abuse (emotional, physical, sexual), neglect (emotional, physical), witnessing domestic violence, growing up with substance abuse (alcohol or other drug abuse) or mental illness in the household, parental discord, or crime in the home.

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Editors' Note:

At the 2007 Guest House Institute Summer Leadership Conference in Minneapolis, MN Dr. Robert Anda, co-Principal Investigator for the Adverse Childhood Experiences studies of the Centers for Disease Control and Prevention (CDC), presented the following material. His presentation and handouts have been revised and edited to present a coherent and unified presentation. Dr. Anda has reviewed and approved this presentation.

This data is state-of-the-art. These reflections are reprinted here to provide a unique perspective on trauma & addiction that raises critical questions and provides caution about how we proceed within and outside the Church.

Executive Summary

The Adverse Childhood Experiences (ACE) Study is a decade-long and ongoing study designed to examine the childhood origins of many of our Nation's leading health and social problems. The Study represents collaboration between the Nation's leading prevention agency, the Centers for Disease Control and Prevention (CDC), and Kaiser Permanente's Department of Preventive Medicine in San Diego, CA.¹⁻⁴¹

The largest study of its kind ever conducted both in size and scope of information collected, the ACE Study examines the health and social effects of adverse childhood experiences throughout the lifespan. The relationship of these experiences to a wide range of health and social problems has been, and continues to be, described by the ACE Study team.^{1,36,38} [Interested readers should consult the ACE Study website, reviewed in this issue of *Guest House Review* under **Updates**, at <http://www.acestudy.org/>].

The Study assessed 10 categories of stressful or traumatic childhood experiences (See Table A).¹³ The experiences chosen for study were based upon prior research that has shown them to have significant adverse health or social implications, and for which efforts in the public and private sector exist to reduce the frequency and consequences of their occurrence.

Research into the effects of childhood maltreatment and related experiences (including witnessing domestic violence) has tended to focus on only one or two categories of experience, such as physical or sexual abuse or domestic violence, and has generally focused on a limited range of outcomes. *The ACE Study is unique not only because of its size (17,337 members of KP’s Medical Care Program), but because it was also designed to assess the relationships of a broad range of adverse childhood experiences (ACEs) to a wide range of health and social consequences.*

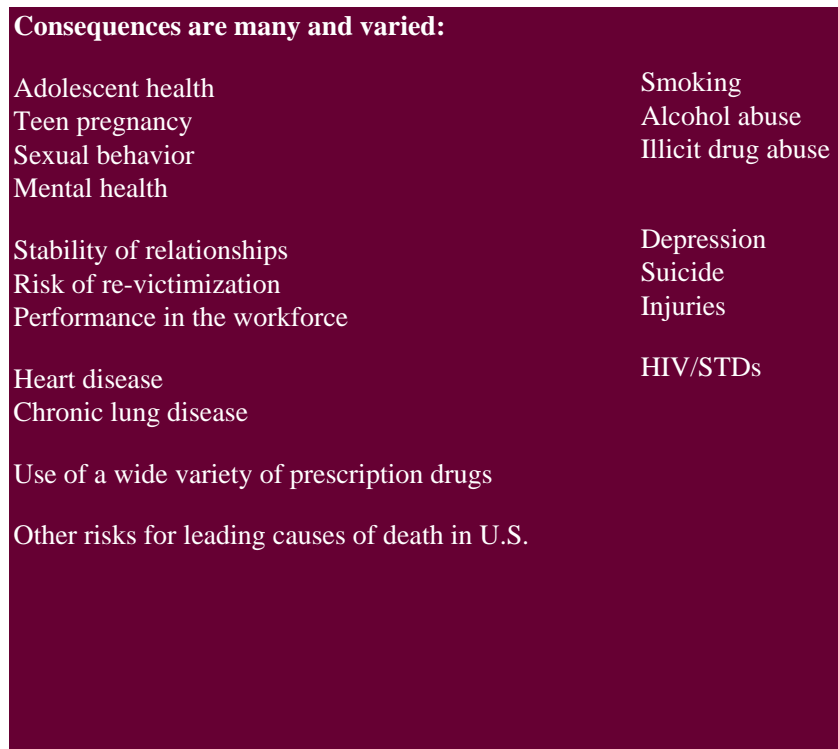
Table A: Range of Adverse Childhood Experiences (ACEs)

The 10 ACEs studied are:

- Childhood abuse**
 - Emotional
 - Physical
 - Sexual
- Neglect**
 - Emotional
 - Physical
- Growing up in a seriously dysfunctional household as evidenced by:**
 - witnessing domestic violence
 - alcohol or other substance abuse in the home
 - mentally ill or suicidal household members
 - parental marital discord (separation/divorce)
 - crime in the home (household member in prison)

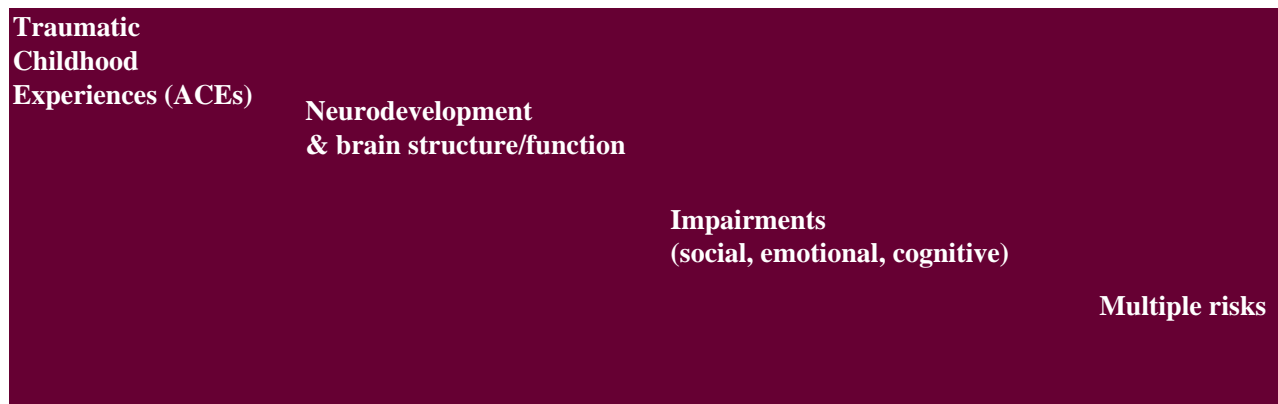
It is also important to remember that, if we could convene a panel of “experts” from all the various sciences and social services, and we asked them to list the major problems this country faces, *everything* on their lists would have a strong relationship to adverse childhood experiences (See Table B). And yet, we are often unaware of this relationship. Early trauma is the invisible engine underneath so many of our society’s problems.

Table B: Range of Health and Social Consequences



The key concept underlying the ACE Study is that **stressful or traumatic childhood experiences** such as abuse, neglect, witnessing domestic violence, or growing up with alcohol or other substance abuse, mental illness, parental discord, or crime in the home (which we termed “adverse childhood experiences,” or ACEs) are a **common pathway to** social, emotional, and cognitive **impairments that lead to increased risk** of unhealthy behaviors, risk of violence or re-victimization, disease, disability and premature mortality (Figure 1).^{1-4,36,37} We now know from breakthroughs in neurobiology that **ACEs disrupt neurodevelopment** and can have lasting effects on brain structure and function — the biologic pathways that likely explain the strength of the findings from the ACE Study. Experiences are written into the structure of the brain and nervous system, leading to impairments, behavioral risks, and negative consequences (Figure 2 below).

Figure 1: ACEs as a “common pathway” to multiple risks and problems in living

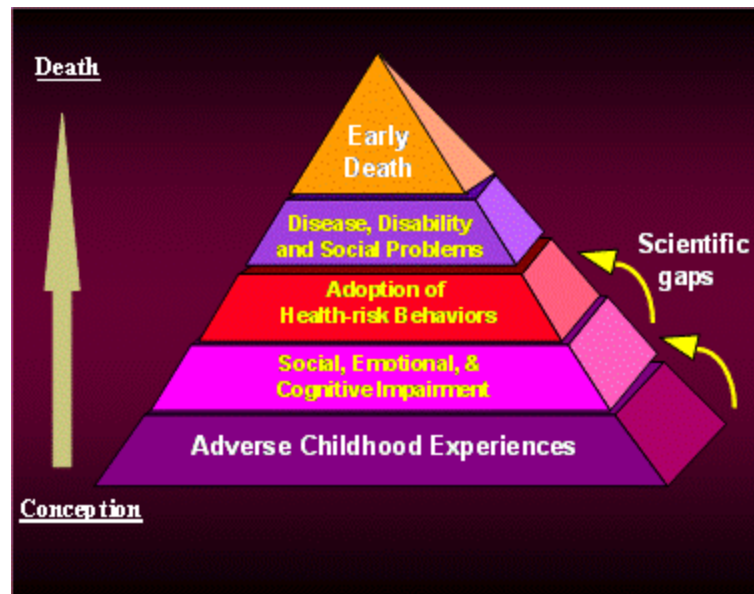


The vast array of problems that arise from ACEs calls for an integrated view of the origins of health and social problems throughout the lifespan. Our approach to growing up with ACEs and to the consequences of exposure to them – in effect, making the invisible engine visible – may unify and improve society’s understanding of many seemingly unrelated health and social problems that tend to be identified and treated as separate issues. Development of more integrated approaches will likely contribute to more meaningful diagnoses, improved treatment of at-risk and affected persons, and better integration of research priorities, preventive and social services, and legal venues.^{1,3}

The ACE Study calls for an integrated approach to intervene early with children growing up being abused, neglected, witnessing domestic violence, or with substance abusing, mentally ill, or criminal household members. All of these childhood stressors are interrelated and usually co-occur in these homes. Prevention and treatment of one ACE frequently can mean that similar efforts are needed to treat multiple persons in affected families.

Risk factors for health and social problems are *not* randomly distributed in the US population. The experiences of childhood — specifically stressful or traumatic experiences that can negatively affect childhood development — are fundamental and often “hidden” underpinnings of the occurrence of multiple health and social problems. We sought to fill the scientific gaps in understanding these problems, using a whole life model as depicted in **Figure 2**, below.^{36,38}

Figure 2: Conceptual Framework for the ACE Study.



It is important to recognize that:

- Adverse childhood experiences (ACEs) are **common**.
- ACEs tend to **occur in clusters**, rather than single experiences.
- The cumulative **impact of multiple exposures** (or “doses”) can be captured in an “ACE Score.”
- The ACE score likely captures the cumulative **(neuro)-developmental consequences** of traumatic stress.
- The ACE Score has a strong, **graded relationship** to numerous health, social, and behavioral problems throughout

a person's lifespan.

- These ACE-related problems tend to be co-morbid or **co-occurring**.

ACE Score

We developed the **ACE Score**^{36,37} in order to assess the relationship of ACEs to health and social problems. This score is a count of the number of ACEs any particular person experiences; that is, the sum-total of their adverse childhood experiences. It is designed to assess *the cumulative impact of these experiences on childhood development and, therefore, their impact on a variety of health and social priorities in our country.*

As the ACE Score increases so does the risk of numerous health and social problems throughout the lifespan. These problems are a “Who’s Who?” list of problems that encompass the priorities of many agencies, public and private, that are working to prevent and treat a vast array of society’s difficulties (Table B).¹⁻⁴¹

ACEs are Common

The first important conclusion of our research is that adverse childhood experiences are very common, even in a well-educated, predominantly middle-class study sample, such as the Kaiser Permanente Health Care Plan (Table C, below).^{1,13,36,38} Moreover, ACE Study estimates of the prevalence of childhood exposures to physical and sexual abuse are similar to population-based surveys. The similarity of our estimates from the ACE Study to those of population-based studies suggests that our findings would be applicable in a variety of other settings.

Table C: Prevalence of Adverse Childhood Experiences^{1,13}

Adverse Childhood Experiences Are Common	
<u>Household dysfunction:</u>	
Substance abuse	27%
Parental sep/divorce	23%
Mental illness	17%
Battered mother	13%
Criminal behavior	6%
<u>Abuse:</u>	
Psychological	11%
Physical	28%
Sexual	21%
<u>Neglect:</u>	
Emotional	15%
Physical	10%

A national telephone survey of adults conducted by Finkelhor et al.,⁴³ for example, used similar criteria for childhood sexual abuse and determined that 16% of men and 27% of women had been sexually abused; in the ACE Study cohort 16% of men and 25% of women in our sample had experienced contact childhood sexual abuse. In our study, 30% of the men had been physically abused as boys; this closely parallels the 31% prevalence recently found in a similarly structured population-based study of Canadian men.⁴⁴

ACEs are Highly Interrelated

When I was working at the Centers for Disease Control and Prevention (CDC) in the 1980s, I worked on cardiovascular health. We saw that risk factors for disease, disability, social problems, and early death are not randomly distributed in the population. Furthermore, people who have one risk factor for these sets of problems tend to have multiple risk factors. We began to wonder: if the risk factors are not random and they cluster together, there must be something underneath that generates this clustering of risk factors in some people and not in others. What we hypothesized is that adverse childhood experiences lead to social, emotional, and cognitive impairments and might help to explain why these sets of factors are co-occurring in people's lives. We could, then, try to prevent their occurrence rather than treating them after the risks are there. We now know that the mediating variable between adverse experiences and multiple risks is in the process of brain development.

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At the time that the ACE Study was designed, relatively little was known about the co-occurrence of the 10 ACE categories chosen for study. Even less was known about the cumulative impact of multiple different exposures. Because initial analyses of the data showed that ACEs tended to be highly interrelated,^{13,36,38} we described their co-occurrence in detail.¹³

There is a high probability of persons experiencing *multiple* ACEs. Any occurrence of an ACE increases the chances of that person experiencing additional ACEs. Thus, not only are ACEs highly interrelated; the occurrence of one should evoke a search for others. The all-too-common, current assessment of the effects of a single ACE on health and social well-being appears to be illogical. Simply searching for the impact of substance abuse in the home on the developing child, for instance, will likely reveal an incomplete picture. Why? In the case of persons who grew up with household substance abuse, 81% reported *at least one additional ACE* and the majority had experienced 2 or more ACEs. In our entire study population, 81%-98% of respondents who had experienced one ACE reported at least one *additional* category of ACE (median: 87%).¹³ As an example, Figures 3 and 4 below illustrate how growing up with alcohol abusing parents is strongly related to the risk of experiencing additional categories of ACEs.¹³

Figure 3: Alcohol Abuse and the Risk of Childhood Abuse

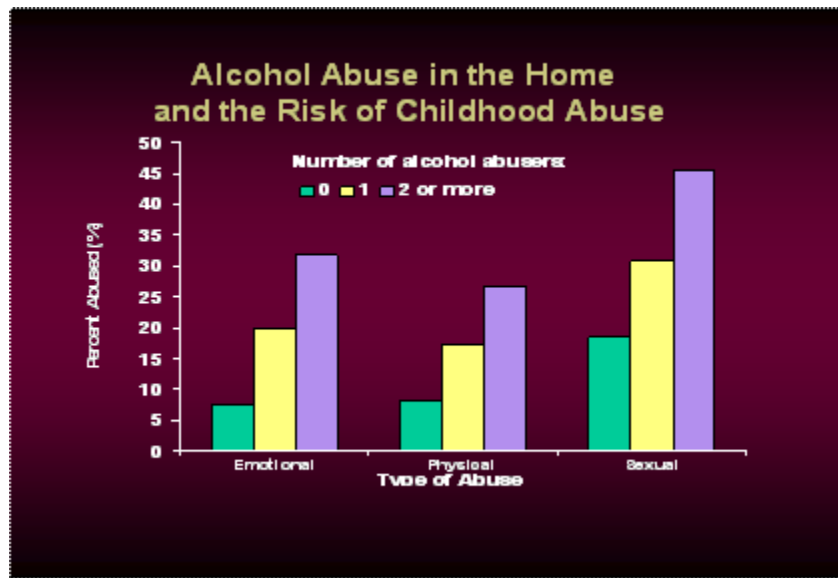
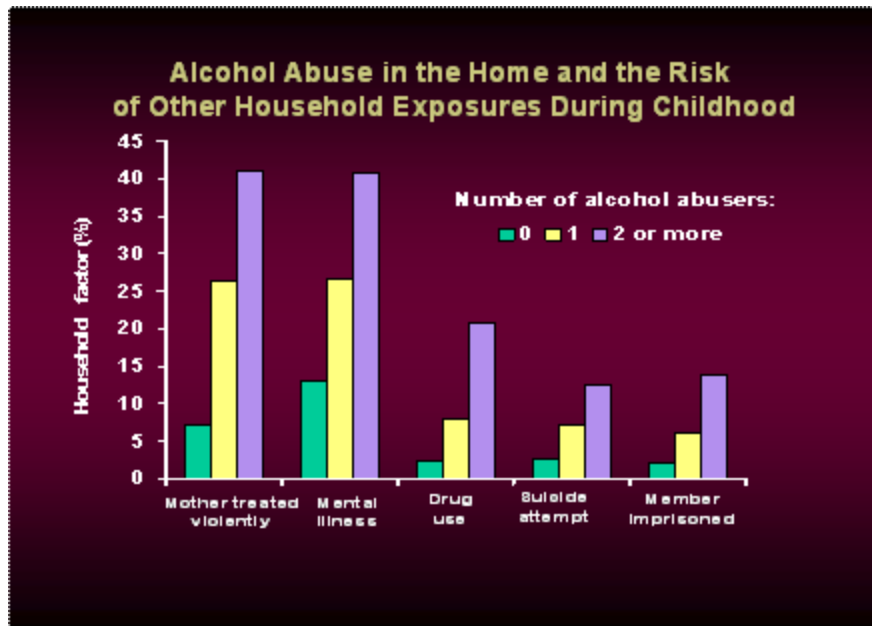


Figure 4: Alcohol Abuse in the Home and the Risk of Other ACEs



Thus, we developed the ACE Score as a measure of the *cumulative* exposure to abuse, neglect, alcohol and other substance abuse, domestic violence and other forms of serious household dysfunction.^{1,13,36,38} Exposure to any ACE category counted as one “point” on the Score; the number of *categories* of adverse experience were then summed. The ACE Score therefore ranged from 0 to 10. The ACE Score indicates, in summary form, the amount of exposure to the ten categories of adverse experience in childhood and adolescence. Statistical analysis has confirmed that the observed number of respondents with high ACE scores was notably higher than the expected number under the assumption of independence of ACEs ($p < .0001$).¹³

We cannot emphasize this point too dramatically! In our ACE Study population with this large, well-educated group of HMO patients, *less than one-third* had an ACE Score of 0! And, *1 or 2 out of every ten adults seen* had an ACE score of 5 or more!

We found that ACEs are common, even in a relatively well educated population of patients enrolled in one of the Nation's leading HMOs.

More than 1 in 4 patients grew up with substance abuse and two-thirds had at least one ACE! More than 1 in 10 had 5 or more ACEs!

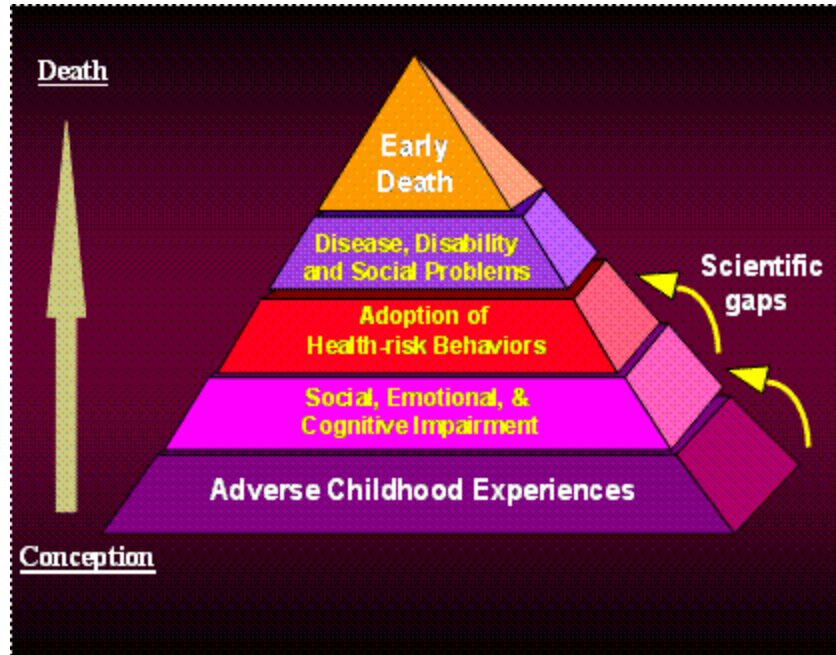
ACEs have a *Graded Relationship* to Numerous Health and Social Outcomes

The ACE Score can be seen as an indicator of the effects of cumulative stress on (neuro)development. It is noteworthy that the use of the ACE Score as a measure of the cumulative exposure to traumatic stress during childhood is consistent with more recent understanding from the neurosciences of the effects of traumatic stress on neurodevelopment.^{1,45} Neuroscientists have linked childhood maltreatment to long-term changes in *brain structure and function*, involving several inter-connected brain regions (e.g. prefrontal cortex, hippocampus, amygdala, corpus callosum, and cerebellum).⁴⁶⁻⁵¹ Early stress is also associated with lasting alterations in *stress-responsive neurobiological systems* (e.g. hypothalamic-pituitary-adrenal axis and monoamine neurotransmitter systems). These lasting effects on the developing brain would be expected to affect numerous human functions into adulthood including (but not limited to) emotional regulation, somatic signal processing (body sensations), substance abuse, sexuality, memory, arousal, and aggression.⁵²⁻⁵⁷

Without going too deeply into the process of brain development, one way to think of it is that we are born with “potential brains.” Brain development is a highly “plastic” process, responsive to a host of influences both *in utero* and beyond. This fact makes the lives of our developing children magical and wonderful, but it also makes them extraordinarily vulnerable to their experiences, potential trauma and stress during development. For example, the baby’s experiences and interactions with caretakers stimulate a variety of brain areas, and through this process a number of connections are forged in the baby’s brain. In those areas, the essential wiring in the brain becomes more complex and interconnected. This is called *arborization*. In addition, during early adolescence there is a parallel process called *pruning* in which connections that receive little stimulation are pruned away. In short, experience and interaction determine brain structure, and of course function. Stimulation is essential; neglect is detrimental. Even at two months old, nature has given us (some might say, “hard-wired” into us) some abilities to interact with caretakers so that the caretakers don’t lose interest. Brain development depends on it. So, one might say that experience becomes biology.

Take, for example, the well-known *fight-or-flight response*. It is possible to alter the development of this crucial survival response through the experience of trauma. Children at varying ages experience rapid brain development. Yet, with trauma, their developing brains are being flooded with a chemical response that’s built into them as mammals. When we are terrified, feel threatened, or experience trauma we have an inherent biological response that mimics an intense chemical storm. Our adrenal glands put out adrenaline and cortisol. In animal studies cortisol in high doses can kill nerve cells and disrupt the developing architecture of the brain. Extreme or repeated exposure to this mechanism literally alters brain development. -

The release of hormones and chemicals in the flight-or-flight response, if it’s *unpredictable* and *severe*, or if there are *many episodes*, or the experience is *chronic*, leads to **vulnerability** and we now know that kind of vulnerability is due to the effects of those chemicals on developing brain cells and the development of brain systems. If this experience is predictable or moderate, it can lead to resilience. We need to be stressed somewhat in order to be adaptable people and resilient. If, however, adverse experiences are unpredictable, severe, frequent, or chronic, then we talk about adverse childhood experiences, or ACEs. The model for this is a whole life model from conception to death.

Figure 5: Conceptual Framework for the ACE Study.

Numerous publications have documented a graded or “dose-response” relationship between the number of categories of ACEs (ACE Score) and a wide variety of health and social problems of national importance.¹⁻⁴¹ I consider the “dose-response” findings quite literally; the ACE Score appears to capture cumulative exposure of the developing brain to the activated stress response, which is the pathway by which ACEs exert their neurobiological impact. As the ACE Score goes up, so does the risk of problems from adolescence to adulthood. Hidden pathways of brain development, structure, and function mediate these risks and potential consequences.

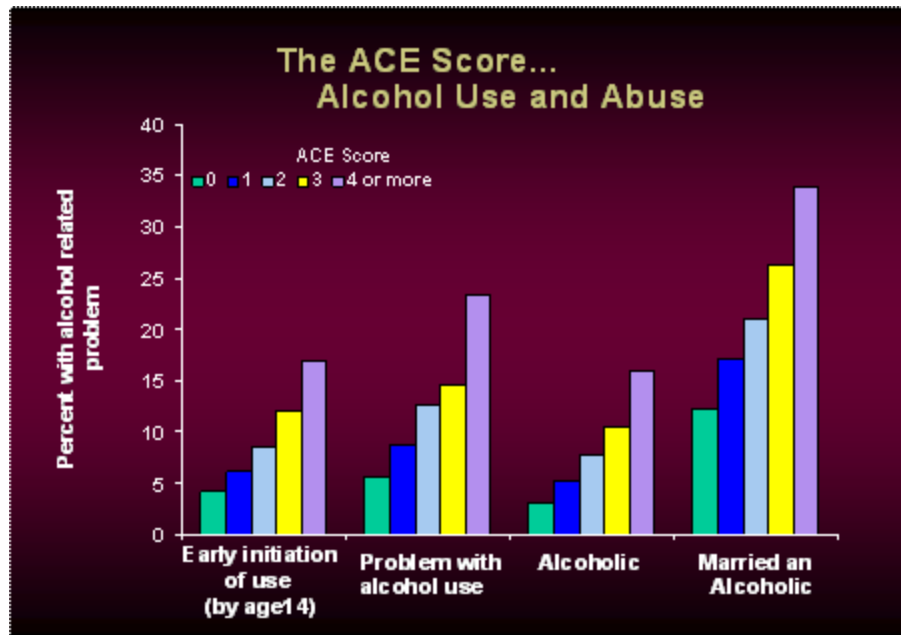
Let’s look at the relationship of ACE scores to a number of (negative) “consequences of interest” for purposes of elaboration.

Relationship of the ACE Score to Alcohol Use and Abuse

One of the strongest relationships we’ve seen is between the ACE score and alcohol use and abuse (Figure 6).^{2,25} Given recent research indicating the negative impact of alcohol use on the neurodevelopment of adolescents, the relationship of ACEs to early initiation of alcohol use is particularly worrisome. The negative health and social consequences of alcohol abuse and alcoholism constitute a major public health problem — and ACEs have a particularly strong association with alcohol abuse. In addition, it is notable that the perpetuation of the cycle of alcohol abuse appears to be tightly inter-woven with the number of ACEs, including marriage to an alcoholic.

A major finding in the ACE Study has been that **adverse childhood experiences are common and strongly associated with personal alcohol abuse later in life**; they account for a large proportion of adult alcohol abuse. They affect the risk of alcohol abuse regardless of parental alcoholism; but **for people with alcohol-abusing parents, adverse childhood experiences create a population at even higher risk**. These findings, taken with the tendency to marry an alcoholic, create a self-perpetuating cycle that puts the next generation at risk for both ACEs and alcohol abuse.

Figure 6.- Relationship of the ACE Score to Alcohol Use and Abuse

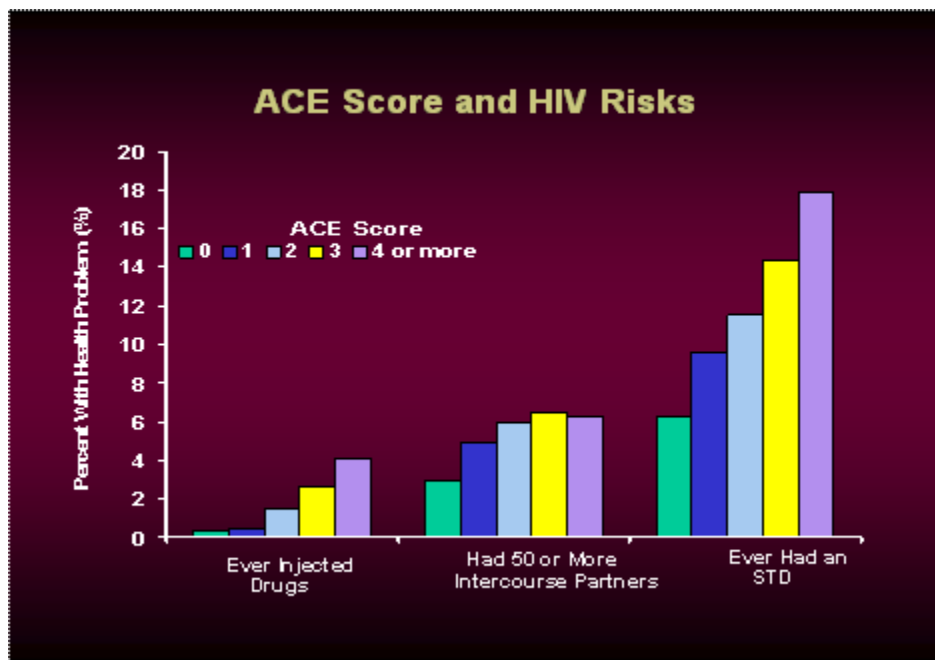


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The ACE Score and Risk Factors for HIV/AIDs

The risk factors for transmission of the Human Immunodeficiency Virus (HIV), the causative agent of the AIDS epidemic, are now well known. What appears to be less well known is that **ACEs are a major hidden “engine” underlying these preventable risk factors for the transmission of HIV** (Figure 7). Injected drug use, promiscuity (defined as having had 50 or more lifetime intercourse partners), and ever having a sexually transmitted disease (including AIDs), all increase dramatically as the ACE Score increases.^{11,16,29,35,38}

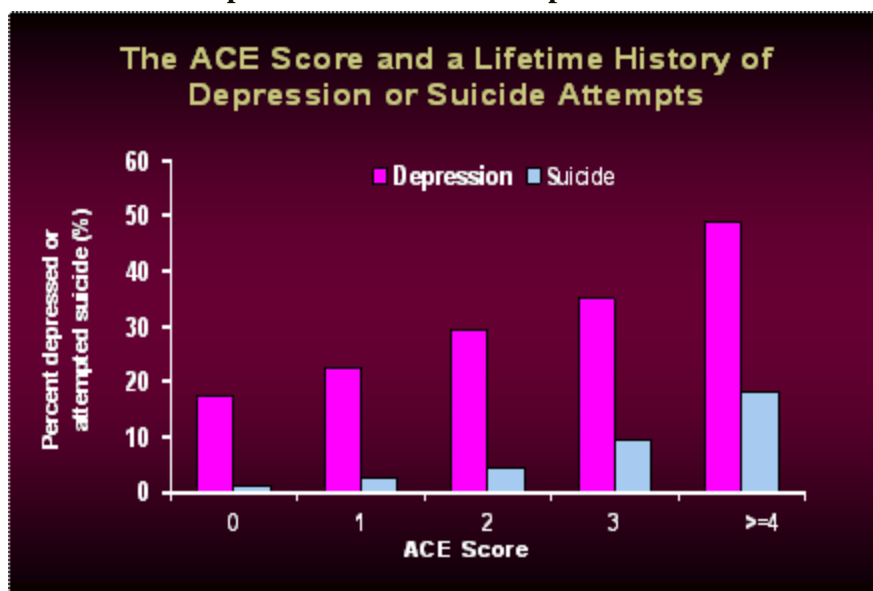
Figure 7: The ACE Score and Risk Factors for HIV/AIDs



ACEs, Depression, and Suicide Attempts (Figure 8)

Depression is now recognized to be a leading cause of disability worldwide, and ACEs bear a strong relationship to this common mental health problem; the relationship is equally strong for both men and women.¹⁵ Suicide is a leading cause of death in the US with a “bimodal” age pattern of attempts—one peak in adolescence and one in middle age. Here also, ACEs have a powerful graded relationship to the risk of suicide attempts; this holds for attempts by men and women and attempts during adolescence or adulthood.³⁴

Figure 8: Relationship of the ACE Score to Depression and Suicide Attempts



Similar graded relationships between ACE scores and other problems (e.g. smoking, chronic obstructive pulmonary disease) have been studied. It should be obvious that the long term human costs of ACEs are enormous and that the difficulties associated with these problems also translate into costs of health care, disability, and

social services. Let's turn briefly to two examples where the costs — in economic terms — are most obvious.

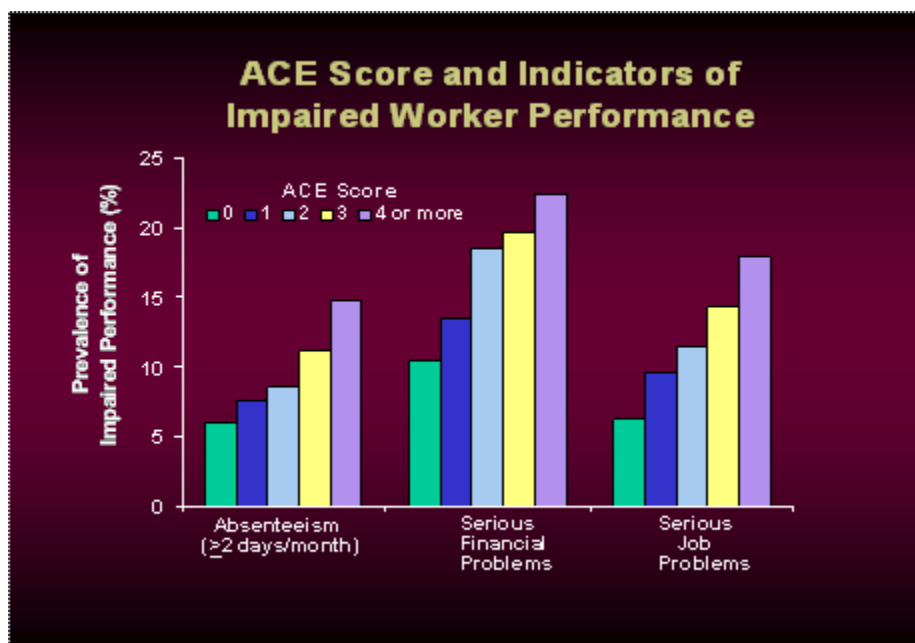
ACEs Affect Worker Performance

Inasmuch as ACEs affect the health and well-being of the workforce, they are a hidden drain on profitability for corporate America. The human and economic costs of the long-term effects of adverse childhood experiences on the workforce are likely major and merit attention by the business community in concert with the modern practice of medicine and public health. Recent studies estimated annual costs as high as \$28 billion for chronic back pain for US businesses,⁵⁸ \$30-\$44 billion for depression and related absenteeism, reduced productivity, and medical expenses,⁵⁹ and \$246 billion for chemical dependency in the workforce.⁶⁰ These massive losses occur despite safety programs and the most expensive medical care system in the world.⁶¹ If these areas are indeed related to the performance of the workforce, profitability of businesses and even national productivity are likely to be affected as well.

We now know that the mediating variable between adverse experiences and multiple risks is in the process of brain development.

Absenteeism, financial problems, and self-reported problems on the job are all indicators of impaired productivity that are expensive and are also indicators of ACE-related problems such as alcohol abuse, chronic pain, mental health disorders, and others. Figure 10 displays the relationship of ACEs to these indicators of reduced worker productivity.¹⁰

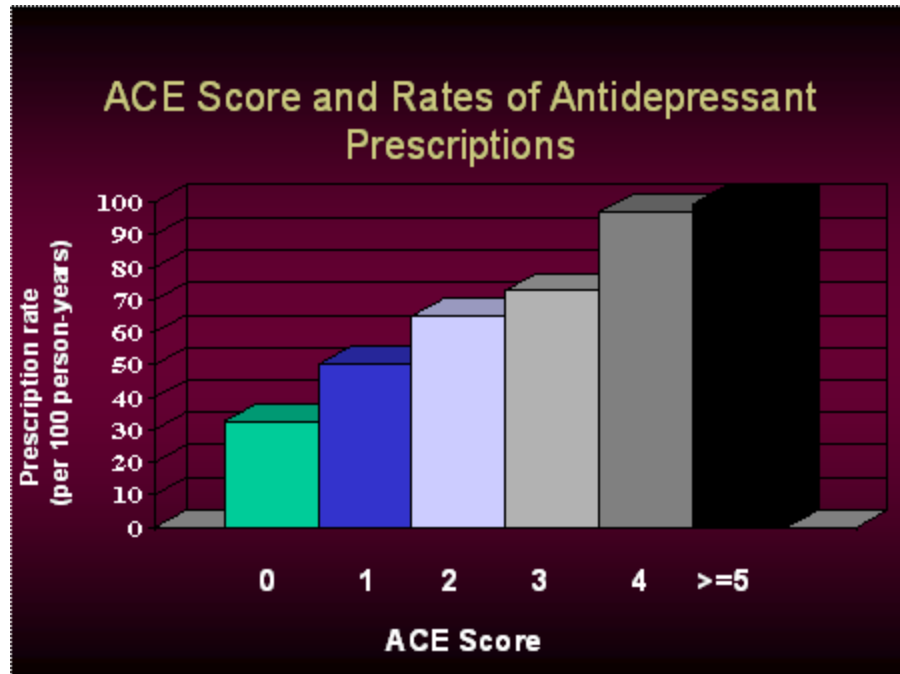
Figure 10: ACEs and Indicators of Impaired Worker Performance



ACEs and Direct Health Care Costs—Prescription Pharmaceuticals (Figure 11)

Nearly \$180 billion were spent on prescription drugs in the United States in 2003. This represents approximately 11% of total national health expenditures and was more than four times the amount spent in 1990.⁶² One of the most rapidly rising set of prescribed drugs is antidepressants.

Figure 11: The ACE Score and Rates of Antidepressant Prescriptions⁴



Given the results of the ACE Study, what are the human, social, and economic cost of the high prevalence, interrelatedness, and long-term consequences of Adverse Childhood Experiences?

Implications

The effects of ACEs are long-term, powerful, cumulative, and likely to be invisible to health care providers, educators, social service organizations, and policy makers because (a) the linkage between cause and effect is concealed by time, (b) there is an inability to “see” the process of neurodevelopment, and (c) because effects of the original traumatic insults may not become manifest until much later in life.^{1,3,36,38} Likely, ACEs will also remain hidden from directors of formation, spiritual directors, religious leaders and church authorities for the same reasons.

When a child is wounded, the pain and negative long-term effects reverberate as an echo of the lives of people they grew up with — and then they grow up, at risk for taking on similar characteristics and behaviors — thereby sustaining the cycle of abuse, neglect, violence, substance abuse, and mental illness. For example, ACEs greatly increase the risk of adult alcohol abuse or marriage to an alcoholic,²⁵ perpetuating a variety of adversities and their consequences.²⁸ Thus, growing up with alcohol abuse contributes to many of the leading chronic health and social problems in the United States. Alcohol abuse, trauma, and other adverse

childhood experiences remain the “hidden engine” behind a great deal of the pain in modern society and the costs, human and economic, of modern life.

Information from the ACE Study suggests that traumatic stressors during childhood and adolescence represent a common pathway to a variety of important long-term behavioral, health, and social problems. Thus, an integrated perspective on the origins of health and social problems throughout the lifespan is needed. This approach to alcohol abuse and related ACEs, and to the consequences of exposure to them, may unify and improve our understanding of many seemingly unrelated health and social problems that tend to be identified and treated as categorically separate issues in Western culture.

Alcohol abuse, trauma, and other adverse childhood experiences remain the "hidden engine" behind a great deal of the pain in modern society and the costs, human and economic, of modern life.

The ACE Score appears to be a robust measure of the cumulative, lifetime impact of traumatic stress on neurodevelopment in childhood. Stressful and traumatic childhood and adolescent experiences literally become “biology,” affecting brain structure and function (as well as endocrine, immune, and other biologic functions), thus leading to persistent effects. Until now, these persistent effects were “hidden” from the view of both neuroscientists and public health researchers, as well as from church authorities and the array of social science and developmental experts on whom they rely. This need no longer be the case! In fact, with this information comes *the responsibility to use it*.⁴⁰

These links between childhood experience and adult health and social function have significant implications for health, social, and pastoral services. We found that adults who reported any single category of adverse childhood experience were likely to have suffered multiple other categories of adverse experiences during childhood. Therefore, broad and inclusive assessment of exposure to other ACEs is important when working with children or adults identified as having had any single type of ACE. Children experiencing alcohol abuse in the home should be screened for other types of maltreatment and traumatic stressors — and vice versa! This information, if routinely gathered, will likely contribute to more meaningful diagnoses, earlier and improved treatment of exposed *children and their caretakers*, and better integration of prevention, social services, and legal venues.

Facing the high prevalence and interrelatedness of ACEs is going to be tough... for all of us. Single-category approaches to the individual ACEs, as well as the health and social problems strongly related to them, tend to be “siloed,” that is, gathered into single, competitive units with a myopic focus on their piece of the puzzle. Unfortunately, the professions, research priorities, organizations, and resources that are necessary for healing frequently exist in these “silos” — separate, often competitive rather than collaborative, entities with each one preserving and advancing the resources and work that is historically “theirs.” While this is understandable, if we are to succeed, we must make this, not “theirs” but “ours,” a team effort that reaches beyond traditional borders and boundaries.

Prevention and remediation of our nation’s leading health and social problems are likely to benefit from integrated approaches that incorporate information about their common origins in the enduring neurodevelopmental consequences of growing up with alcohol abuse and related adverse experiences during childhood.

ACE Website and Materials

For our readers' convenience it may be useful to access the ACE website and review many of the materials that are in the public domain. The web address is www.acestudy.org. In the **ABOUT US** box, you will find a number of other public presentations, PowerPoints, and printable documents to flesh out what you have learned from this essay.

There is also a simple 10-question *ACE Calculator* through which you can compute your own ACE score. It is available at www.acestudy.org/files/ACE_Score_Calculator.pdf
The Calculator is also attached below.

This website is reviewed in our **Updates** section of this special issue of *Guest House Review*.

Finding Your ACE Score

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While you were growing up, during your first 18 years of life:

1. Did a parent or other adult in the household **often or very often**...
Swear at you, insult you, put you down, or humiliate you?
or
Act in a way that made you afraid that you might be physically hurt?
Yes/No. If yes enter 1 _____
 2. Did a parent or other adult in the household **often or very often**...
Push, grab, slap, or throw something at you?
or
Ever hit you so hard that you had marks or were injured?
Yes/No. If yes enter 1 _____
 3. Did an adult or person at least 5 years older than you **ever**...
Touch or fondle you or have you touch their body in a sexual way?
or
Attempt or actually have oral, anal, or vaginal intercourse with you?
Yes/No. If yes enter 1 _____
 4. Did you **often or very often** feel that ...
No one in your family loved you or thought you were important or special?
or
Your family didn't look out for each other, feel close to each other, or support each other?
Yes/No. If yes enter 1 _____
 5. Did you **often or very often** feel that ...
You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you?
or
Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
Yes/No. If yes enter 1 _____
 6. Were your parents **ever** separated or divorced?
Yes/No. If yes enter 1 _____
 7. Was your mother or stepmother:
Often or very often pushed, grabbed, slapped, or had something thrown at her?
or
Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard?
or
Ever repeatedly hit at least a few minutes or threatened with a gun or knife?
Yes/No. If yes enter 1 _____
 8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?
Yes/No. If yes enter 1 _____
 9. Was a household member depressed or mentally ill, or did a household member attempt suicide?
Yes/No. If yes enter 1 _____
 10. Did a household member go to prison?
Yes/No. If yes enter 1 _____
- Now add up your "Yes" answers: _____ This is your ACE Score.**

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The True Nature of Preventive Medicine

Death



Birth



**Mechanisms By Which
Adverse Childhood Experiences
Influence Adult Health Status**