

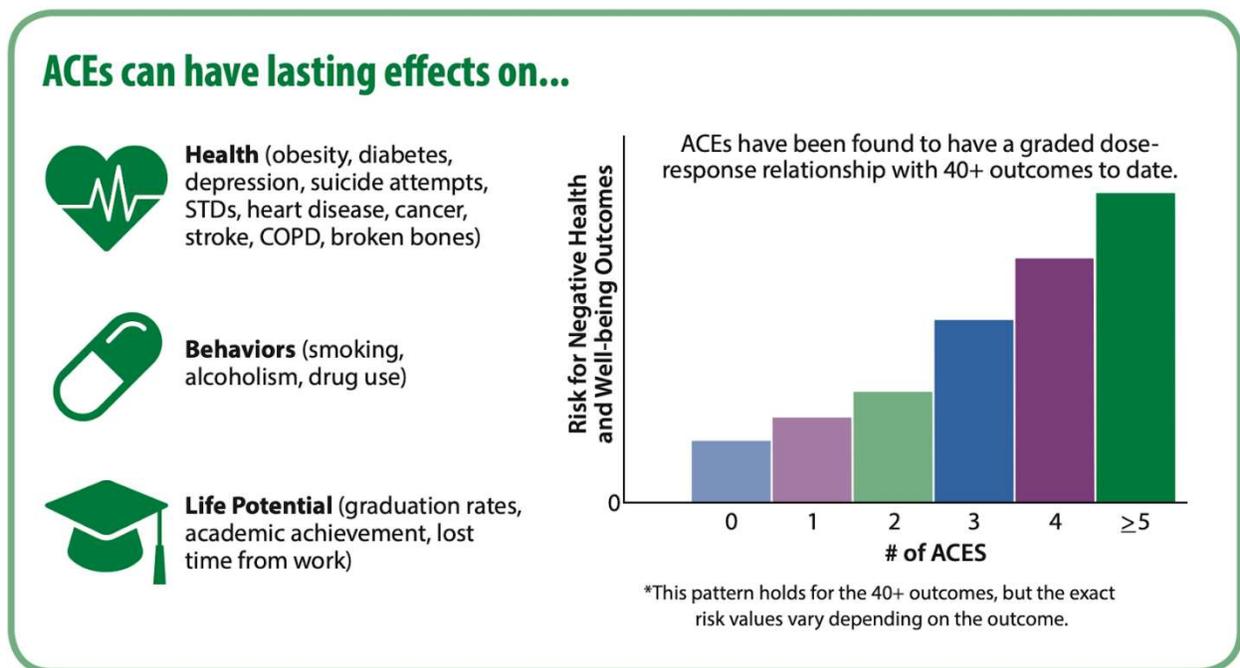
## Connection between ACEs and Addiction

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### Part 1: Introduction

The 10 ACEs of trauma are forms of physical/emotional abuse, neglect, and household dysfunction. ACEs include Physical abuse, Sexual abuse, Emotional abuse, Physical neglect, Emotional neglect, Mental illness, Divorce, Substance abuse, Violence against your mother, Mental illness, and having a relative who has been sent to jail or prison. In 2019, CDC scientists analyzed data from more than 144,000 adults in 25 states and found that 61 percent of them experienced at least one ACE.

ACEs is identified as the culprit for many individual problems and social problems. “A large and growing body of research indicates that toxic stress during childhood can harm the most basic levels of the nervous, endocrine, and immune systems, and that such exposures can even alter the physical structure of DNA (epigenetic effects). (<https://clearmindtreatment.com/how-adverse-childhood-experiences-cause-trauma-and-ptsd-to-people-into-adulthood/>)” The following chart details the detrimental effects entailed by ACEs.



[\(https://clearmindtreatment.com/how-adverse-childhood-experiences-cause-trauma-and-ptsd-to-people-into-adulthood/\)](https://clearmindtreatment.com/how-adverse-childhood-experiences-cause-trauma-and-ptsd-to-people-into-adulthood/)

As is shown by the above chart, ACEs have long lasting effect on people’s physical and mental health as well as substance abuse. This project explores the causes of ACEs, the connection between ACEs and addiction as well as other health conditions. With the help of Washington Tracking Network (WTN), this project also reveals unemployment as a predominant indicator of ACEs and advocates for social reengagement for certain social groups suffering from high unemployment rate.

## Part 2: What causes ACEs?

ACEs are partly genetic and partly environmental. Most ACEs involves stress response, mental and physical health disorders, which are largely determined by genetics. Emerging epigenetic research suggests stress response may be inherited by the next generation. One lab study using mice demonstrated evidence that response to a negative stressor may be an inheritable trait (Dias, B. G., & Ressler, K. J. (2014).) Certain genetic makeups and environmental stress make some groups of people more vulnerable to disinhibition and poor management of anger, stresses, and high ACEs. Due to genetic factors, both parents and children can be intolerant to stressors resulting in high ACEs, and both parents and children have related mental health issues including depression, anxiety, ADHD or ASD that put a lot of stress on each other.

Genetic factors also determine resilience level from both generations, “Genetic factors contribute significantly to resilient responses to trauma and stress. A range of human genes and polymorphisms associated with NPY, HPA axis, noradrenergic, dopaminergic, and serotonergic systems, and BDNF have been linked to resilient phenotypes (Feder, A., Nestler, E. J., and Charney, D. S. (2009).” With ACEs running high and resilience running low for both generations in the family, the trauma is bidirectional and partially hereditary, bringing the sheer level of ACEs to a high point.

Environmental factors triggering ACEs include financial stress, stigma, and social isolation.

When a person is under high stress, ACEs tend to be high. According to researchers Manyema, M., Norris, S. A., & Richter, L. M., adult life stress seems to be a mediator of ACEs and interventions targeted at psychological distress should address both early life adversity and contemporary stress (Manyema, M., Norris, S. A., & Richter, L. M. (2018)). With financial stress alleviated, ACEs level should drop correspondingly.

Social stigma is another stress that can trigger mental illnesses, thus raising the level of ACEs. Growing evidence shows that the stigma associated with multiple circumstances (e.g., HIV, mental illness, sexual preference) both disadvantages the stigmatized and is a major source of stress in their lives (Hatzenbuehler, M. L., Phelan, J. C., & Link, B. G. (2013)). Social stigma can be seen as a silent form of bullying.

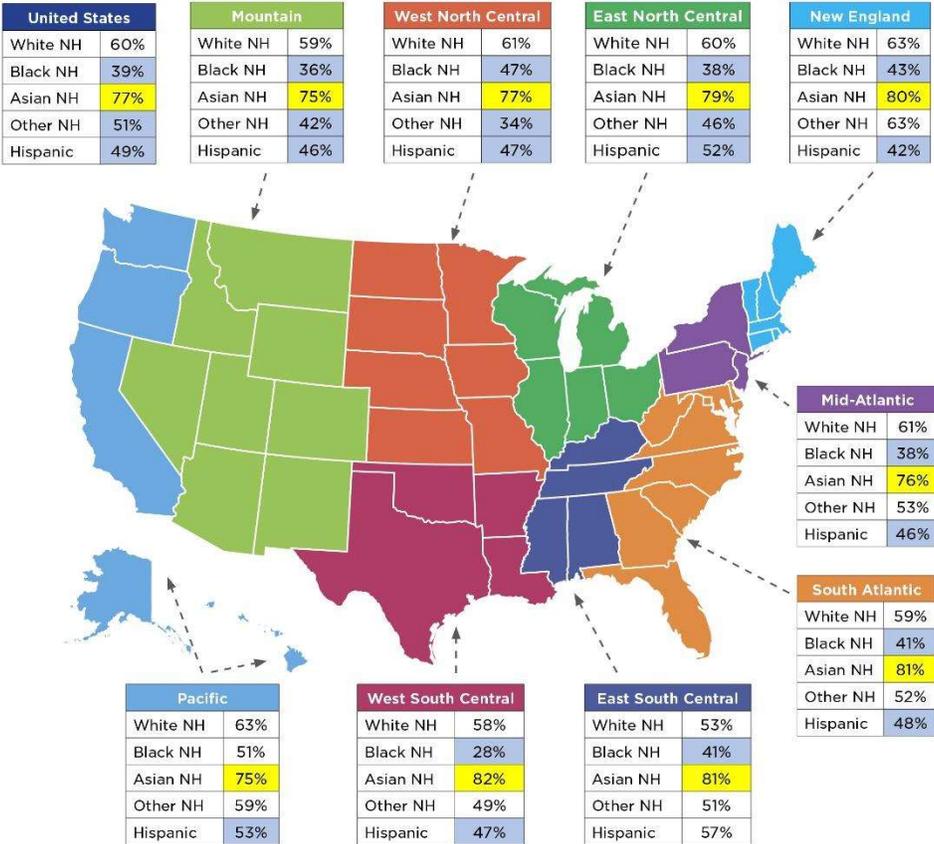
Social isolation is also a factor leading to high ACEs. Isolation results in more time of putting family members tightly together, increasing more opportunities of family conflicts, not to mention the negative effect for cutting contact from the society. Many parents feel challenged by students staying at home during long breaks from school. During pandemic lockdown, domestic violence and child abuse cases rocketed in the US (Bryant, D. J., Oo, M., & Damian, A. J. (2020)). When unemployed parents stay at home 24/7, there are much higher chances for the family to experience high ACEs (Bryant, D. J., Oo, M., & Damian, A. J. (2020)).

Unemployment as a form of social isolation is a hidden indicator of ACEs. On Washington Tracking Network (WTN), the social determinants of health dashboards have the following five measures: Education, Limited English, Poverty, Unemployment and Uninsured (<https://doh.wa.gov/data-statistical-reports/washington-tracking-network-wtn/social-determinants-health>). By comparing the 5 social determinants of health between Asians and Black people, this project finds that during the years 2014-2018 in Whitman, Washington, the biggest difference between the two races is unemployment rate, with Education and Limited English: N/A, with 37.2% Asians and 36.3%

Black people under poverty, with 6.5% Asians unemployed, while 29.8% black people unemployed, 2.8% Asians uninsured, and 4.5% Black people uninsured. For the five social determinants of health, Black people are consistently by far the highest on the Unemployment determinant. While they are also comparatively high on limited Education, Limited English, Poverty, and Uninsured, these four factors are not as indicative as unemployment, and some of the four factors are even lower than the other races, for example Black people are lower on the poverty determinant, meaning Asian People are even poorer than Black People in Whitman County between the year 2014-2018. The high unemployment rate of black people is echoed by the Labor Force ([https://www.bls.gov/web/empsit/cpsee\\_e16.htm](https://www.bls.gov/web/empsit/cpsee_e16.htm)). Labor Force Statistics from the Current Population Survey indicates black people have by far the highest unemployment rate than other races, with first quarter of 2022 unemployment rates as follows, 4.1% for total, 3.6% for white people, 6.8% for black people, 3.1% Asian people. 4.9% for Hispanic or Latino.

The high unemployment rate of black people corresponds to the high ACEs scores of Black children. The chart below (Sacks, V., & Murphey, D. (2018)) shows that the percentage of children with no ACEs is the lowest for Black children, meaning the Black children experience the highest scores of ACEs.

# Percentage of children with no ACEs



NH=Non-Hispanic  
 Yellow shading = Percentage is higher than white non-Hispanic children at a statistically significant level.  
 Blue shading = Percentage is lower than white non-Hispanic children at a statistically significant level.  
 Red shading = Estimate should be interpreted with caution, because the relative confidence interval is greater than 120 percent. See the "About the data used in this report" section for more information.

Based on the data shown on WTN and the ACEs prevalence data presented by Sacks, V., & Murphey, D., both high unemployment rate and high ACEs stand out glaringly for Black people. Is unemployment related to ACEs in some ways? The answer is yes, since unemployment is the biggest cause of social isolation.

It is very common and convenient for younger generation to blame the parent generation for causing their mental health problems and relationship hardship. While it is true that the parents causing and teaching ACEs should take the biggest blame, the parents might be the scapegoat in some sense because they themselves are victims, too. It is safe to say that stress, social isolation, and ACEs are just the three big hidden links or missing pieces between genetic makeups and addiction as well as other chronic diseases.

Part 3: How does ACEs result in Addiction?

Determination of the cause for addiction is of extreme importance because it determines where the social resources will be channeled to. If ACEs is the predominant root cause of addiction, then the predominant resources should be piped into ACEs prevention instead of addiction therapy, incarceration, drug controlling etc., which are devouring huge sum of money. Dr. Felitti put forward a revolutionary view, that the basic cause of addiction is predominantly experienced-dependent during childhood and not substance-dependent. This viewpoint challenges the mainstream conclusion that addiction is a chronic disease, partly determined by genetic make-up. "Our findings show that childhood experiences profoundly and causally shape adult life. 'Chemical imbalances', whether genetically modulated or not, are the necessary intermediary mechanisms by which these causal life experiences are translated into manifest effect... addiction is primarily a consequence of adverse childhood experiences... Addiction is not a brain disease, nor is it caused by chemical imbalance or genetics. ( Felitti, V. J. (2006))" . No matter how revolutionary the research sound, the ACEs origin theory of addiction proposed by Dr. Felitti can be said to belong to Environmental/Social Learning model which include two parts: surplus of stress and lack of education on coping with stress. Adverse Childhood Experiences are just Risk Factors for Substance Abuse and Mental Health, as is shown on WTN instead of a "basic cause" of Substance Abuse suggested by Dr. Felitti.

The loophole of Felitti's article is that the fact that most addicts happen to have high ACEs scores does not automatically make ACEs the cause of addiction. The same is also true that most addicts happen to have mental disorders and sleep disorders does not automatically make mental disorders or sleep disorders the cause of addiction. The question boils down to if ACEs is the cause, cooccurrence, or canary of addiction.

Although it is debatable if ACEs is the predominant root cause of addiction, ACEs can be a big piece of the puzzle of addiction. High ACEs lead to poor coping skills including addiction. The most primitive response to overwhelming stress is to cope with it the wrong way. With neglect going on, there lacks the healthy stimulation needed for development and mental health, the children will search for unnatural stimulants, meaning drugs to stimulate themselves. With abuse going on, there lacks the peaceful stability needed for development and mental health, the children will hunt for unnatural depressants to calm themselves down. When a child is under abuse and neglect, he or she uses drugs as a surviving mechanism, and they use "nicotine for moderating anger, anxiety, and hunger" ( Felitti, V. J. (2006)). Drugs should not be stigmatized in this sense.

Unhealthy coping skills fostered during childhood is most likely to stick with the person for the whole life, especially in the case of addiction and eating disorders. "Drug use at an early age is an important predictor of development of a substance use disorder later. The majority of those who have a substance use disorder started using before age 18 and developed their disorder by age 20. The likelihood of developing a substance use disorder is greatest for those who begin use in their early teens school. (NIDA. 2021, August 3.)" The video "Anonymous People"( <https://www.imdb.com/title/tt2571226/>) reveals that nine out of ten people with a substance use disorder (SUD) started using before the age of 18. Once coping skills like substance abuse are established at a tender age, they are very hard to reverse.

Part 4: How does ACEs result in 40 plus health conditions?

The same genes that make a person vulnerable to ACEs might also make a person susceptible to poor mental and physical health. But unhealthy lifestyles, addiction and chronic high stress hormones resulted from high ACEs play a big role in causing poor mental and physical health conditions.

Besides substance abuse, a person suffering high stress hormones coming from ACEs can develop eating disorders, especially overeating junk food. With easy and ready access to food, overeating is a big factor triggering or worsening chronic diseases. Over 70% doctor visits are for chronic diseases, most of which can be stemmed or improved by healthy lifestyles and can be triggered or worsened by bad lifestyles. Researchers have identified lifestyles like smoking, diet, and exercise as modifiable determinants of chronic diseases (Willett, W. C., Koplan, J. P., Nugent, R., Dusenbury, C., Puska, P., & Gaziano, T. A. (2006)). Take diabetes for example, “epidemiologic studies and randomized clinical trials show that type 2 diabetes is largely preventable through diet and lifestyle modifications” (Hu, F. B. (2011)). When there is overflowing stress and scant attention and stimulation in the child’s life, it is hard to moralize him or her into taking healthy lifestyles. It is our instinct to eat unhealthily and to be less active when we are under great stress and depression.

High ACEs leads to chronic high stress hormone which is directly linked to health issues. Hormone imbalances can activate opportunistic pathogens like herpes simplex virus and fungi. The fact that during pregnancy, menstruation, menopause, and puberty when people go through hormone imbalances, people suffer from specific health issues like gestational diabetes, hypertension, and infections. Stress hormone can also result in sleep problems, which can take a heavy toll on a person’s health. Stress hormones can lead to mental health problems like depression, “When children grow up under conditions of constant threat, all their internal resources go toward survival. (<https://www.nctsn.org/what-is-child-trauma/trauma-types/complex-trauma/effects>)”. With a person’s all energy consumed by stress, a person will surely suffer from low self-efficacy, which in turn leads to depression, another chronic disease.

#### Part 5: ways to combat ACEs and its effects

In order to combat ACEs and its effect, unnecessary stress should be reduced, education should be in place about ACEs, and families suffering from ACEs should be reengaged with the community.

Since stress is the culprit of causing ACEs, measures should be taken to reduce the unnecessary social stress and financial stresses. Social stresses can be in the form of stigma, social barrier, and discrimination against certain groups of people. With stresses reduced, ACEs will drop significantly.

There is also an urgent need for advocacy to raise the awareness of what ACEs is and especially the unrecognized ACEs as well as the damage of ACEs. Neglectful or abusive parenting can be attributed to lack of knowledge, lack of judgement, or lack of motivation. Many caregivers are exerting ACEs without knowing its nature, inadvertently hurting the child. People cannot automatically be a qualified parents without being taught and parents can be so young that the parents themselves are still children, knowing little about healthy parenting. Some forms of ACEs are everywhere, like failure to supervise the child’s voluntary sexual activities, failure to attend teacher parent conference without justification, and inconsistent parenting. With proper education, ACEs can be predicted to decrease significantly.

Another solution of reducing ACEs and addiction is to engage the family with the community. Many ACEs cases happen in the family where the parents are paid away to stay home by welfare system. It is

irresponsible for the government to just stop at dispensing benefits and welfare. Since “Idleness is the playground of evil”, it can breed depression and substance abuse, which might be the only source of company and gratification for the socially isolated people. As Mark Zuckerberg's Commencement advocates at Harvard, what the entrepreneurs should do is not to just donate money, but to create projects, or build a platform where their talents and energy can be harnessed and put into use. Reconnecting the family with the community can be done through employment and projects or programs that works around the family schedules. What Johann Hari said in his TED speech is highly relevant in this context, “If you're depressed or anxious, you're not weak and you're not crazy -- you're a human being with unmet needs (Hari, 2019). Hari also pointed that “disconnection is a major driver of addiction”, and “The opposite of addiction is not sobriety. The opposite of addiction is connection (Hari, 2015). By connection and engagement, a sense of self and purpose can be developed to boost resilience.

The project will be ended with a poem by Sara Holbrook who deals honestly with issues facing adolescents: school, divorce, anger, violence, love, friendship, and self-esteem. Through the following poem, Holbrook captures the joys, pains, and attitudes that preteens and teenagers feel. No matter how chaotic life is, growth is still happening.

Confused by Sara Holbrook

(Originally published in Am I Naturally This Crazy, Boyds Mills Press 1998)

Stacked and squashed.

Crammed and bruised.

My **bureau** looks a bit  
confused.

A soccer shoe, a music box,  
a china lamb,

five unmatched socks.

A magazine and candy wraps,  
an old stuffed dog,  
two baseball caps.

A Lego car, a compact disc,  
a watch, a comb,  
one bowl (no fish).

Its drawers are drooling everywhere,  
legs and sleeves and underwear.

Nearby a chair is nearly dressed  
with cut-off jeans and Sunday best.

Above it all

a stickered mirror  
reflects MY face.

I'm growing here!

#### Part 6: Discussion of the equity impact of the project

This project discovers that Black people in the Whitman County scores highest in unemployment which may be related to Black children's highest ACEs score. Reengaging people suffering from high unemployment through employment or other programs can boost their self-esteem, health, finance, and relationship and reduce the escalating ACEs, which in turn is a high risk for addiction. Social barrier including stigma should be dissolved to encourage them to go back to work or the community life.

## Part 7: Discussion of the significance of the project

This project comes up with a different theory about the cause of addiction than Dr. Felitti who proposes that ACEs is the basic cause for addiction. The basic cause for addiction is still genetic and environmental, with ACEs as the intermediary mechanism. This project rectifies the mainstream attitudes towards parents, who are deemed as the source of harm. This project argues that parents should not take all the blame for initiating ACEs. Three solutions are proposed for addressing the issues of ACEs, addiction, and other health problems: to ease the stress, to educate and engage the family.

## Part 8: A reflection on the project process

I wake up to a consistent formula for families with high ACEs level in my community: unemployment, living on benefits or social welfare and substance abuse. The approach that ACEs is partly genetic is half intuitive and half scientific. I read a lot of stories about people with ACEs who turned out to have some rare genetic diseases. One example is Hikaru Utada who suffered extremely high levels of ACEs in her childhood, and who creates a lot of ACEs when she gets older. She turned out to have Joint Hypermobility Syndrome, JHS, a rare genetic disease, which was attributed to ACEs she experienced in her childhood by the media. Similar stories abound. I am naturally drawn to stories like this. Genetic factor must govern both medical diseases and ACEs levels. The challenge of this project is to prove that ACEs is at least partially genetic. I am tired of people blaming their parents for their messy life and subject their parents to moral injury. I received assistance indirectly from Ms. Rachel Handley-Chartrand, who cultivates our awareness of social inequalities. My parents supported me with their unique views and advice.

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