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ACE's and Trauma in Education

Richard Santangelo
Bethel University

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RICHARD SANTANGELO

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Richard Santangelo

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Advisor's Name:_____Charlene Koel-Turner

Program Director's Name:__Katie Bonawitz, Ed.D.

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Thank You

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Abstract

The author of this paper has worked in special education since 1988, primarily with Emotional and Behavioral Disordered (EBD) students. Throughout the author's career there have been many conversations about why some students display EBD behaviors. Through many years of teaching and numerous professional conferences, it was not until January 2016 that the author heard about ACES. This piqued the author's curiosity. Dr. Felitti spear-headed a study in the mid-1990s out of a clinic in Southern California. As a practicing physician focusing on weight loss he began questioning clients about their social history. Felitti found that his clients experienced trauma in their youth. Thus ACES - Adverse Childhood Experiences, became a field of study. Since the original study countless other studies have yielded similar findings. The medical and scientific communities within the past two decades have given credence to Felitti's study and only now are understanding how trauma in childhood can affect one's social and physical development leading to health problems in adulthood.

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CHAPTER I: INTRODUCTION

In 1985 while in college with the summer months looming, the author did not want to spend the summer working the landscaping job he had worked since high school. Alerted to a new opportunity by a flyer advertising a summer camp located in the northwest corner of New Jersey near the Delaware Water Gap working with, "under privileged" kids from New York City, he interviewed and spent the next two summers at Trailblazers Camp. Unknown at the time, he would work with at risk kids as a career of over thirty years.

He learned that the best behavior technique ever - ever - at Trailblazer's Camp – is *night time*. This is relevant to the experiences of an EBD teacher dealing with behaviors for a long time. The campers could not bring flashlights, lighters, candles etc. The children who came to camp had never really been out of New York City. When the sun went down, so did the campers; afraid of a real forest, dark, and noises in the night, they did not get out of bed. Looking back on some of the behaviors, nothing stands out as anything that typical teenage boys would not do. If classroom EBD teachers had one trick like night time, they would not be leaving the profession.

Arriving at Trailblazers the new counselors spent a few days doing outdoor experiential team building activities with staff, which were a lot of fun. Next, training consisted of a trip into New York City to visit the neighborhoods where the campers came from and visiting the social services offices working with families that made referrals to camp. The term, "at risk" was known at the time, as of course was the word "trauma." The phrase, "Post-Traumatic Stress Disorder (PTSD)" was relatively new from the APA in 1980. This researcher certainly did not know the phrase. Although he had an uncle pass away in 1983 who was an Army veteran, fought in the Korean War, and was "different." Older relatives said he was, "shell shocked" from his experience in Korea. In time he would learn they are one and the same.

The author began working in public schools in the fall of 1988 for Intermediate School District 916, in the eastern metro area of St. Paul, Minnesota. He began as a paraprofessional in an EBD Federal Setting V program. That current setting is a self-contained setting IV program today. He worked with a wonderful teacher, and they were constantly busy. As he has reflected over the years as he gained more experienced, that class was a mix of EBD, Developmentally and Cognitively Delayed (DCD), and Autism students. The students staff struggled most with were not EBD students, but students who were not programmed appropriately.

This professional journey has gone from starting as a para, to case managing, starting an adult transition program, to lead teacher, and case managing again with students who are incarcerated. Interestingly, through all these years and having conversations with colleagues about how a student becomes labeled EBD, the focus was the always the nature versus nurture debate.

In February 2016 there was a conference on Somatic Interventions in Childhood Trauma, Grief and Loss. It was at this conference, fifteen slides into the PowerPoint that the author first became familiar with Adverse Childhood Experiences (ACES). There will be more on the ACES study in the next chapter. When the presenter started talking about childhood neglect and other trauma it was as if the author was finally gaining some understanding of the students he came into contact for so many years. Before the presenter touched on the ACES study more, they stated that "neglect" was the most powerful and damaging childhood trauma. The author found this statement intriguing. Could it really be worse than physical or sexual abuse? In the past few years, the author has dealt with teenagers who had been "Ukrainian Crib Babies" who spent their time in a crib, not getting hugged, held, or loved. These students proved to be very difficult. Most seem to have fetal alcohol syndrome, and did not appear to learn from the same repeated

mistakes. Later in this paper we will discuss how this experience on children can effect brain development, which affects emotional regulation, which in turn affects interpersonal relationships. These factors can lead to a higher ACES score, which can lead to risky behavior, which then can lead to an earlier death. Also, not all who experience "trauma" as a child react to it the same way (Michelfelder & Swoboda, 2012). Resiliency is a fascinating quality that will be touched upon later.

Dr. Vincent J. Felitti is a practicing physician in southern California. In 1998 the study he spear headed was published in the American Journal of Preventitive Medicine, titled, "Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults, The Adverse Childhood Experiences (ACE) Study (Felitti et al., 1998)." "ACE" is the acronym that Adverse Childhood Experience became known as, and is used throughout articles, studies and presentations on this subject. Felitti worked at the Permanente Clinic in San Diego, California. His work centered on clients trying to lose weight. Felitti was working with a female client who was able to lose her weight and get down to a healthy weight. However she would gain the weight back and this happened a few times. After one such occasion, she began dating, appeared to be doing well, met a man, and slowly all the weight returned. This scenario puzzled Felitti. It was at this stage, that Felitti changed his question to his patients. The question changed from, "What is wrong with you?" to, "What happened to you?" This is poignant, and is at the heart of understanding ACEs.

The study posits ACEs can result in physical and mental health issues in the adults who experience ACEs. The associations are important because it is now clear that the leading causes of morbidity and mortality in the United States are related to health behaviors and lifestyle factors; the factors have been called the actual causes of death. In so far as abuse and other

potentially damaging childhood experiences contribute to the development of these risks factors, then these childhood exposures should be recognized as the basic causes of morbidity and mortality in adult life. (Felitti et al., 1998).

When Felitti began to explore this female patient's social history he learned that she was sexually molested by her grandfather when she was a little girl. Felitti's conclusion with this case is that this patient gained weight so that men would not be attracted to her. When she lost weight, she was noticed and a negative pattern with men continued: gain weight, less attention.

Nuts and bolts of the ACEs study

The study began with a questionnaire sent to a large HMO in San Diego, CA between August 1995 and March 1996. The original study focused on seven categories of adverse childhood experiences. These included psychological abuse, sexual abuse, violence against the mother, living with household members who were substance abusers, mentally ill or suicidal family members, or having a family or household member incarcerated. It is only recently in the past twenty years that the medical community has begun to look at the damage that ACEs cause and how they contribute to adult health risks (Anda, Felitti, & Bremner, (2006).

The study was initially approved by the Institutional Review Boards of Southern California Permanente Medical Group, the Emory University School of Medicine, and the Office of Protection from Research Risks, and the National Institutes of Health. The questions asked were adapted from other established questionnaires such as the Conflicts Tactics Scale to help define psychological and physical abuse, and violence against the mother and questions to define sexual abuse during childhood. Drug and alcohol abuse during childhood were pulled from the National Health Interview Survey and Behavior Risk Factors Survey and questions about depression were adapted from the Diagnostic Interview Schedule of the National Institute of

Mental Health. It should be noted that the study results are academic, not sociological, in that the findings are presented primarily as numerical data sets, and that much of the original ACE survey was an exercise in statistics. This should highlight how universal this concept is as well as how paramount they are to understand.

There are seven abuse categories and seventeen questions on the ACEs survey. Felitti used standard academic statistical analysis, looking at age, race, gender and education. They then looked at the percentages and number of exposures to the seven abuse categories related to the prevalence of adulthood health risks such as cancer, suicide, depression, obesity etc. Out of Felitti's initial sample size at Kaiser Permenante, 9508 patients responded. Due to incompletes or otherwise invalidated results, a total of 8057 test results were used in the final analysis. Out of this initial analyzed sample, over half were women, almost three quarters were white, and slightly less than half were college graduates, while only 6% had not graduated high school. Of note from these results is that it does not show a marginalized or disenfranchised demographic, but rather the majority. That the ACE's relevance is not limited to the educated white middle class would later be shown by subsequent studies (Dube et al, 2001).

CHAPTER II: LITERATURE REVIEW

An important detail about ACE is that it distinguishes by category, not severity. A child enduring violence and a child enduring horrific violence are not differentiated. While this does not in any way denigrate the way in which differences in scale or extremity can compound already profound issues, it is rather to accentuate the synergistic effects that negative experience can have on one another. These two chains of effect are at the heart of ACE's and are perhaps the largest hurdle to understanding them fully. A child enduring physical violence and sexual abuse, however, are treated on a different scale. This is because the detrimental effects of ACE's are cumulative, not compounded, which is to say that in terms of treatment and pedagogical philosophy understanding ACE's is to craft an exponentially more intricate matrix of potential diagnosis, because this is in turn the most effective way to address them as treatable issues, rather than nebulous, "problem behaviors."

To understand why it is that such an academic distinction should be not only relevant but paramount to the field of ACEs, we need to understand the role that trauma plays in a child's development and what exactly trauma is. In general terms one hears or reads about PTSD, but it is important to understand how the modern medical community defines trauma and the lasting effects it has. This paper is not about PTSD, however, it is a place to start. The Diagnostic and Statistical Manual of Mental Disorders characterizes PTSD as having witnessed or confronted a serious threat to life or serious injury, the traumatic event persistently re-experienced, and persistent avoidance of stimuli associated with the trauma, demonstrated stress activated ticks, significant impairment in ones' life due to these symptoms, and lasting more than one month (American Psychological Association, 2013). When applying these criteria to special education settings the link becomes all too clear.

The 20th century saw unprecedented growth in fields such as medicine and science, and the access to education is no exception. As the scope of those educated – and expected to be educated – relentlessly expands the education systems are concurrently exposed to an ever expanding scope of potential problems that they are expected to be able to address as a matter of course. The days of a child deemed unfit for school and being haphazardly relegated to a lower echelon of society are in the past. More and more kids are going to school learning increasingly advanced pedagogies, and so it is difficult to think that our modern systems of schooling, childcare, and public health could still retain vast oversights. It is, in a fashion, this same brand of optimism that could perhaps blind educators and physicians to the insidious nature of ACE's. That precisely because of the intricacies of modern day science, poorly understood issues are somehow not worth dealing with, instead of constituting evidence of very real blind spots in the medical system. Research into ACE's shows this to be the case.

Not only is modern scholarship revealing that ACE's are more prevalent than previously thought, but their causal and predictive link to potentially severe medical problems is only just now being uncovered. This is a tragedy. Remember that ACE is essentially scientific slang for child abuse, and that their commonality represents not the existence of such abuse, but the breadth and variety of different forms of abuse on demographics commonly thought peaceable and civilized. Imagine, as example, a medical community in which the field of oncology was reduced in all its complexity to simple cancer treatment, wherein all cancer patients are treated by the same specialists, in the same manner, regardless of stage of affliction, malignancy, or affected bodily systems. Imagine further still the shock and horror that may follow if such ignorant people learned in due course the true nature of their condition, and how vastly underserved they were. Such is perhaps an explanation for the broader elision of therapeutic

research that surrounds ACEs. The communities affected are in effect being invited to acknowledge a heretofore unprecedented scope of tragedy.

Dr. Felitti touches upon this in his original study, opening the report by claiming, "Only recently have medical investigators in primary care settings begun to examine associations between childhood abuse and adult health risk behaviors and disease," (Felitti et al., 1998). Such an oversight is astonishing in its implications. Imagine one expressing surprise at the link between health and food quality, or sanitation and epidemiology. That the long term effects of child abuse are essentially a blind spot to modern science, medicine, and education is almost unthinkable. And yet the literature points to this, with the ACE's study going on to say, "To our knowledge, the relationship of adult health risk behaviors, health status, and disease states to childhood abuse and household dysfunction has not been described," (Felitti et al., 1998). All the more alarming are the indications of how large an effect this research has on the general public. Understanding that behavior and lifestyle are so strongly related to causes of death and debilitation, ACE's "…should be recognized as the basic causes of morbidity and mortality in adult life," (Felitti et al., 1998). Though the gravity should by now be apparent, it bears repeating that according to the original data, more than half of respondents reported at least one ACE, with more than a fourth reporting two or more. Research has also shown that scoring a four or higher on the ACE test can place someone as much as twelves times more likely to develop life threatening conditions, such substance abuse and self-harm (Felitti et al., 1998).

Dr. Miles Drake cites historical perspective on PTSD. He claims PTSD symptoms of physical break down and mental illness were recognized by the ancient Egyptians. Also cited is Herodotus, a Greek historian, who in the 5th century BC noticed the incapacitation of soldiers who were otherwise in good physical health. In the 17th century, German and Swiss military

physicians identified two illnesses they described as soldiers experiencing "Melancholy, weakness, anxiety, insomnia, palpitations, and incessant thoughts of harm." Closer to home is the American Civil War, before the term PTSD was coined inexplicable illness was called a "Soldiers Heart." After World War I the term "shellshock" was used, due to incorrectly attributing symptoms to concussions caused by large weapon explosions. Even Sigmund Freud discussed what he called, "Combat Neurosis," believing that a soldier had an internal conflict between his "War Ego," and "Peace Ego." World War II and Korean War PTSD survivors had "Combat Fatigue," though rest failed to alleviate symptoms. The term PTSD was coined in the 1980 as research into trauma advanced (Drake, 2017). This leads us to how trauma is viewed today and how it pertains to ACES.

An important aside on the topic of PTSD in historical context is that it is in every regard an ancient problem. There is no novelty to childhood trauma in much the same fashion that there has not been new forms of crime invented since the days early humans wandered out of Africa. Broadening psychological scholarship into the root and branch of childhood trauma is not an innovation in any way besides nomenclature. Rather modern ACE terminology gives those concerned a more efficient toolset for laboring amongst age old scourges.

In their article The lifelong effects of Early Childhood Adversity and Toxic Stress, (Shonkoff et al., 2011) researchers posit that our country has invested in early childhood education in a positive and constructive way. The focus is on sound and vocational education. Why? The world is complex and we are ever more globally connected. We want to produce a workforce able to contribute to society and function as overall healthy adults and the link between this goal and early childhood health and well-being is tangled, but increasingly appearing to be inextricably linked. Returning again to the theme of ACEs as a philosophical

paradigm shift rather than a medical or scientific breakthrough, it bears reiterating the complexity of how the various strains of medicine, wellness, and education intertwine. While ideally involvement of a child in one system should not preclude involvement in another, this is a practice likely to continue so long as the underlying purposes of these systems fail to be analyzed with sufficient intensity. Should education be viewed as a vocational training for mass market capitalism, and medicine be viewed as a crisis management tool, there will be inevitable gaps in how these systems address the vulnerabilities of children.

Shonkoff and his team claim this focus on childhood education needs to be on reducing adverse childhood experiences. These authors, as well as others who have explored the ramification of ACE's, have shown that such factors affect physical and mental health well into adulthood in both a medically and statistically significant way. Shonkoff et al. (2011) claims that adult illness and health issues stemming from ACE's are to be understood as developmental disabilities, as this framework is more illustrative of how such conditions arise and how they can be effectively treated. This should also be seen as a transformational shift in the study and perception of developmental health.

There are physical effects of ACE's as well, beyond the social impacts that may be more readily apparent. Donna Nakazawa chronicles several concrete physical realities that can adversely affect children who experience trauma growing up (Nakazawa, 2015a). The first is known as an epigenic shift. If a child or adolescent experiences consistent, frequent, high stress situations, methyl grouping can adhere to genes that regulate stress in the brain (Nakazawa, 2015a). It is known as "gene methylation." This effectively resets the body's reaction to HIGH for life. Yale researchers found children with this condition showed changes across the entire genome (Nakazawa, 2015a).

The size and shape of the brain is affected as well. Chronic toxic stress can release a hormone that will physically shrink the hippocampus, which regulates emotion and memory. This form of negative stimuli can also result in a damaging form of neural pruning. Microglia are non-neuronal brain cells that are part of the immune system and participate in developmental neural pruning. Chronic Stress can lead to microglia hyperactivity, which in turn can cause nueroinflammation. In addition, the telomere cells that protect genomes from erosion are inhibited by toxic stress (Nakazawa, 2015a).

ACE's and trauma also take root by damaging the brains connectivity, the brain-body pathway, and the default mode network. The default mode network is a sort of 'idle' state for the brain which processes thought and memory, which is degraded by stress chemicals, as is the overall brain connectivity. Stress hormones and the chemicals released during a panic can, over time, damage the synaptic connections between neural tissues, especially in young, developing minds. Furthermore, unlike as was previously thought, the brain is not isolated from the immune system (Nakazawa, 2015a). What this means is that the rigor and strain a body's immune system subjects a body to is subjected to the brain as well. Essentially, this is to say that chronic stress is even more damaging than previously thought.

The developments and function of the brain is dependent upon biological and environmental experience. Since the original ACE study there have been numerous studies that support Felitti and Anda's original assertion; there is evidence that "Neurobiology and epidemiology suggest that early life stressors such as abuse or related adverse experience can cause enduring brain dysfunction that affects health and quality of life throughout adulthood" (Nakazawa, 2015a). Multiple studies as well have independently verified similar long term physical detriments due to childhood abuse (Corso, Edwards, Fang, & Mercy, 2008).

Adding to the tragedy of ACE research is the general bias our society puts on individuals with visible and self-destructive coping mechanisms, which in turn acts as a barrier for more productive social responses. In a prosaic footnote to Dr. Felitti's original study, he stumbled quite by accident on a correlation between severe obesity and childhood sexual abuse. He relates that, "Every other person was providing information about childhood sexual abuse. I thought, 'This can't be true. People would know if that were true. Someone would have told me in medical school,' (Stevens, 2015)." But no one did tell him, because the information simply was not known or disseminated. The complete reasons for this are more complex than this paper could even summarized, but literature surrounding early ACE studies yield certain insights.

First is the attitude of the patients themselves. The link between adult health hazards and childhood trauma was obfuscated in part by the fact that these same risk factors were often elective actions taken by people to whom they were coping mechanisms. In the case of Felitti, "These people were 100, 200, 300 pounds overweight, but they didn't see [it] as a problem. To them, eating was a fix, a solution (Stevens, 2015)." Herein the example of severe obesity was considered merely a side effect of eat to self-medicate for various reasons. As the focus of the medical community was so heavily invested in addressing weight itself as a problem, it failed to take into account that its lack of success was more accurately attributed to a focus on a symptom rather than a cause. This roundabout linkage is typical of ACE research, and it shows how far our health and wellness industries have yet to go.

Robert Anda and Vincent Felittli go on to support the impact of ACEs in their article titles, "The Enduring Effects of Abuse and Related Adverse Experiences in Childhood," (Anda, Felitti, & Bremner, 2006) in which they cite numerous other studies that have since been done in

an attempt to verify and legitimize the conclusions the Felitti's original ACE study, and provides copious evidence in the form of data and tables to support this.

Scientists know that when we are born we have a huge amount of brain cells, more than we need, which are pruned later in life (Nakazawa, 2015a). The pathways through which the brain cells communicate continue to develop throughout childhood. Childhood experiences affect the way these pathways grow both in adverse and positive ways. A child needs to feel safe when confronting and learning to deal with stress. A nurturing caregiver can provide for the child healthy responses in which a brain pathways develop in healthy ways. This in turn is what provides children with healthy coping skills as an adolescent and adult. Conversely, when an infant or child experiences chronic stress their worldview develops differently. Continued activation of the stress response system can also produce disruptions of the immune or metabolic systems resulting in a lifetime of greater susceptibility to physical and mental health problems. This is overt confirmation of the danger of ACEs articulated as the results of a study.

The state of Minnesota conducted an ACE study in 2011 using the Behavioral Risk Factor Surveillance system (BRFSS) developed by the CDC in 2008 (Baum, Peterson-Hickey, Ayers, & Smith, 2013). General findings are that MN ACE study results were consistent with the original ACE study and other statewide studies in Washington, Wisconsin, Oklahoma, and Iowa (Gumundson et al, 2013). Results fall along predictable lines; adults with high ACE scores are more prone to adverse and difficult circumstances in adulthood, while impoverished and statistically disenfranchised minorities are in turn much more likely to have high or excessive ACE scores.

The Minnesota Student Survey is administered every three years. It began in 1989 with grades 5, 8, 9, and 11. The survey questions look at attitudes, behaviors, and health. Also

addressed are protective factors that look into connectedness at school, family, and community and risk factors such as drug, alcohol, violence, and victimization (Baum, Peterson-Hickey, Ayers, & Smith, 2013). The Minnesota Student Survey was conducted in 2013 statewide in Minnesota. Factors such as health, school change, race, education, renting, and gender can correlate to a higher ACE score. Other possible ACEs are alcohol and drug use, sexual promiscuity, mental health problems, physical health, sleep disruptions, suicide, running from home, delinquent behaviors, and antisocial tendencies (Baum, Peterson-Hickey, Ayers, & Smith, 2013).

When confronting trauma in children at school it is important to know who experiences trauma and how it can affect learning. Research supports that trauma can interfere with brain development (Nakazawa, 2015a). School personnel who have an understanding of the effects trauma has on students can change a perceived negative culture into a supportive and nurturing learning environment.

We know from the ACE's study that between one half and two thirds of school age children have experienced some form of trauma (Felitti et al., 1998). A survey conducted in Los Angles of 769 students, 76% of students witnessed violence involving a knife or a gun. Of 119 seven year olds studied in Philadelphia, 75% had heard gun shots (McInerney & McKlindon, 2014). We understand that trauma affects learning, social interactions, behaviors and development, and that trauma has lifelong consequences (Armour, 2007).

Reacting to this is a holistic way requires more than suppressing a cultural bias against obesity, as was the case when Dr. Felitti first attempted to present his research to the medical community. There needs to be a vast shift in the way our society understands and proactively address problems of wellbeing. In the same fashion that telling one who eats to alleviate a

pathological fear of intimacy that they should simply eat less to lose weight, understanding ACEs demands more than lip service and increased funding to special education departments. ACEs affect people on such a base level that to be effectively treated calls for unusually broad spectrum approaches. Understanding childhood trauma as a medical issue with a very real physical counterpart to asocial behavior and therapeutic needs is a task that our society has yet to fully realize. A large part of this is simple complacency. "[We have] tended to treat the abuse, maltreatment, violence and chaotic experiences of our children as an oddity instead of commonplace… [We believe] that these experiences are adequately dealt with by *emergency* response system" (Stevens, 2015). Emergency systems being everything from foster care and special education plans to medical emergency responses. This is not proactive, and as a method of responding to issues as complex as ACEs are woefully short.

What Can Schools Do?

An important and often misunderstood aspect of ACEs is that while there has been research indicating that certain types of trauma are more prevalent or demand more immediate attention, it remains that each distinct *type* of trauma represents a serious concern. A child currently enduring physical or sexual abuse requires intervention and aid as soon as possible which is more pressing and intricate when compared to if a child's mother, father, or another caregiver is incarcerated. What understanding ACE allows healthcare providers, educators or anyone else concerned with children's wellbeing to do is recognize that the absence of fire does not mean everything is safe.. Parental incarceration has been independently verified as a source of childhood trauma distinct from others, and according to ACEs theory is as much deserving of attention and reconciliation for the long term damage that it can do to a child. The insidiousness of this and other less 'obvious' ACE's is that they are a side effect of multiple, society wide

problems that defy easy or one note solutions. Parental incarceration not only disrupts home life, interfering with school and inhibits the growth of social skills dependent of domestic stability, but also exposes children at an early age to the darker sides of the judicial and penal systems. Though it is not comparable to a child in immediate physical danger, there is damage to be done by placing someone in a position to be told that their family members are at odds with authority, and that the law is meant to take their loved ones away. This is to say nothing of the unsavory effects that incarceration itself can have and how that can trickle down into childcare.

A major focus is to bring about great emphasis on trauma informed schools. The idea is to change the mindset or paradigm of a school culture to not re-traumatize students and children. Trauma affected students can act out, break school rules, be punished and furthermore, fail to learn. Often this cycle repeats, feeding evermore into the school to prison pipeline. Perhaps one of the more tangible complexities of this issue are parental visits. To allow incarcerated caregivers and family members the opportunity to see they children is a gesture of humanity, both hoped and alleged to benefit both sides. Irrespective of crime, if a child wishes to see their father, they should be allowed to do so. This idealism runs against the reality that prisons are not fun places. They are not meant to be fun and family friendly, not necessarily should they be so. How then does the child of an inmate, perhaps as young as a toddler, process the experience of such a place? Visiting a parent in prison can be traumatizing to a child even if it makes the adult feel better. This problem can be ameliorated to an extent. There can be efforts made to make prison interiors less aggressively intimidating. Rules and regulations for family visits can be revised with the health of the children in mind, such as allowed more space to move around and relaxed restrictions on physical contact. What any sort of renovation clashes against is that this becomes a judicial issue more than a health and wellness one, and the reform of the penal system

is a Gordian knot unto itself. This interdisciplinary complication again highlights the gravity with which ACE's should be regarded, and just how much is to be done in order to make headway on these issues (Arditti & Salva, 2013).

The fundamental shift is not asking a student, "Why did you do that?" but, "What happened to you?" Of course, developing relationships with students is key, but phrasing the question differently can move the desired outcome to a new, different and healthier direction. Trauma informed schools are about creating a safe and supportive learning environment. It is exposing and training staff to understand and recognize that there are reasons behind acting out, shutting down, sleeping, absenteeism, chronic complaints, etc. There still need to be consequences for misbehaviors; however, processing and working on protective measures with students can help avoid exacerbating problems.

There are several trauma-informed models that have been developed. Dr. Sandra Bloom, from Drexel University in Philadelphia developed the Sanctuary Model, which is a broad collection of techniques and teachings aimed at the gradual creation of trauma-informed spaces within different social organizations (McInerney & McKlindon, 2014). Trauma informed approaches are not only for schools, but clinics, treatment centers, correction facilities, can all benefit from these models. The National Child Traumatic Stress Network has also laid out its own approach to crafting trauma informed programs.

Trauma specific interventions –which involve getting the individual help and addressing family needs- are also seeing number of treatments. Some examples are Trauma Focused Cognitive Behavioral Therapy (TF-CBT), and Cognitive Behavioral Intervention for Trauma in Schools (CBITS) (McInerney & McKlindon, 2014).

Trauma Informed Approaches

Research and data show that childhood maltreatment can lead to poor health and early death in adulthood. Researchers now believe that chronic childhood trauma can affect the development of the brain (Anda et al., 2005). They also believe that toxic trauma situations in childhood can potentially have irreversible changes in the interrelated brain circuitry (Shonkoff et al., 2011). Secondly, researchers have data to support that childhood ACE increases the risk of future health problems such as diabetes, obesity, drug and alcohol abuse, and sexual promiscuity. Third, researchers have evidence that ACE's can affect social development, cognitive development, and emotional development (Porche, Fortuna, Lin & Alegria, 2011).

ACE surveys have been conducted in the states of Washington, Iowa, Oklahoma, Minnesota, and Wisconsin, and the results have established trends suggested in Felitti's initial study (Baum et al., 2013). In part one of Nakazawa's series of ACE's she discusses the scientific verification of how the brain can change when someone is under chronic toxic stress. Part two of the series explore eight ways one can recover from the damage done by trauma (Nakazawa, 2015b). She posits that by understanding the ACE's in your life it is easier to be free of them and begin to heal. Knowledge is power; being that one has suffered and the reasons why one has suffered years and potentially a lifetime of anxiety and depression are often the first steps to undoing it.

The first step suggested that the one should take the ACE questionnaire and –critically- share the results with a healthcare provider, or trusted caretaker. Quoting Felitti, "Sharing the results of the survey helps to normalize the conversation about ACE's and their impact on our lives" (Stevens, 2015).

A second step is known as Writing to Heal, a form of therapeutic journaling. It is a technique developed at the University of Texas. The assignment was for four days, writing twenty minutes of your deepest emotions and thoughts related to the "emotional upheaval that has influenced most of your life." When students completed the assignments their grades went up and that with adults who completed similar work, doctor visits decreased. Research suggests that this type of writing can improve health (Nakazawa, 2015b).

Nakazawa also writes that there is research showing that people who practice mindfulness meditation and mindfulness-based stress reduction show an increase in the gray matter of the brain which has been shown to be damaged by ACE's (Nakazawa, 2015b). She gives the example of breathing meditation, but notes that the practice is not limited to a single exercise. Yoga has also been shown to be able to decrease the flow of the chemicals to the amygdala, the brains alarm center, and can increase blood flow to the frontal lobe of the prefrontal cortex. The practice can also increase gamma aminobutyric acid, a chemical alleged to "improve brain function, promote calmness, and helps to protect from depression and anxiety" (Nakazawa, 2015b)

When these sorts of individual practices are not enough, as they often are, one needs to seek professional help through therapy. Nakazawa states that a skilled therapist allows a person's negative memories to become paired with a positive experience, which is, developing a positive relationship with someone they can trust and who accepts the damaged person as they are. Research indicates that they process of healing from ACE's can repairs circuits in the brain which control bonding and trusting others (Nakazawa, 2015b)

Electroencephalographic neurofeedback (EEG) is a clinical approach to dealing with damage from ACE's. Electrodes are connected to the scalp and the brain is viewed for activity.

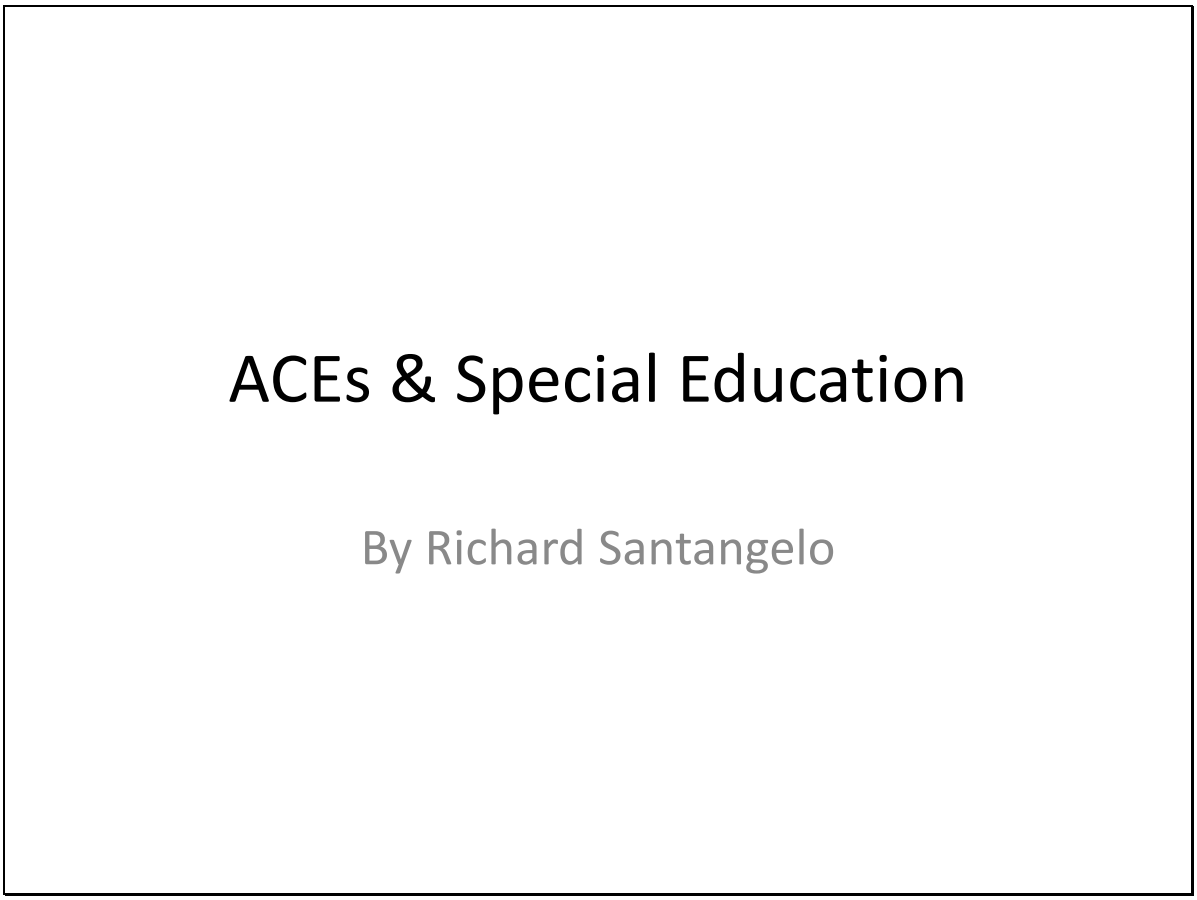
Inhibited or stress-damaged portions of the brain are visible as low activity zones while healthy portions are seen as bright and vibrant. This technology is used in visualization exercise coupled with professional therapy to help individuals understand the effect ACE's have had on them (Nakazawa, 2015b).

Another supplementary technique is Eye Movement Desensitization and Reprocessing Psychotherapy, which gets individuals to remember painful experiences safely and relate those memories to those that do not cause pain. A therapist may ask a patient to move their eyes back and forth following a wand of pattern of lights, which simulates REM sleep and promotes healing. A final step suggested by Nakazawa is to rally community healing. Research has shown that when we feel connected, when we are befriended and find support with like-minded people or those with similar experiences, when we find we are not alone, the connections fosters healing and growth.

Trauma informed approaches in schools, much like ACE's themselves are a burgeoning field of study. The scope of this paper, or any single source could not attempt to survey the complete range of methods used to treat childhood trauma in the same manner that medicine and education could not be so addressed either. However, this thematic truncation should not be viewed as a dearth of information on treatment options. Much of what ACE research and practice consists of is connecting existing knowledge with areas in need to ensure that as a community, school and clinicians are the most able to heal those afflicted.

CHAPTER III: POWER POINT PRESENTATION

Slide 1



Slide 2

10 Types of ACE Trauma

- Personal
  - Physical Abuse
  - Verbal Abuse
  - Sexual Abuse
  - Physical Neglect
  - Emotional Neglect
- Parental
  - Alcoholism
  - Domestic Abuse
  - Incarceration
  - Mental Illness
  - Absense

https://www.ncjfcj.org/sites/default/files/Finding%20Your%20ACE%20Score.pdf

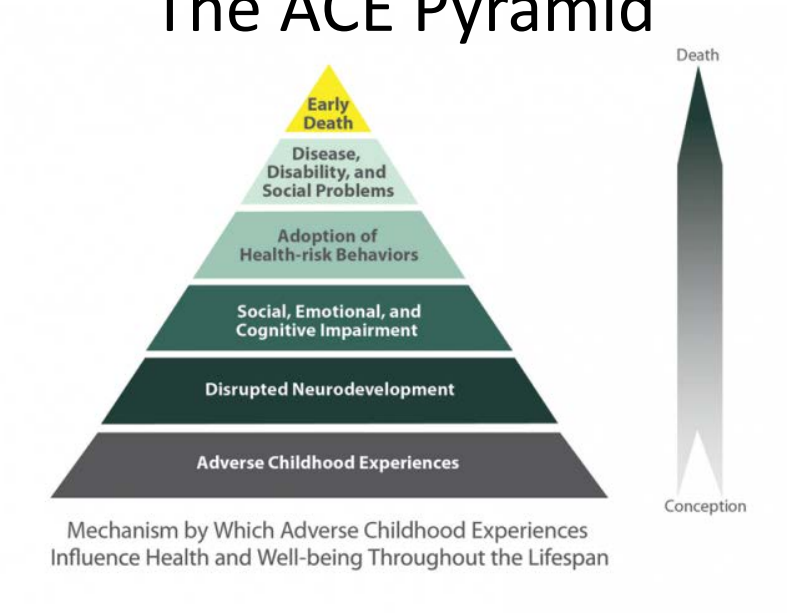
Slide 3

Origin[1]

- Pioneered by Dr. Felitti and Dr. Anda in CA over 20 years ago
- Previously unstudied link between severe obesity and childhood trauma
- 17,000+ surveyed at Kaiser Permanente
- Resulted in the discovery that childhood trauma is far more common and dangerous that previously thought.

Slide 4

The ACE Pyramid



https://www.cdc.gov/violenceprevention/acestudy/about.html

Slide 5

Effects[2]

- ACEs have been strongly linked to many chronic health conditions in adults, such has
  - Heart disease
  - Lung Cancer
  - Autoimmune Disease
  - Depression
  - Violence
  - Suicide

Slide 6

Demographics[3]

Demographic Information for CDC-Kaiser ACE Study Participants, Waves 1 and 2.

Demographic Information	Percent (N = 17,337)
Gender	
Female	54.0%
Male	46.0%
Race/Ethnicity	
White	74.8%
Hispanic/Latino	11.2%
Asian/Pacific Islander	7.2%
African-American	4.5%
Other	2.3%
Age (years)	
19-29	5.3%
30-39	9.8%
40-49	18.6%
50-59	19.9%
60 and over	46.4%
Education	
Not High School Graduate	7.2%
High School Graduate	17.6%
Some College	35.9%
College Graduate or Higher	39.3%

Note: Research papers that use Wave 1 and/or Wave 2 data may contain slightly different reports of participants' demographic information.

Slide 7

Prevalence[4]

The prevalence estimates reported below are from the entire ACE Study sample (n=17,337).

Prevalence of ACEs by Category for CDC-Kaiser ACE Study Participants by Sex, Waves 1 and 2.

ACE Category	Women Percent (N = 9,367)	Men Percent (N = 7,970)	Total Percent (N = 17,337)
ABUSE			
Emotional Abuse	13.1%	7.6%	10.6%
Physical Abuse	27%	29.9%	28.3%
Sexual Abuse	24.7%	16%	20.7%
HOUSEHOLD CHALLENGES			
Mother Treated Violently	13.7%	11.5%	12.7%
Household Substance Abuse	29.5%	23.8%	26.9%
Household Mental Illness	23.3%	14.8%	19.4%
Parental Separation or Divorce	24.5%	21.8%	23.3%
Incarcerated Household Member	5.2%	4.1%	4.7%
NEGLECT			
Emotional Neglect[3]	16.7%	12.4%	14.8%
Physical Neglect[3]	9.2%	10.7%	9.9%

Note: [3]Collected during Wave 2 only (N=8,629). Research papers that use Wave 1 and/or Wave 2 data may contain slightly different prevalence estimates.

ACE Score Prevalence for CDC-Kaiser ACE Study Participants by Sex, Waves 1 and 2.

Number of Adverse Childhood Experiences (ACE Score)	Women Percent(N = 9,367)	Men Percent (N = 7,970)	Total Percent (N = 17,337)
0	34.5%	38.0%	36.1%
1	24.5%	27.9%	26.0%
2	15.5%	16.4%	15.9%
3	10.3%	8.5%	9.5%
4 or more	15.2%	9.2%	12.5%

Note: Research papers that use Wave 1 and/or Wave 2 data may contain slightly different prevalence estimates.

Source: Centers for Disease Control and Prevention, Kaiser Permanente. The ACE Study Survey Data [Unpublished Data]. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2016.

Slide 8

Major Ideas[5,6,7]

- ACEs are common
- ACEs are poorly understood
- ACEs can be treated effectively

Slide 9

“WHAT HAPPENED TO YOU,” NOT “WHY DID YOU DO IT”

Slide 10

Where does this leave us?

It is impossible to “save” every single child, but we can make the number of kids we fail as small as possible.

We need to reckon with the fact that all too often our special education facilities are just a dumping ground

Slide 11

What Can Be Done?

- There is always food in the morning
- Strive not to suspend
- Social skills groups

Slide 12

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CHAPTER IV: DISCUSSION AND CONCLUSION

Discussion

The authors' experiences working with ACE's and trauma began quite by accident and resulted in several decades of first hand practice in the education of children and youths with varying learning disorders and disabilities. While initially this was in the more recreational setting of a summer camp, the irrefutable effects that a change of scenery and genuine care had on at risk child would in time transition into a professional career. It was not until several decades into this career however, that the concept and terminology of ACE's were introduced. As a conceptual framework and educational tool, ACE's are quite new, stemming ultimately from the groundbreaking work of the physician Dr. Vincent Felitti (Anda, Felitti, & Bremner, 2006). A renowned medical researcher, his field of study was once with the severely obese and weight loss. It was not until he inadvertently discovered the correlation between extreme, perpetual weight gain and childhood trauma that the medical community at large began to study and observe the causal link between childhood adversity and adverse health conditions and practices as an adult. As has now been borne out by the research, the ramifications of abuse, be it sexual, physical, verbal, exposure to dangerous practice, or chronic neglect are incredibly far ranging and long lasting. That this strong, positive correlation is so prominent while concurrently so poorly understood is a tragic oversight that in whatever small way this paper can alleviate.

ACE's as we understand them today are derived from the results of a single study in the mid-nineties. While investigating what psychological factors were barring his patients from keeping off excessive weight gain, he would customarily interview them on the medical history and lifestyle. He is said, anecdotally, to have become flustered while asking a female patient details about sexual practice and misspoke. His misspoken question, which was taken at face

value, eventually revealed to him that this patient had been the victim of sexual abuse from a very young age. Continuing his inquiry with other patients, he uncovered this was a recurrent theme in the majority of patients of the weight loss clinic at which he worked. As research progressed, it came to be understood that extreme, and persistent obesity of the sort on which he worked was often a psychological coping mechanism to unresolved adverse childhood experiences, from which we draw the acronym (Felitti et al, 98).

There exist several caveats that must be discussed in conjunction with ACE. The biggest intellectual hurdle is that they are indicators of type rather than scale. This is important beyond clinics and laboratory because understanding formative trauma as a widespread and near ubiquitous occurrence is what allows us to determine how best they are to be treated. ACE's are not a purely medical issue, neither by nature or application, and their treatment or resolution, as the research bears out, must be from cultural and society coalitions. Much akin to the typical lament that new generations want everything fast and easy, there is a documented behavior of medical providers and educators attempting to address ACE's in patients and students by incredibly one sided and counter productive strategies. What this essentially becomes is understanding that disciplining an unruly teenager is not a solution for problematic behavior, but refusing to discipline merely because their asocial acts are the product of trauma they cannot control is equally counterproductive. Addressing deep seated trauma and formative ACE's can potentially require coordinated efforts by parents, educators, therapists, and physicians, or at least approaches combining methods form education, therapy, and modern medicine. This is due to childhood trauma manifesting itself in all sorts of areas or life, often in as-yet-not-understood ways (Sitler, 2009). There are physical effects of persistent psychological abuse, in the same way as there are psychological effects of physical abuse, and as such when we as an establishment

decide that unravelling the damage that has been done to our children, solutions must be holistic and wide reaching. A further unfortunate sidenote is that this may mean convincing that some of the most vulnerable of us are even worth saving. In a "Do-It-Yourself" culture like the United States, it has become so easy to see obesity as a refusal to exercise, or poor behavior in school as contempt for authority. They can be. But they can also be markers of very tangible medical conditions which we have the technical knowledge to fix.

Perhaps the easiest way to understand the impact of ACE research is this; instead of asking, "What's wrong with you?" we should ask, "What happened to you?" Never to say that there should not be consequences for unacceptable behaviors, but that professionals working with vulnerable populations should be trained to recognize warning signs as what they are. Just as a doctor may be trained to ask about smoking, drinking or sexual habits in certain ways because of what we understand about their links to health concerns, educators should be trained to react to classroom disruption, absenteeism, and other triggers as potential signs of abuse (Oneill, Guenette, & Kitchenham, 2010). Much as a whiskey nightcap is on its own not a problem but might reveal other alcoholic tendencies, a child acting out may not be being abused, but if they are, it is something the people close to them should be trained to see.

Trauma informed approaches follow that general line of thought, with the additional emphasis on holistic methodology. Among the most basic tools is simply making educators and other professionals aware of ACE's and providing them with the ACE questionnaire, as it is one of the easiest and most simple ways to conceptualize potentially actionable information (Holm-Hanson, 2014). It should be stressed however that this is merely a survey tool and though it may at times be used by physicians for varying purposes, to simply let a child take the survey is not on its own a productive step. When coupled with therapy, or other knowledgeable healing

practices, it can be a useful tool for articulating different manifestations of trauma. There are also further techniques, often in the realm of therapy and psychology for addressing differing types of trauma and there is no universal approach. The most critical ingredient is for the people in responsibility to be aware.

Conclusion

Although ACE's has given me insight and a vocabulary to talk about difficult students, damaged students remain challenging to work with. No matter how much understanding one has in ACEs, one challenging student can easily sabotage a classroom and fluster even a the most seasoned teacher and get them to rethink their career choices. As heartbreaking as it is to see, damaged students file through the door each day, they stay the same age and the professionals just get older. The experience of working with special education students, I believe can be exceptionally rewarding, though curiously we don't see many older EBD teachers. What gets us through are the relationships we have had with colleagues and students. Compliments are few and far between. However, when years later you run into a student who has a family, acknowledge their past behavior in your room and they say, "I don't know why you put up with me." Sometimes you even get a "Thank you."

A social worker friend of mine in a St. Paul elementary trauma informed school voiced to me, "I don't care how informed you are, at the end of the day these kids are still hard." Being informed is not enough. The school, and the staff, all need to buy in. There are those who by acknowledging trauma get discouraged. I have even heard such comments as, "Ok, so since there's trauma, does that mean there's no consequences?" Of course not. The understanding of ACEs in context must be dealt with. But a school, district, state, and nation all need to buy into it. This means that support is available. Support for the teacher, the classroom, the students, and the

family. To be effective staff and community resources need to be in place. Conversely, I work with incarcerated teens. The majority have an Individualized Education Plan, and are usually EBD. Of note is that my students are in bed by 10 pm, wake by 7 am, are fed regularly and if they are medicated, are ensured to take their meds. Although incarcerated, which is a trauma on its own, my students are regulated. Many are having success in school for the first time. It appears obvious that students who come to school dysregulated from a dysfunctional household will have problems.

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APPENDIX A

Adverse Childhood Experience (ACE) Questionnaire

Finding your ACE Score ra hbr 10 24 06

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

1. Did a parent or other adult in the household **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** …
   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
   Try to or actually have oral, anal, or vaginal sex with you?
   Yes No If yes enter 1 _____

4. Did you **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** 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 pushed, grabbed, slapped, or had something thrown at her?
   or
   Sometimes or often kicked, bitten, hit with a fist, or hit with something hard?
   or
   Ever repeatedly hit over 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

https://www.ncjfcj.org/sites/default/files/Finding%20Your%20ACE%20Score.pdf

APPENDIX B

https://www.cdc.gov/violenceprevention/acestudy/about.html

ACEs Definitions

All ACE questions refer to the respondent's first 18 years of life.

- Abuse
  - **Emotional abuse:** A parent, stepparent, or adult living in your home swore at you, insulted you, put you down, or acted in a way that made you afraid that you might be physically hurt.
  - **Physical abuse:** A parent, stepparent, or adult living in your home pushed, grabbed, slapped, threw something at you, or hit you so hard that you had marks or were injured.
  - **Sexual abuse:** An adult, relative, family friend, or stranger who was at least 5 years older than you ever touched or fondled your body in a sexual way, made you touch his/her body in a sexual way, attempted to have any type of sexual intercourse with you.
- Household Challenges
  - **Mother treated violently:** Your mother or stepmother was pushed, grabbed, slapped, had something thrown at her, kicked, bitten, hit with a fist, hit with something hard, repeatedly hit for over at least a few minutes, or ever threatened or hurt by a knife or gun by your father (or stepfather) or mother's boyfriend.
  - **Household substance abuse:** A household member was a problem drinker or alcoholic or a household member used street drugs.
  - **Mental illness in household:** A household member was depressed or mentally ill or a household member attempted suicide.
  - **Parental separation or divorce:** Your parents were ever separated or divorced.
  - **Criminal household member:** A household member went to prison.
- Neglect[1]
  - **Emotional neglect:** Someone in your family helped you feel important or special, you felt loved, people in your family looked out for each other and felt close to each other, and your family was a source of strength and support.[2]
  - **Physical neglect:** There was someone to take care of you, protect you, and take you to the doctor if you needed it[2], you didn't have enough to eat, your parents were too drunk or too high to take care of you, and you had to wear dirty clothes.

[1]Collected during Wave 2 only.

[2] Items were reverse-scored to reflect the framing of the question.