

HOW ADVERSE CHILDHOOD EXPERIENCES AFFECT ADULT LEARNING AT
BLACKHAWK TECHNICAL COLLEGE

Approved: Phillip DeBunty Date: 5-9-17

keywords:

ACEs, Adverse Childhood Experiences,
Adult Education, Stress, Brain Development
Blackhawk Technical College

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BLACKHAWK TECHNICAL COLLEGE

A Seminar Paper

Presented to

The Graduate Faculty

University of Wisconsin-Platteville

In Partial Fulfillment of the

Requirement for the Degree

Masters of Science

in

Education

Adult Education

by

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2017

Abstract

HOW ADVERSE CHILDHOOD EXPERIENCES AFFECT ADULT LEARNING AT BLACKHAWK TECHNICAL COLLEGE

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This paper explores how adverse childhood experiences can influence an individual's personal characteristics later in life. More specifically, this paper aims to discover what affect adverse childhood experiences (ACEs) have on the learning processes of the affected individual as an adult. This paper contains a proposal for a study that will both measure what percentage of students attending Blackhawk Technical College have had a high number (four or more) of ACEs and of those who do, what percentage of them are having academic difficulties? This paper examines whether there is a large percentage of technical college students that have both a high number of ACEs (Schüssler-Fiorenza Rose et al., 2016) and also have significant difficulties with the rigors of college (acestoohigh.com, 2014).

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Chapter One: Introduction

Stress and Early Brain Development

It is widely accepted that childhood is a time in everyone's life where growth and learning takes place. This infers that learning things when you are a child are much easier than when you are an adult. Though it is a humorous statement, the saying "You can't teach an old dog new tricks" actually has scientific backing behind it. (Harvard University, 2007) Brain development is a process that starts even before birth from the womb. Then after birth in the first few years of life there are several hundred neural connections that are formed *every second*. During this time of growth many of the functions needed to survive are formed such as vision, speech, and higher cognitive functions (Harvard University, 2007). The reason it is harder to learn the older you become is because of the way that young brain cells store memories differently than the brain cells in adults. Younger brains also have more active neurological pathways which makes it easier to learn and retain new information (news.bbc.co.uk). It has been suggested that stress in general can cause inflammation in the brain and can also have long-term consequences on cardiovascular health (JAMA Pediatrics, 2016). Stress can also have a huge impact on our hormone levels which can in turn affect our entire bodies (Bergland, 2013). When experiencing stress, the body releases a hormone called cortisol which can have severe detrimental results on the body. Increased cortisol levels have been shown to have links to memory and learning problems, lower functioning of the immune system, as well as an increased risk for depression and mental illness (Bergland, 2013). How this happens is that when a person is experiencing high levels of stress, their adrenal glands expels cortisol and other hormones into the blood stream which transports them throughout the body affecting many of the system's functions (Society for Endocrinology, 2017).

Wellbeing during childhood greatly influenced the odds of these things happening even more than psychosocial factors and general risk factors for these diseases like smoking, obesity, and high blood pressure. Interestingly enough, when comparing ACEs scores of people with obesity, depression, physical health in general in the state of Wisconsin, all of these risk factors increased in prevalence with an increase in their ACEs scores (JAMA Pediatrics, 2016). This means that the more adverse childhood experiences a person has, the greater the possibility that they will have depression, suffer from obesity, and be in poor overall physical health in general. It is clear that these adverse childhood experiences have a huge impact on a person's health. With that in mind, it is easy to understand how experiencing this stress during this time when the brain is still growing is the time where *any* kind of experience is going to have a lasting effect on a young person.

Adverse Childhood Experiences

It would be a wonderful world if all the experiences that everyone had were delightful, positive, and uplifting. Unfortunately, we don't live in a perfect world and bad things do happen. Some of these things are categorically worse than others. When a child experiences a traumatic event that contains the possibility of having negative, lasting effects on their health and well-being they are said to have had an adverse childhood experience (ACE). Not every negative experience that a child can have is considered to fall under this heading. There are many negative things that can happen that will not negatively affect the child in the long run. It is the ones that will have this long-lasting, adverse effect that we are concerned with.

Categorically speaking some examples of experiences that would qualify as being adverse are physical, sexual, and emotional abuse, physical and emotional neglect, mother

treated violently, substance misuse or mental illness within household, parental separation, or an incarcerated household member (SAMHSA.gov). These types of events would be traumatic for anyone to experience and would probably impact everyone regardless of when in their lives they occurred. Experiencing them in childhood however can have an even greater impact on the life of that person going forward. According to the journal Child Trends, one of the ACEs that affect the outcomes of a person the most is economic hardship (Sacks, V., Murphey, D., & Moore, K., 2014). In families that can't afford to provide basic life needs to their families it makes it much harder for the children to grow and mature in the normal way. As a child when you are learning about life and having experiences that will shape your entire life, it is understandable that having to worry about the survival of you and your family can have a dramatic impact on how your brain matures and how a person learns to process problems and life's experiences (Sacks, V., Murphey, D., & Moore, K., 2014). Also, when a person is continually fighting to survive financially it is very hard for them to get their way out of that metaphorical hole. It is challenging to get ahead in life when you are struggling just to survive. What should be evident is that when a child has to think about these kinds of things it is going to greatly affect the adult they may grow up to be (Sacks, V., Murphey, D., & Moore, K., 2014).

Effects on Learning

The available research leads one to wonder what effects that ACEs have on the developing brain? What may seem so obvious is that these ACEs can have a significant effect on the development of a child (Herzog, 2014). For starters, it has been shown that long term, ongoing stress of poverty, neglect, and physical abuse has been linked to the physical underdevelopment in the brain in the hippocampus and the amygdala (Herzog, 2014). These two

areas not surprisingly are the ones that are responsible for learning, memory, and emotion processing. To do this study, the researchers took subjects with varying levels of ACEs and scanned their brains with an MRI. Then they measured the hippocampus and amygdala in each and compared them (Herzog, 2014). It is very easy to see how underdevelopment of the actual physical brain itself can result in all sorts of bad outcomes for people who have experienced ACEs. This underdevelopment can affect the cognitive functioning abilities of the child as well as their ability to cope with negative or disruptive emotions. These people will undoubtedly have trouble in all learning aspects. Reading, writing, memorization, planning and executive functioning are just a few of the things that students need to be able to be proficient at to be successful (Herzog, 2014). This research suggests that those with a history of ACEs are going to struggle with all of these cognitive skills. That in turn will affect their self-esteem, their success in school, and once they get out of school with the kind of career they are able to obtain.

If these students struggle their whole lives to comprehend the material they are given in school, they might also act-out and resort to other off-task or negative activities. The very well-known Maslow's Hierarchy of needs also helps us to understand how important physiological and safety needs are to everyone. Maslow stated that there is a hierarchy of needs that every person strives to get met (McLeod, 2016). In his original theory, Maslow stated that there are five levels of needs that people can have: physiological, safety, belongingness, esteem, and self-actualization. The first two needs listed (physiological and safety) are what Maslow considered the basic human needs (McLeod, 2016). Maslow explained that people needed to meet these basic human needs first before they would be able to move on to the higher-level needs.

Physiological needs are things such as warmth, food, and water. Safety needs are things such as shelter, safety, and security. When we are talking about children having adverse

experiences growing up, these are actually instances of these physiological and safety needs not being met. Maslow would suggest then that individuals that are unable to have their basic needs met would be unable to ever move up and achieve the higher-level belongingness and esteem needs (McLeod, 2016). Though these higher-level needs aren't as crucial as the basic needs, they definitely important and play a huge role in the health and well-being of the person that is not achieving them. There is some literature that suggests that side effects of extreme adversity experiences as a child can also be seen a form of post-traumatic stress disorder (PTSD) (Dohrenwend, B. P., 2000). There are many documented symptoms of P.T.S.D. and they also have many debilitating symptoms that would easily affect the outcome of someone's life. These symptoms include flashbacks, nightmares, emotional numbness and avoidance of people, place and activities that remind them of the trauma, as well as difficulty sleeping, concentrating, and becoming easily irritated (Anxiety and Depression Association of America, 2016). When someone is afflicted with P.T.S.D. they are at an increased risk of developing things like major depression, substance abuse disorders, and nonspecific distress (Dohrenwend, B. P., 2000).

Other Negative Correlations

There has been a wealth of research lately that is pointing at there being a strong relationship between people with ACEs and substance abuse and behavioral problems. (SAMHSA.gov). They have also said that if these experiences continue while they are growing up that over time the child may resort to negative coping methods such as self-harm or again, substance abuse. Other negative outcomes that people with high ACEs scores have shown are increased chances of developing aggression, anxiety, depression, and an increased risk of suicide (Nurius, P. S., Green, S., Logan-Greene, P., & Borja, S., 2015). In addition to these unhealthy

coping mechanisms, many times the child will begin to show signs of resulting disease, disability, social problems, and even premature mortality. With all of these negative outcomes correlated with high ACEs scores, one might wonder what affect they have on people that stick it out and decide to try and be successful at college? In general, ACEs are found to be very widespread in working-age adults in the United States (Schüssler-Fiorenza Rose et al., 2016). This is especially true in young adults. These ACEs have been shown to be associated with all types of decreased support, health, and educational achievement. In fact, the higher a person scores on the ACEs test, the lower their overall mindfulness in general (Whitaker et al, 2014). In its simplest form this means that people with high ACEs scores have a difficult time just concentrating and being mindful of what is happening in the world around them. It is easy to see how someone who has been exposed to significant childhood trauma is going to have a more difficult time becoming a successful adult than someone who hasn't had such an exposure.

Statement of the Problem

What percent of college students have a significant ACEs score? The research would suggest because of the higher probability of chronic diseases as well as social and emotional problems that there will be a low percentage of college students that have high ACEs scores because usually the adverse childhood experiences will prevent these individuals from even getting to that level of education (acestoohigh.com, 2014). For the ones that do, how do the ACEs affect their learning? One might think that if they were able to overcome their life experiences and succeed academically to the point of post-secondary education, that they have developed successful coping strategies and resiliencies to put those experiences in the past and no longer need to work around them. This study plans to determine what percentage of college

students at Blackhawk Technical College have a high ACEs score and how does the learning of the ones that do differ from the students that have low ACEs scores?

Definition of Terms

Adverse Childhood Experiences (ACEs): are potentially traumatic events that can have negative, lasting effects on health and well-being (Felitti, V.J., Anda, R.F., Nordenberg, D., Williamson, D.F., Spitz, A.M., Edwards, V., & Koss, M. P., 1998).

Purpose of the Study

The first purpose of this study is to determine the percentage of technical college students that have had adverse childhood experiences. This will help to gain a better understanding of the student population as a whole. It will be useful for this study because knowing where people come from and what they have gone through makes it a lot easier to understand why they might be having difficulties as students and perhaps learn how to help them better succeed. The second purpose is to determine, of the students that have a high ACEs score, how many of them are struggling with academics and to determine how many of these students would benefit from extra help or accommodations in order to be more successful. The assumption would be that they all benefit from more help than students with low ACEs scores, but that is hard to say without a study such as this one.

Significance of the Study

This study is especially significant because it is being done on local technical college students. These students will make up a large portion of the working class in the local community. These students will play a huge part in our local businesses and economy. It is

important to understand them as well as possible so that they may be educated in the best ways for them. Shortly after the initial ACEs study, there were already people who could see the impact such childhood trauma could have on a community as a whole. As early as 1998, the American Journal of Preventative Medicine took notice of the studies being done so far and proclaimed the need for a public health response to those affected by the resulting “battered adult syndrome” (Foege, 1998). Time has only made these assumptions more valid and given us more evidence as to how communities affected by ACEs will need special care in order to succeed.

Delimitations of the Study

Because of the sensitive nature of the questions in the ACEs exam and also the personal nature of the information that we will be asking of the students -as far as their education is concerned, it may be difficult to collect a good set of data. There is a possibility of there being too few people that are willing to participate in this study. There is also the possibility of participants dropping out of the study if the subject matter becomes too uncomfortable for them. Authors Rosen, C., Grossman, L., Sharma, R., Mullner, R., & Dove, H. all agreed that the comfort level the subjects felt with the research procedures was one of the top three factors that contributed to their willingness to participate in research studies (2007). The other two factors that ranked as high as comfort was subject safety and the education that subjects with mental health conditions and their families received from administrators of the study (Rosen et al, 2007). Though this study does not intend on providing any additional education to these participants, their safety is not something that will be at risk. As the entirety of the study will just be questionnaire based, participants will never be in any danger.

Methods of Approach

This study intends to determine what percentage of students at Blackhawk Technical College have a high ACEs score and of those that do, how many of them feel that their adverse childhood experiences are still affecting their education as an adult. The study will take a random convenience sample of 50 students and first have them take the original ACEs test online (npr.org, 2015). Then the top 10 highest scores and top ten lowest scores will be compared to see how these two groups differ in their adult learning. To accomplish this, these two groups will fill out a separate questionnaire confidentially and only identify the person with what their ACEs score was at the top. The questions will cover things like what their grade point average is, how many hours they have to study per week, and how difficult they are finding the college experience overall. These questionnaires will attempt to assess how much their ACEs affect their adult learning. The suspicion is that the students that score the highest on the ACEs test, which means that they will have experienced the most adverse childhood experiences, will be the ones that are having the most difficult time being successful at college (SAMHSA.gov). It is suspected that the students with high ACEs will need to spend longer amounts of time on their studying, will be finding college to be more difficult, and potentially have a lower grade point average than the students with the lower ACEs scores. It is also suspected that if higher level colleges were polled, that the number of students with high ACEs would decrease; that the technical college level of adult education is probably the most common level of adult education in the people with higher ACEs scores.

CHAPTER 2: REVIEW OF LITERATURE

Adult Learning

Before we get too far into the ACE study and how that can affect people, it is important to discuss what adult learning is in general. The National Research and Development Centre for Adult Literacy and Numeracy describes adult learning as all of the learning that takes place in adulthood after leaving the formal education setting. This includes all formal and non-formal forms of educational training and results in new skills for the learner (NRDC, 2010). Though there are definitions that differ from this one, the common thread amongst all of them is that adult education is done of the learners' own choice. It is driven by an andragogy or "man-driven" process (Kearsley, 2010). Though it may not always feel that way to every adult learner, any schooling done outside of the secondary education level, or high-school, is done of their own volition. In the United States, every child from ages six to sixteen must participate in some sort of structured education be it of the private or public setting. There are exceptions that can be made for students whose parents have decided to homeschool their children, but everyone must receive an education of some kind (Reuters, 2016). This means that after graduating high school, all schooling from that point on is voluntary. This in most cases means that this education is being pursued because the individual wants to learn or at least wants to further their knowledge on a subject or gain a degree towards a career. This in theory makes the adult learner a lot more motivated to obtain this education. Another reason why adult learners are in general more motivated to learn is that they have to pay for this education with more than just their taxes. In fact, in the 2010-2011 school year, the National Center for Education Statistics (NCES) reported that the average cost for a year of undergraduate public college was \$13,564. This covered

room, board, and tuition. For private institutions, the cost for the same expenses was \$32,026 for a year. This is a significant expense, especially seeing how most degrees take several years to obtain. Though there are many different forms of financial aid available to collegiate students, there are not many people that are able to get it to pay for the entirety of this expense and when getting loans. These students eventually have to pay them back with interest. Because of this most students, especially the ones that are paying for college on their own, take this education seriously and do not sign up to do so lightly. Though some younger students may be getting persuaded to obtain a higher degree of education from their parents or outside influences, and might also be getting this education paid for by the same people, the number of students in this circumstance -that have a high ACE score, is fairly slim.

A Brief History of the ACEs Study

The American health maintenance organization Kaiser Permanente has run an obesity clinic for a number of years (Brooks, 2012). In the 1980's they noticed that the dropout rate of the program was about 50 percent. This was confusing because before they dropped out, all of the patients had been successfully losing weight. To analyze why this was happening, Vincent Felitti interviewed the people that left the clinic. What he discovered was that the majority of the people that dropped out of the program had been the victims of childhood sexual abuse (Brooks, 2012). The interview findings suggested that the weight gain was being used as a coping mechanism for the abuse. Many of the subjects explained that the weight gain made the offenders' sexual advances toward them decrease which made them more comfortable in the long run. After making this connection, Felitti decided to see how other adverse childhood experiences affected the outcomes of adults. Between 1995 and 1997 with Robert Anda, Felitti

conducted a study for Kaiser and the Centers for Disease Control and Prevention. They questioned 17,000 subjects who were mostly higher socio-economic status, white patients enrolled with Kaiser's HMO to see if they experienced any childhood trauma. They separated the possible traumas into 10 different categories and counted how many of these traumas each person experienced as a child. They then gave them what is now known as their ACE score (Brooks, 2012). As is expected, the link between childhood trauma and negative adult outcomes was pretty remarkable. The research suggests that a "high ACEs score" or the score at which people start seeing negative impacts on their adult outcomes is 4 or more (acestoohigh.com, 2014). People were seven times more likely to be alcoholics if they had an ACE score of four or higher than if they had an ACE score of zero. An ACE score above six was correlated as being 30 times more likely to have attempted suicide. These results also correlated both ways. It was suggested that subjects that had an ACE score of zero were found to have behavioral or learning problems three percent of the time. When comparing that statistic to those that scored an ACE of 4 or higher, those students were found to have those problems 51 percent of the time (Brooks, 2012).

Again, the research implies that the higher the ACEs score the more difficult it is for a person to be a successful adult. It seems as though those negative experiences that they had as a child will forever have an adverse effect on their life and make everything they try to achieve more difficult. It is very important to always consider where someone has come from and what experiences they may have had that lead them to the place they are now, when you see bad behaviors in people. Sometimes their actual physical make-up is working against them and making it difficult for them to behave in a normal way. When you are in a higher learning

environment, the fact that there will even be students there with high ACEs scores is pretty remarkable in and of itself.

The ACEs Test

Currently online, there is a test that anyone can take for free to see how they score in this category of adverse childhood experiences. There are actually a couple different sites that you can go to in order to take this test, but the one located on the NPR website was especially helpful because it not only lets the person take the test, but it explains what it is and what the results indicate. The test on this website is ten questions long and it addresses all the different types of abuse, neglect, and other hallmarks of a rough childhood. This is a simple questionnaire that asks these questions in a format where the participant need only to answer the questions with a yes or a no. Because there is nowhere in the questionnaire where the participant has to explain themselves or elaborate on their experiences, it seems like an unobtrusive way to get these questions answered while making the subject as comfortable as possible. It's also anonymous, as that the subjects don't have to enter their information into the computer anywhere. When the subjects have completed their ACEs test, they simply get a score out of a ten-point scale. This is their ACEs score. Again, like previously mentioned, the test asks questions about experiences that the subjects have had in their childhood that might affect them negatively. This test does not inquire about any of the positive experiences that person might have also had as a child. Therefore, it is not an exact science and the results of this test are not the only factor that goes into shaping the kind of person that the subject has grown up to be (Starecheski, 2015). In the following article it talks about all of the different items that are included in the ACEs score and what the results of a high ACEs score might be. The results are separated into two different

categories: behavior and physical & mental health. It seems as though having a high ACEs score either affects the kind of behavior that this person ends up displaying or it affects their health either physically and/or mentally. Starecheski went on to explain how sometimes people with high ACEs scores can be misdiagnosed with attention deficit disorder as many of the symptoms are similar especially when we consider the behavior of this person. Like previously stated, the stress that these subjects with high ACEs scores are under as they are still growing has effects on their abilities to learn and function in social situations.

Results of High ACEs Scores

Many people, when reading this literature, may wonder if someone who receives a high ACEs score is destined ~~doomed~~ to a less successful life and not be as capable to adapt to real-world situations. The good news is that in many of these cases, if the stress that a person is under stops and the body's systems are given the chance to be in a more comfortable relaxed state that the brain and related systems are able to somewhat heal themselves (acestoohigh.com). There has been research that shows that good healthy bodily practices such as good nutrition, exercise, adequate sleep, and healthy social interactions will do wonders for not only the stress that person has been feeling but towards their brain health overall ("ACES 101," 2014). There is other research available however that counters this idea of a healing brain. Some think that there is a certain level of trauma that the brain can experience where it is not able to bounce back or heal itself entirely. In these cases, the results of the trauma that they have experienced are like scars that you are always able to see and never heal (Delude, 2015). This later research is more in line with the majority of the contemporary findings. It indicates that though a person can overcome this trauma and learn to work around the disabilities that they sustained from it, that

the trauma of these experiences cannot be erased. It has been shown that people with four ACEs or more were at a significantly reduced likelihood of even graduating from high school (Giovannelli, A., A. R., Mondì, C., & Ou, S., 2016). It suggests that it will take copious amounts of effort, resilience, and determination for people with high ACEs scores to overcome their childhood experiences and become a successful adult.

Other Important Literature

There are many other sources that imply that all experiences that happen in childhood are significant. These sources state that the positive experiences have a large impact on a child as well. Because the adverse childhood experiences can lead to such negative outcomes for people as an adult it is important to attempt to prevent them before they happen (CDC, 2016). This research indicates how important it is to educate the population as a whole on how important it is to protect and preserve the mental health of all children. Taking the time to make sure that children experience a healthy and secure environment when growing and learning is paramount to the kind of adult they grown up to be.

There is other literature still that suggests that having an ACEs score of over 5 will reduce your life expectancy of up to twenty years (Storrs, 2009). This is a huge number and a very important statistic. There was a study conducted that led to this research that examined the correlation between ACEs and mortality in general. Not only were the subjects that had high ACEs scores probable of leading a shorter life in general, they were also more likely to die at any time. This study concluded that those with ACEs scores of a six or higher were 54 percent more likely to die during the time period that the study took place. This study was conducted over the course of a ten year period (Storrs, 2009). This study is clearly supporting the previous

statements of this paper that indicated that adverse childhood experiences led to poorer health overall. This statement can be backed up by the extensive research on how stress in general can poorly affect a person's health.

The American Psychological Association described how the longer the stress on a person's body lasts, the greater affects it can have on the health of their mind AND body (2013). These affects can be things like fatigue, poor concentration, and irritability. It can also make symptoms that people were already experiencing worse. For example, if a person is having a headache and then gets into a stressful situation, the stress can actually increase the severity of the headache the person is having (American Psychological Association, 2013). In addition to these general effects of chronic stress, people who have experienced a higher than average amount of trauma of any kind are three times more likely to develop things like lung cancer and heart disease (beatace.org/aces/, 2015). These results can come from the stress's effects on the person's body itself or from the coping mechanisms that these people use to help them deal with the stress (smokefree.gov, n.d.). For example, to cope with the stresses that accompany ACEs a person could take up smoking which in turn could result in lung cancer (smokefree.gov, n.d.).

It is important to consider that the affects that these ACEs can have on people can be recognized early on before they hit adulthood. ACE awareness is growing in schools nationwide and providing support for the students affected and the people educating them is very important (ACE Response, 2017). There are many resources available to educate those affected with ACEs and it is easy to find tools, tips, and even things like support groups for them (ACE Response, 2017). These forms of support are very important to help these students early so that the effects it has on their adult lives can be minimized. The research suggests that schoolchildren that are facing challenges in the classroom are statistically found to have elevated ACEs scores (ACE

Response, 2017). Diagnosing these problems early and providing these students with the support they need early could make a huge impact on the outcome of their adult lives.

Summary

However you look at the research, stress is bad. Stress when experienced over a long period of time can have negative impacts on a person's wellbeing including both their mental health as well as physical health. When the stress is a more significant and traumatic event, it can have an even greater impact on the person who is experiencing it. Stress this bad can actually change the brain's neurology and long term abilities of people who experience it at high enough levels. It seems as though when you combine all of these factors and then see what happens when it is a child experiencing them, it is no surprise that there is a significant effect to their lives for years to come. Adverse childhood experiences are something that can greatly shape and affect a person's life. Even in the best situations, people who have a high number of ACEs are going to have to work much harder to become a success as they grow into adulthood. It is not impossible for someone with a high ACEs score to be a success, but it will certainly be more difficult for them than for someone without that barrier. Support and assistance to these individuals early on can play a huge role in helping to shape them into successful, productive adults.

Chapter Three: Conclusions and Recommendations

Based on the literature review that was completed in this research paper the following conclusions can be made. The literature suggests that in this area of Wisconsin there are a large number of people that have scored high on the ACEs test. The conclusion from this would be that students in this area, especially the ones attending Blackhawk Technical College would also score high on this test. This would mean that it could be reasonable to anticipate that if this study was completed that there would be a majority of the students that had a high number of ACEs that would report having difficulty completing college courses and programs. Based off of this information, the recommendation would be for more studies in this area to be conducted and for there to be programs set in place to help support students such as these. In fact, it would probably be a great idea to conduct a study on grade school and high school level students. The earlier that these students can be recognized and helped the better they will be in the long run. ACEs are real. They affect who a person is and who they become, but they can be overcome with the right amount of discipline and determination to succeed. Based on these conclusions it is recommended that colleges that have students with high ACEs scores acknowledge that these students may need extra help and resources to become a success and to give it to them.

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