



How Adverse Childhood Experiences Affect the Mental Health and Academic Performance of College Students

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Abstract

Questions about the mental and physical health of individuals who have experienced trauma is a topic that continues to gain attention. Some areas of focus include the extent of a person's trauma, the effect of trauma on future mental and physical health, the impact trauma has on an individual's interactions with others, and the ability to form new relationships. Studies show that higher Adverse Childhood Experience (ACE) scores are directly associated with negative mental health outcomes (Chamberlain, 2020). In this study, I analyzed the content of 105 survey responses from college students to explore the self-reported impact of ACE scores on academics and relationships.

Literature Review

Significant research has been done using the Adverse Childhood Experiences (ACEs) survey as a starting point for defining what constitutes a traumatic event in a child's life. In a study published in the American Journal of Preventive Medicine, 10 different ACEs that an individual could experience between the ages of 0 – 18 years of age were studied (Felitti, Anda, Nordenberg, et al, 1998). These 10 childhood traumas include physical abuse, emotional abuse, sexual abuse; physical neglect, emotional neglect; mental illness of a family member, the incarceration of a relative, violent treatment of the individual's mother, substance abuse within the home, or divorce. For each of these events that a child experienced, even if only once between the ages of 0-18 years of age, the child's ACE score increases. For example, if an individual experienced physical abuse one time between the ages of 0-18 years of age, the individual would have an ACE score of one. If an individual experienced physical abuse multiple times between 0-18 years of age, but did not experience any other ACEs, the individual would still have an ACE score of one. The following review of the literature offers some background on ACEs to enable readers to better understand the research.

In a cross-sectional study by Chamberlain (2020), college students' adverse childhood experiences, psychological capital, overall well-being, and mental health were examined. Participant's completed a questionnaire with each question relating to a different ACE. Researchers utilized the Keyes Mental Health Continuum-Short Form (MHC-SF) to measure the participants' wellbeing. Participants rated their emotional, social, psychological, and mental health ranging from languishing to flourishing. Participants also completed the PsyCap questionnaire which measured participants' hope, efficacy, resilience, and optimism. The

objectives of the study were to evaluate the relationships between the student's ACE score, mental and physical health, and overall wellbeing. Descriptive statistics, correlations, and one-way ANOVAs were used to find out the statistical significance within these relationships. The research found that students who scored an ACE of 0-3 had a negatively correlated score with the MHC-SF score; however, there was a positive correlation between the students PsyCap score and total MHC-SF score. The mean PsyCap score ($M=104.45$, $SD=19.95$) for the students with an ACE score of 0-3 was higher than the mean PsyCap score ($M=101.80$, $SD=15.28$) for students with an ACE score between 4-10. According to these means, the higher the person's ACE score, the lower their PsyCap score, showing that students who have had more adverse childhood experiences are more likely to possess less hope, efficacy, resilience, and optimism at the time of the study. The effect size as stated by Cohen's d is a small effect size ($d=0.18$). The mean MHC-SF score ($M=46.49$, $SD=14.16$) for the group who scored 0-3 on the ACE was higher than the mean MHC-SF ($M=38.05$, $SD=15.04$) for the group who scored 4-10 on the ACE. The effect size as stated by Cohen's d is a medium effect size ($d=0.58$). These results suggest that a higher ACE score is directly associated with negative physical and mental health outcomes. Students who have had more ACEs are predicted to experience more mental health issues or report having a lower overall wellbeing. Based on these findings, early intervention for children who experience any of the ACEs should be considered.

Another experiment conducted with a focus on college students found similar results. However, instead of comparing ACEs to mental health and wellbeing, the researchers compared ACE scores to academic success (Karatekin, 2020). This study was a quantitative correlational survey design. It consisted of four separate adapted surveys administered over three separate terms. The surveys had a response rate of 1,197 (N) college students² total. The purpose of the first part of the study was to see if a relationship existed between ACE scores and students who reported first-generation status as a college student. The second part of the study was used to determine prediction values for the grade point average (GPA) of student participants. To determine these predictions, researchers used demographic data and ACE scores. After collecting their data, they found that 59% of students reported experiencing at least one ACE, 38% of students reported experiencing two or more ACEs, and 22% of students had an ACE score of 4 or more. Higher ACE scores existed among those students identifying as first-generation students compared to the multigenerational students in the study. Researchers also predicted lower GPA for first-generation, male, African American, or multiple race-ethnicity students who had ACE scores of four or more. This data suggests that college students who have higher ACE scores are more likely to identify as first-generation college students and are predicted to have lower GPAs. Based on this prediction, college students who report a higher ACE score are at an increased risk of poorer academic performance as measured by GPA. This likelihood is increased if they are first-generation students, or people of color. This evidence reinforces that early intervention should be in place for children who experience ACEs.

Studies conducted involving the general population were explored too. One study investigated the relationship between childhood trauma and the quality of social networks and health outcomes later in adulthood (Schnieder, et al. 2017) Researchers used a convenience sample of 254 adults seen at 10 primary care facilities in the state of Texas. Participants were surveyed to determine their ACE score with additional questions that focused on whether they had any stressful or supportive social relationships, medical conditions, anxiety, depression, and their

health-related to the quality of life. After administering these tests participants were placed into four different ACE classes: minimal childhood abuse (56%), physical/verbal abuse of both child and mother with household alcohol abuse (13%), verbal and physical abuse of a child with household mental illness (12%), and verbal abuse only (19%). Researchers found statistically significant differences between the four-classes when examining mental health outcomes in adulthood. The participants assigned to groups that had compromised mental health in adulthood were more likely to have been children who were physically and verbally abused, but this was found to be even more prominent in participants who witnessed physical abuse of their mother. Researchers noted that participants who reported having supportive social networks as adults, suffered lower odds of reporting poor mental health regardless of ACE experiences. On the other hand, individuals who had increased stressful social relationships in adulthood ended up having more adverse mental health outcomes. These findings show that participants who fit into one of the ACE categories given in this specific study, later in life would have worse mental health outcomes in their adulthood. If provided early intervention strategies around social relationship skill building, the children who experienced the ACEs explored in this study could potentially have had improved mental health outcomes later in life.

The next study conducted on the general population that was reviewed focused on the relationship between an expanded ACE score and adult mental health outcomes (Merrick, 2017). Each ACE score was examined separately to determine the contribution of each ACE on the participant's mental health. The study consisted of 7,465 adult participants in southern California. Researchers created Dichotomous variables that corresponded with each of the 10 ACE categories, plus an additional category unique to this study: spanking. Participants stated how many of these they experienced during childhood and that was their reported ACE score. Researchers used multiple logistic regression modeling to examine the relationship between each of the ACEs and adult mental and behavioral health outcomes. Results showed that higher scores were more likely to lead to moderate to heavy drinking, drug use, and suicide attempts by participants in adulthood. In some adjusted models, being spanked as a child, which was the 11th ACE in this study, was significantly associated with all self-reported mental health outcomes showing that participants who experienced ACEs were more likely to struggle with alcoholism, drug use, and suicide attempts. This study strengthens the argument that early intervention is needed for children who have had adverse childhood experiences.

Loxton (2018) explored the topic of medical care and its relationship to ACEs. Researchers followed a cohort of 14,247 (n) adults for 20 years to examine the number of money participants spent on medical care and analyzed this in relation to the participant's ACE score. Researchers found that overall, 41% of the women in this cohort stated they had at least one ACE. The most commonly reported ACE was having had a household member with a mental illness (16%), with the second most common reported ACE being psychological abuse (17%). The study showed that women who reported having had more ACEs had higher healthcare costs indicating that people with higher ACE scores will likely spend more over a lifetime on medical care than people who have experienced fewer ACEs, once again reinforcing the idea that these ACEs have a negative impact on adults.

In a study of 404 college students explored how ACEs related to race/ethnicity impacted academic achievement (Watt, et al 2021). Participants completed surveys and self-reported their

ACE scores, demographics, and GPA. Results found that students of color reported higher ACE scores and lower GPAs than white students. The study also revealed that an ACE score of four or higher was associated with lower GPAs, but only for students of color, not for white students. This research showed that there are race/ethnic differences in the impact of ACEs on post-secondary academic achievement.

A study was done to determine the association of ACEs to protective, familiar, and community factors in relation to school performance and attitudes of children ages 6 to 17 (Robles, 2019). The researchers did a cross-sectional analysis of the 2011-2012 National Survey of Children's Health. ACE scores were categorized as 0, 1, 2, 3, and 4 or more. Children's protective factors were defined as: safe neighborhood, supportive neighbors, four neighborhood amenities, well-kept neighborhoods, no household smoking, and more than five family meals per week. Results found that each negative school outcome was associated with higher ACE scores and lower protective factor scores. The study showed that the strongest protective factor for children is the ability to talk with caregivers about things that matter and share their ideas.

All the studies reviewed are similar in the sense that they all involved adults of the general population or college students that continued to suffer from negative effects of childhood trauma. Some of the effects included poor physical and mental health, a higher risk of alcoholism, drug use, or suicidality. Each study reinforced the devastating impact that Adverse Childhood Experiences can have on a person in their adult life.

Introduction

For this research project, I explored how ACEs affect the mental health of college students, the residual impact their mental health has on their academic performance. This is important because with increased understanding of the effects ACEs have on college students there is the potential to increase or develop resources that will better assist students with increased ACE scores to be successful. The hypothesis we had was that an increased ACE score would have a significant impact on academic performance, measured through self-reported interpretation of success, and on relationships, whether it be with friends, classmates, or professors.

Methods

Participants

The survey was sent out to students in Social Work 100 and Psychology 100 classes. The survey was also published on SONA, which is an online survey system that records research participation credit. Students in a psychology classes could take online surveys, and receive either credit or extra credit in that class through the SONA application. Participation in this research was voluntary and a total of 105 participants completed the survey questions.

1.2 Materials

A letter of consent was included at the beginning of the survey outlining that by proceeding with the survey, a prospective participant was giving their permission for their information to

be collected. The survey consisted of 19 questions. Minimal demographic information, such as age and number of semesters enrolled in college were collected. Participants were asked specific questions used to determine their self-reported ACE scores, with follow-up questions that asked participants to rate aspects of their mental health on a Likert scale. The survey also contained three qualitative questions asking participants to describe ways they had seen their mental health impact their college career and relationships, what campus opportunities they have participated in, and what campus opportunities should be added to assist with academic success. The end of the survey contained a message thanking participants for their participation and provided phone numbers for on-campus counseling services, the mental health and AODA crisis line, and the crisis text line.

Results

2.1 Impact on Academics

Question 14 was a qualitative question asking participants to explain how their mental health has impacted their academic performance throughout college, and whether the impact was positive or negative. Participants' self-reported responses were coded in a hierarchical frame by single words based on external and internal factors; with internal factors having negative, positive, and other categories. For external factors the words pandemic (4) and online classes (4) appeared to affect participant's mental health, in turn impacting academic performance. Other mentions included not going to classes (2) and not getting assignments done on time (2). When examining reported internal negative factors, words that appeared most often were stress (17), nervous/anxious (18), unmotivated (19), poor grades due to mental health (13), losing focus (10), and depression (8). Internal factors that were categorized as positive factors included the most often mentioned words or phrases of doing well in classes (4), anxiety helping with classes (3), and being motivated. The last category for internal factors was other, and participants mentioned quality of work (1) and completing assignments (1). Participants utilized 32 unique words coded in the internal positive, or internal other category, and utilized 148 different words to describe the negative internal factors.

2.2 Impact on Relationships

Question 15 on the survey asked participants to record how their mental health had affected their relationships with professors, peers, friends, etc. The open ended responses were coded in a hierarchical coding frame, with there being external factors as one category, and internal factors as the other category. These were then subcategorized as negative, positive, and other. External factors mentioned by participants included the ability to be open about mental health with friends (8), professors not understanding (3), and having a good friend groups (3), with "good" being self-defined by the participants. For the internal negative factors, participants mentioned self-isolation (26), detached from others (12), anxious (12), and stressed (7) most frequently. In the internal other category, participants noted having a hard time making friends (9), being a "burden" to professors and classmates (5), and inability to reach out to teachers or classmates (4). Participants utilized 37 unique words coded in the internal positive, or internal other category, and utilized 88 different words that were coded as negative internal factors.

2.3 Campus Opportunities

Participants were asked in question 17 to state what campus opportunities they have participated in. They were provided with examples such as counseling services, academic success programs (McNair, Blugold Beginnings, Student Support Services,) faculty student research, and first year experiences, etc. . Counseling services (19) was mentioned the most as being used, with the writing center (12) being used the second most, and participants also reported being involved in research (14), intramurals, (9) and tutoring (9). The question 18 on the survey asked participants to state any additional activities that could be added to assist academic success. Mental health days (2) was mentioned, as was more availability in counseling services (4), and the availability of emotional support animals (1).

2.4 Relation of ACE Score to Diagnosis

Participants were asked to self-report whether or not they had a diagnoses of anxiety, depression, or both, and if so, at what age this had occurred. Participants also reported their ACE score through a series of questions on the survey. The average age for an anxiety diagnosis was 13, and the average age for depression diagnosis was 14. Survey participants who reported no depression or anxiety reported an average ACE score of 2.75. Participants reporting diagnosis of both depression and anxiety reported an average ACE score of 3.92. While those reporting only anxiety reported an average ACE score of 5.6, and participants reporting only depression reported an average ACE score of 6.

Diagnosis	Average ACE Score
No Depression or Anxiety	2.75
Both Depression and Anxiety	3.92
Only Anxiety	5.6
Only Depression	6

Figure 1. *Average ACE score with Diagnoses.*

Discussion

3.1 Introduction

Higher ACE scores have been directly associated with negative mental health outcomes, and a lower overall well being (Chamberlain, 2020). For this reason, it could be inferred that higher ACE scores will likely impact college students' academics, and their relationships. Through our research, we found that students' perception is that feeling unmotivated, nervous/anxious,

and stressed, which participants attributed to their mental health, has affected their academics. . Students also reported feeling that behaviors such as self-isolation, being detached from others, and feeling like a burden, which they attributed to their mental health affects their relationships with professors. In contrast, participants also reported that being open about mental health was something that was positive, and was perceived to help relationships.

3.2 Limitations

One limitation to this study was that it was not intended to be representative of the entire world, but more specifically for college students in the United States. Our sample size was relatively small (105) compared to the number of students enrolled at the University of Wisconsin-Eau Claire (9,803) campus. All of the questions were self-report, which is reliant on participant's to answer truthfully and accurately. While many different classes were invited to partake in the survey, it is assumed that the survey likely was completed by a majority of people interested in human sciences. The results may present very differently if the sample was larger and more varied with regard to discipline. The study took place during the pandemic, which will create additional challenges and will be discussed independently.

3.2 COVID-19

This research study was designed and conducted during the 2020-2021 academic year. During that period there was a global pandemic occurring that dramatically impacted the organization of college life; from classroom structure to socialization and access to in-person resources. Each of these factors independently could have affected the data, however it is likely that with all of these elements occurring simultaneously, that the pandemic changed participants' mental health, affecting the data collected.

3.4 Strengths and Weaknesses

This research has numerous strengths and weaknesses. By including the survey on SONA, and with some professors offering extra credit for participation in research studies it is likely we increased our participation. By having the survey available to Psychology 100 students it increased the likelihood of a varied participation of majors, since this is a course taken across disciplines. Weaknesses include the number of questions. The survey contained 19 questions, which could deter people from completing the survey. The use of SONA could also be a weakness because it is not a resource used by all disciplines and may be more specific to psychology students. The survey also contained seven questions that the data was not used in the final results. Elimination of these questions would have reduced the length of the survey, as well as the potential risk of emotional upset to participants. The survey also asked participants questions about their

Conclusion

Higher ACE scores have been noted to be directly associated with negative mental health outcomes, and a lower well-being overall (Chamberlain, 2020). When taking this information into account, our data shows that college students experiencing mental health challenges have more self-reported negative experiences, and problems with professors, peers, and friends. This could mean that a college student who presents with a higher ACE score would experience increased challenges during the college career resulting in a negative impact on academics and

relationships.

When looking at the affect that mental health has on student academics, we see from the data that many participants felt their mental health made them unmotivated, anxious, and stressed. With regard to relationships, their mental health made them isolate, feel detached from others, and even feel like a burden to professors and peers. It is important to note that the impacts of isolation and feeling like a burden were reported by participants as affecting relationships. However, it is possible that these mental health responses could transfer to academic impact when connected to academic success (grades) linked to attendance, class participation, or communication to request extensions or accommodations.

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