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Adverse Childhood Experience Scores of Social Work Students vs. Non-Social Work Students

Grace Conrad

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### **Abstract**

This project researched the differences in Adverse Childhood Experience (ACE) scores among Social Work students compared to other majors at a Midwest University. The purpose of the study was to research the ACE scores within fields of study and various demographics to target the most at-risk populations on campus. The sample was composed of 185 undergraduate students studying social work and other fields of study. The sample included various grade levels, races, genders, and environments participants were raised. The participants were given a 16 question on-line survey including demographic questions and questions from the ACE score test. The research concluded that social work students do have higher ACE scores than nonsocial work students on campus, along with students of junior and senior status or were raised in an urban environment. From these findings, improvements can be made to create a curriculum that recognizes the importance of self-care in students and offers resources to students with high Adverse Childhood Experience scores.

### **Introduction**

In this paper research done on the difference in Adverse Childhood Experience (ACE) scores of undergraduate social work students compared to non-social work students at a Midwest University was investigated. ACE scores are introduced and explained, and past research is described. The ACE score test is then explained as well as the categories of trauma that are assessed through the survey. The methodology of the research, along with the data collected is examined and provided through charts and tables. Discussion of the data and the long-term implications of these findings concludes the research.

## Literature Review

Researchers such as Black, Jeffreys, and Hartley (1993) along with Rompf and Royse (1994) found a correlation between adolescent psychosocial trauma and choosing social work as an academic path. In this research study, 195 graduate level social work students were compared to 77 graduate business students based on their past psychosocial trauma. The results showed in Rompf and Royse' study is that that social work students had significantly higher trauma in childhood than business students and reported more frequently that this help decide their career path. The surveys given to participants included the traditional ACE score test and a survey about demographic information. In Rompf and Royse' (1994) research, a random adult sample including social work and nonsocial work students were asked a series of questions beginning with, "when you were growing up did you experience any of the following within your family", the respondents were then given the options of "yes", "no", or "don't know" to which they would answer questions covering death, divorce, abuse, neglect, physical and mental illness and addiction. 70.1% of respondents reported an ACE score of 1 or higher. 15.9% of respondents reported an ACE score of 4 or higher. The second part of the Rompf and Royse' (1994) study asked the influence these experiences had on the participants career choice, working for social service agencies, volunteering, religion, role models, gender and age when deciding to pursue social work. The data collected showed that 39% of social work students chose their career based on their adverse childhood experience while only 14% of nonsocial work students chose their career this way. While there is a clear correlation in this 1994 study of social work students and their ACE scores, with more stressors than ever more recent research is needed to determine if this relationship is relevant 25 year later due to the introduction of social media and the implications that comes with it.

What is most concerning in regard to ACE scores are the negative health effects that come along with them. Research done on the correlation of ACE scores to leading causes of death in adults showed an increase of health issues in participants with higher ACE scores. In this study, an ACE score questionnaire was distributed to 13,494 adults who had completed a standardized medical evaluation (Felitti, et al., 1998). Of those who the questionnaire was sent to, 70% responded. The questionnaire studied seven categories of adverse childhood experience including physical, psychological or sexual abuse, violence against mother, substance abuse in the household, mentally ill, suicidal, or imprisoned members in the household. The number of categories the participant responded to was compared to the measure of disease, adult risk behavior, and health status (Felitti, et al., 1998). Through this study, it was found that those with a score of 4 or more from the distributed ACE score test were 4-12 times more likely to have increased health risks for alcoholism, drug abuse, depression, and suicide attempts compared to those who had experienced none of the categories of childhood exposure. These participants also were 2-4 times more likely to smoke, have poor self-rated health, more than 50 sexual partners, and sexually transmitted disease along with a 1.4-1.6 times more likely to suffer physical inactivity and severe obesity (Felitti, et al., 1998). These findings show that those with higher ACE scores will have increased health risks due to household dysfunction during childhood. If social workers tend to have higher ACE scores and are more at risk for health concerns, that will indicate that the population who needs help the most, are social workers themselves. The hypothesis of this study is undergraduate social work students will have higher ACE scores compared to nonsocial work students. Race, grade level, gender, major, and environment raised in were compared due to the increased likelihood for causing varying adverse childhood experiences.

## **Methodology**

### **Sample**

Participants of the study are undergraduate students at a university in the Midwest United States that has a population of 23,914. The study relied on convenience sampling and participants were contacted by email. Students in the School of Social Work and the Honor's college were e-mailed to participate in this study. There were 185 respondents to the survey with 51 participants being undergraduate social work students and 134 participants being undergraduate students not studying social work. The gender of participants included 155(83.8%) females, 26 (14.1%) males, 1 (<1%) transgender male, and 3 (<1%) gender variant/non-conforming participants. The race of participants included 148 (80%)white, 18 (9.7%) Hispanic or Latinos, 7 (3.8%) Black or African Americans, 7 (3.8%) Asian/ Pacific Islanders,1 (<1%) participant who identified as all of the above, 3 (<1%) participants who's race was missing, and 1 participant who preferred not to answer.

### **Design**

This exploratory research was conducted through a single observation, cross-sectional survey design. This research survey was approved by a University Human Subjects Institutional Review Board (HSIRB) on 1/5/20.

### **Instrumentation**

The instrument used in the research was a 16-question electronic survey incorporating the original Adverse Childhood Experience Score test founded at Kaiser Permanente along with self-designed demographic questions (Appendix). The initial portion of the survey included six questions about demographic information such as major (social work, nonsocial work), grade level (freshman, sophomore, junior, senior), gender (female, male, transgender male,gendervariant/ nonconforming), race (White, Hispanic or Latino, Black or African

American, Asian/Pacific Islander, not listed, all of the above, prefer not to answer), and environment the respondent was raised in (urban, suburban, rural). Participants responded to these questions by selecting from multiple-choice options. The level of measurement for demographic questions was either nominal or ordinal. The Adverse Childhood Experience questions—which assessed 10 categories of childhood dysfunction including emotional, physical, and sexual abuse, emotional and concrete neglect, divorce, domestic violence, substance abuse and mental health within the home, and a household member being imprisoned— were each scored by “yes”=1 and “no”=0. The total ACE score was calculated by summing the 10 questions for a possible total score between 0 and 10. The ACE survey does not have formal validity and reliability testing but theoretically has strong test-retest external reliability. Since the questions are based on life experience, the participant is answering questions based on past-life experience which would not change over time. The survey has strong face-validity because of the questions appearing to be measuring what they intend to.

### **Analysis**

The analysis of data and testing of the hypothesis was done through conducting an independent sample t-test to determine the significance of ACE scores compared to social work and non-social work students. The first step in the analysis was to examine for missing data and the distribution of variables. Of the 185 participants, only 3 missing values appeared by 3 different participants. The missing values were scored as 0 to allow the participant to be included in the analysis. Independent *t*-tests and chi-square tests were the primary statistical tests used. The *t*-test assumes a normal distribution and equal variance for each group. When these assumptions were not met the *t*-test for unequal variances was reported.

## Results

A t-test was conducted on the total sample size comparing the ACE scores of undergraduate social work students and non-social work students; the study's hypothesis. Table 1 shows the average ACE score between the two groups, the average of the social work students ACE scores were more than double that of the non-social work students. This result supports the hypothesis that social worker students have higher ACE scores than non-social work students.

**Table 1**

*ACE Scores of Total Sample of Social Work vs. Non-Social Work Students*

VARIABLE	SOCIAL WORK STUDENTS	NON-SOCIAL WORK STUDENTS	TEST P-VALUE
ACE Score	$n=51$ $m=3.22$ $sd=2.72$	$n=134$ $m=1.49$ $sd=1.82$	$t=-4.98$ , $df=183$ , $p=.0$

To further investigate the integrity of the hypothesis, analyses were conducted to determine the association between major (social work, non-social work) and the four demographic variables included in the study. Race was examined as a dichotomy (white vs. minority group) using a chi-square and there was no statistically significant association with social work major ( $\chi^2=1.33$ ,  $df=1$ ,  $p=.249$ ). All other races were combined into one group because of the small numbers in each. Gender was examined as a dichotomy (male vs. female) using a chi-square and there was no statistically significant association with social work major ( $\chi^2=2.28$ ,  $df=1$ ,  $p=.131$ ). While other gender identities were included in the survey some gender identities were omitted due to small numbers.

Major (social work vs. nonsocial work) was statistically associated with grade level and environment where one was raised. Grade level was examined as a dichotomy (junior vs. senior) using a chi-square and there was a statistically significant association with social work major



( $\chi^2=6.01$ ,  $df=1$ ,  $p=.014$ ). Grade level of participants omitted freshman and sophomore status when analyzing the data due to the small number of social work majors in each of these categories. It is worth noting that the qualification of being of junior or senior grade level is when a social work student is officially accepted into the school of social work.

When comparing the data of ACE scores of junior and senior grade level students within social work and non-social work areas of study in Table 2, junior grade level social work students had an average ACE score of  $m=3.88$  while non-social work students had an average score of 1.91, making this a statistically significant difference with  $p=.007$ . Senior level social work students had an average ACE score of  $m=2.90$  while non-social work students averaged an ACE score of 1.39 showing statistical significance with  $p=.009$ . In both junior and senior grade levels, social work students ACE score averaged doubled those of non-social work students, supporting the hypothesis that social work students have higher ACE scores than non-social work students.

**Table 1**

***Grade Level of Social Work vs. Non-Social Work Students***

VARIABLE	SOCIAL WORK STUDENTS	NON-SOCIAL WORK STUDENTS	TEST P-VALUE
JUNIOR	$n=16$ $m=3.88$ $sd=3.16$	$n=44$ $m=1.91$ $sd=2.15$	$t=-2.74$ , $df=58$ , $p=.007$
SENIOR	$n=29$ $m=2.90$ $sd=2.54$	$n=31$ $m=1.39$ $sd=1.75$	$t=-2.70$ , $df=58$ , $p=.009$

Environment was examined with three choices (urban vs. rural vs. suburban) using a chi-square and there was a statistically significant association with social work major ( $\chi^2=14.51$ ,  $df=2$ ,  $p=.001$ ) As shown in Table 3, suburban environment is not statistically significant with

$p=.08$ , producing the lowest average ACE scores for social work students with  $m=2.26$  and the second lowest average ACE score with non-social work students with  $m=1.38$ . The rural environment showed the most significance in ACE score differences with  $p=.001$ . Social work students in this environment averaged an ACE score of  $m=3.53$  compared to the non-social work students who averaged an ACE score of  $m=1.30$ . This shows that in the rural environment, on average social work students score more than double than non-social work students on the ACE score survey. The urban environment is statistically significant with  $p=.04$  and producing the highest average ACE scores of both social work and non-social work students. With social work students having an average ACE score of  $m=4.15$  and non-social work students having an ACE score of  $m=2.44$ , social work students have almost double an average ACE score as non-social work students. The data in this table supports the hypothesis that social work students have higher ACE scores than non-social work students, along with information on how environment can affect ACE scores of individuals.

**Table 2**

*Environment of Social vs. Non-Social Work Students*

VARIABLE	SOCIAL WORK STUDENTS	NON-SOCIAL WORK STUDENTS	TEST P-VALUE
URBAN	$n=13$ $m=4.15$ $sd=2.19$	$n=16$ $m=2.44$ $sd=2.10$	$t=-2.15$ , $df=27$ , $p=.04$
SUBURBAN	$n=19$ $m= 2.26$ $sd=3.02$	$n= 91$ $m=1.38$ $sd=1.71$	$n= -1.75$ , $df=108$ , $p=.08$
RURAL	$n=19$ $m=3.53$ $sd=2.55$	$n=27$ $m=1.30$ $sd=1.92$	$t=-3.39$ , $df=44$ , $p=.001$

The final step in the analysis was to compare social work and non-social work students on each ACE question to see where the two groups differed. Overall, there is strong statistical

significance in the number of social work students who responded “yes” to each question compared to non-social work students (see Appendix 1). The questions with the highest statistical significance of  $p=.00$  is “did an adult or person at least 5 years older than you ever... touch or fondle you or have you touch their body in a sexual way? Or attempt to actually have oral, anal, or vaginal intercourse with you?” and “was your mother or stepmother: Often or very often pushed, grabbed, slapped, or had something thrown at her? Or sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? Or ever repeatedly hit over at least a few minutes or threatened with a gun or knife?”. This shows that social work students have had more exposure to sexual and domestic violence adverse childhood exposure. The question with the least statistical significance is “did a household member go to prison?” with a significance of  $p=.103$  and having 5 participants from each group respond “yes” to this question. This shows that there is a similarity in adverse childhood exposure in this category. The data in this table supports the hypothesis that social work students have higher ACE scores than non-social work students.

**Table 4**

*Survey Answers of Sample*

ACE QUESTION	SOCIAL WORK STUDENT(% Yes) $n=51$	NON-SOCIAL WORK STUDENT(% Yes) $n=134$	TEST P-VALUE
Did a parent or other adult in the household often or very often... swear at you, insult you, put you down, or humiliate you? Or act in a way that made you afraid that you might be physically hurt?	41.2	20.9	.005
Did a parent or other adult in the household often or very often... push, grab, slap, or throw something at you? Or ever hit you so hard that you had marks or were injured?	25.5	11.9	.024

Did an adult or person at least 5 years older than you ever... touch or fondle you or have you touch their body in a sexual way? Or attempt to actually have oral, anal, or vaginal intercourse with you?	31.4	6.7	.000
Did you often or very often feel that... no one in your family loved you or thought you were important or special? Or your family did not look out for each other, feel close to each other, or support each other?	45.1	20.9	.001
Did you often or very often feel that... you did not 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?	6.0	13.7	.084
Were your parents ever separated or divorced?	43.1	23.1	.007
Was your mother or stepmother: Often or very often pushed, grabbed, slapped, or had something thrown at her? Or sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? Or ever repeatedly hit over at least a few minutes or threatened with a gun or knife?	4.5	23.5	.000
Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?	39.2	17.2	.002
Was a household member depressed or mentally ill, or did a household member attempt suicide?	49.0	34.3	.066
Did a household member go to prison	9.8	3.7	.103

### Discussion

Through this study, the hypothesis was supported that social work students have higher adverse childhood experience scores than non-social work students. From this data, social work students in the junior grade level, who were raised in an urban environment have the highest ACE scores. In the original ACE study, 6.2% of participants experienced at least 4 categories of adverse childhood exposure (Felitti, et al., 1998). In this study, 35% of participants received an ACE score of 0 and 23% of participants scored an ACE score of 4 or more. With a greater percent of the participants in this study having an ACE score of 4 or more than in the original ACE study, it is imperative to be aware of the health concerns that were addressed in the original

research and its implications. In the original study, after a health exam, it was found that of the participants who had experienced an ACE score of 4 or more, 26% of the participants had 1 or more health risk factors and 7% of the participants had at least 4 health risk factors (Felitti, et al., 1998). The limitations present in this study is the threats to the internal validity and external validity. A threat to internal validity is selection and testing. Selection is a threat because the two groups were different in many different criteria such as grade level, race, gender, and environment raised in. Testing is a threat to internal validity because the two groups may have reacted differently to the survey questions due to their past experiences addressed in the survey. The threat to external validity is selection effect, meaning that the criteria used to select the sample might limit the generalizability. There is also a limitation due to missed questions being scored as =0 by causing a skew in the data. An implication of the study is the collapse of all racial and ethnic groups for data purposes. By doing this together important results may have been excluded in the research. For social workers, who are part of a helping profession, these numbers are alarming. By comparing this statistic to the data found on social work students, it could be assumed that 23% of participants are at risk or already have 1 health risk factor. For social workers, who are part of a helping profession, these numbers are alarming. This would mean that those going into the helping profession of social work, are the ones who also need help. Because of these findings, social work education should take steps to implement self-care education into the curriculum to better help students deal with possible adverse childhood exposure. Professors of social work versus professors of non-social work students, could teach the importance of adverse childhood experiences and give resources to students that are more at risk. Resources such as counselors would be helpful so students could begin to heal their past traumas to decrease the chance of career interference in the future. This would allow future

social workers to cope with past adverse exposure to better help others, as well as prevent health risks factors from increasing.

## References

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## Appendix

### *Survey Distributed to Participants*

1. AGREE: I agree to participate in this research study
2. MAJOR: What is your major?
3. GRADE: What is your grade level?
4. GENDER: To which gender do you most identify?
5. RACE: What is your race?
6. SETTING: What environmental setting were you raised in?
7. ACES
  - 1) EMOTIONAL: Did a parent or other adult in the household often or very often... swear at you, insult you, put you down, or humiliate you? Or act in a way that made you afraid that you might be physically hurt?
  - 2) PHYSICAL: Did a parent or other adult in the household often or very often... push, grab, slap, or throw something at you? Or ever hit you so hard that you had marks or were injured?
  - 3) SEXUAL: Did an adult or person at least 5 years older than you ever... touch or fondle you or have you touch their body in a sexual way? Or attempt to actually have oral, anal, or vaginal intercourse with you?
  - 4) NEGLECT-E: Did you often or very often feel that... no one in your family loved you or thought you were important or special? Or your family did not look out for each other, feel close to each other, or support each other?
  - 5) NEGLECT-C: Did you often or very often feel that... you did not 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?
  - 6) DIVORCE: Were your parents ever separated or divorced?
  - 7) D-VIOLENCE: Was your mother or stepmother: Often or very often pushed, grabbed, slapped, or had something thrown at her? Or sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? Or ever repeatedly hit over at least a few minutes or threatened with a gun or knife?
  - 8) SUBSTANCE: Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?
  - 9) MENTALLY ILL: Was a household member depressed or mentally ill, or did a household member attempt suicide?



10) PRISON: Did a household member go to prison