

## INTRODUCTION

Adverse childhood experiences (ACE's) are stressful or traumatic events that occur during childhood. According to Substance Abuse and Mental Health Services Administration (2017), ACE's are common: Nearly two-thirds of the general population report experiencing at least one ACE (Centers for Disease Control and Prevention, 2016). They also cluster, and have a dose-response relationship with many health and mental health problems.

Numerous studies have shown that as ACEs accumulate, so do negative health, social, and behavioral outcomes throughout the lifespan. Although the effects of childhood adversity are well documented for negative mental health outcomes, less is known about the influence of ACEs on positive mental health outcomes.

To address this gap, the current study uses a high-risk sample of caregivers involved in child protective services (CPS) to examine ACE's effect on adult anxiety as well as a positive outcome, mental well-being. Moreover, we examine whether social support and education attainment operate as protective factors to reduce the impact of ACEs on anxiety and positive adult well-being.



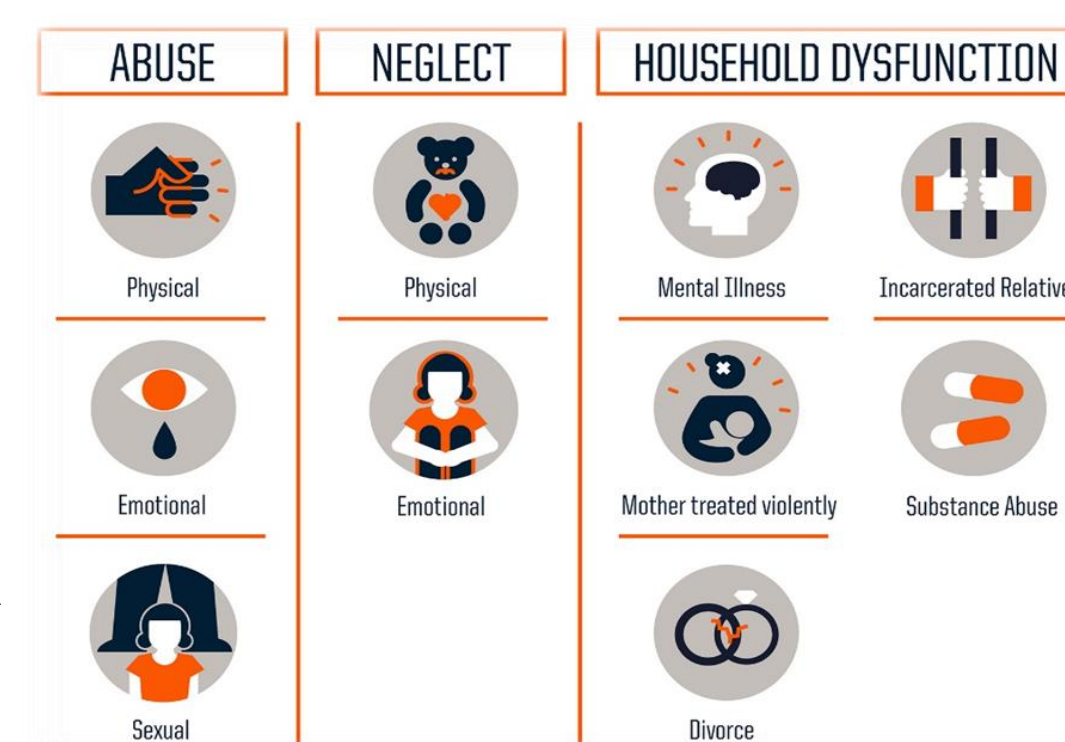
## METHODS

### SAMPLE

The data is collected as part of the Alternative Response Project, which is a mixed-method, longitudinal evaluation of a major CPS system reform taking place in 22 Wisconsin CPS agencies in 22 counties. The sample consists of **488 caregivers** involved in alleged child maltreatment cases. Caregivers consented to participate in a survey by mail or phone. The survey included items about caregiver demographics, CPS experience, child and adult adversity, as well as a range of mental health screeners.

### MEASURES

**Outcomes:** To measure *anxiety*, the survey included the 7-item version of the Generalized Anxiety Disorder Scale (Spitzer, Kroenke, & Lowe, 2006). *Mental well-being* was measured using a new 5-item tool adapted from the 15-item Mental Health Continuum—Short Form (Keyes, 2005).



**Mediators:** *Social support* was measured using the 4-item Medical Outcome Study Social Support Survey (Gjesfjeld, Greeno, & Kim, 2008). *Educational attainment* was captured by self-report. Note that we excluded participants who were still pursuing education from this sample.

**Covariates:** ACEs were captured using the 10-item Childhood Experiences Survey, which has previously been validated for diverse, at-risk populations (Mersky, Janczewski, & Topitzes, 2017). The CES is comprised of five items relating to child maltreatment and five items related to household dysfunction (see Figure 2). We also included the following potential confounders in the models: gender, age at assessment, and race/ethnicity.

### ANALYSIS PLAN

The analysis proceeded in three steps. First, we calculated descriptive statistics for the prevalence and means of key study measures. Second, we constructed a structural equation model to examine ACE's impact on anxiety (Model 1) and mental well-being (Model 2) while controlling for potential confounders. Next, we added mediators to the models to determine if education (Models 1a, 2a) and social support (Models 1b, 2b) mitigate the influence of ACEs on the two outcomes. We subtracted the direct effects reported in the mediation models (Models a/b) from the total effect reported in Models 1 and 2 to calculate the proportion of the total effect explained by the indirect effect of the mediators. Descriptive analyses was conducted in SPSS 21, structural equation modeling was conducted in Mplus 7.1.

## RESULTS

TABLE 1

Description of Study Measures (N=488)

	% or Mean (σ)
<b>Covariates</b>	
<i>Gender</i>	
Female	84.1%
<i>Age</i>	
Median Age (range 19-49)	33.9 (9.8)
<i>Race and Ethnicity<sup>1</sup></i>	
White, non-Hispanic	71.9%
Black, non-Hispanic	8.8%
Hispanic	9.2%
Other race, non-Hispanic	9.9%
<i>Education Status</i>	
Did not complete high school	15.1%
High school/GED	40.5%
Some college, no degree	17.3%
Associates degree or higher	17.3%
<b>Adverse Childhood Experiences (ACEs)</b>	
Childhood adversity, cumulative score (range 0-10)	3.4 (2.7)
0 to 1 ACE	32.9%
2 to 2 ACEs	24.0%
4 or more ACEs	43.1%
<b>Outcome Variables</b>	
Anxiety (range 0-21)	5.6 (5.9)
% Above clinical cut point Generalized Anxiety Disorder	23.4%
Positive Well-being	19.28 (3.4)

### MODEL 1: ANXIETY

- Results indicate that ACEs had a significant *positive* relationship with anxiety ( $\beta = .33, p < .001$ ), and along with race/ethnicity, age, and gender, explained approximately 12% of the variance in anxiety in **Model 1**.
- Findings from **Model 1a** suggest no indirect effect associated with the addition of education as mediator. The standardized coefficient representing the relationship between ACEs and anxiety remained the same as in Model 1 ( $\beta = .33, p < .001$ ). Moreover education was not significantly associated with ACEs ( $\beta = -.06, p = .22$ ), or anxiety ( $\beta = .01, p = .77$ ).
- The reduction in the effect of ACEs on anxiety from Model 1 ( $\beta = .33$ ) to **Model 1b** ( $\beta = .29$ ) suggests that social support indirectly contributes a significant proportion (12%,  $p = .002$ ) of the total effect of ACEs. All pathways between ACEs, social support and anxiety are significant, and the  $R^2$  value associated with anxiety increased to 16% with the addition of social support.

### MODEL 2: WELL-BEING

- ACEs had a significant *negative* relationship with mental well-being ( $\beta = -.15, p < .001$ ) and, along with the other covariates, only explained 4% of its variance in **Model 2**.
- Findings from **Model 2a** showed that the addition of education reduced ACE's direct effect on well-being by only 8% ( $\beta = -.13, p = .27$ ).
- Results from **Model 2b** indicate that social support indirectly contributes a significant proportion (39%,  $p = .001$ ) of the total effect of ACEs on mental well-being, as evident by the reduction of ACEs' direct effect on well-being ( $\beta = .09, p = .04$ ).

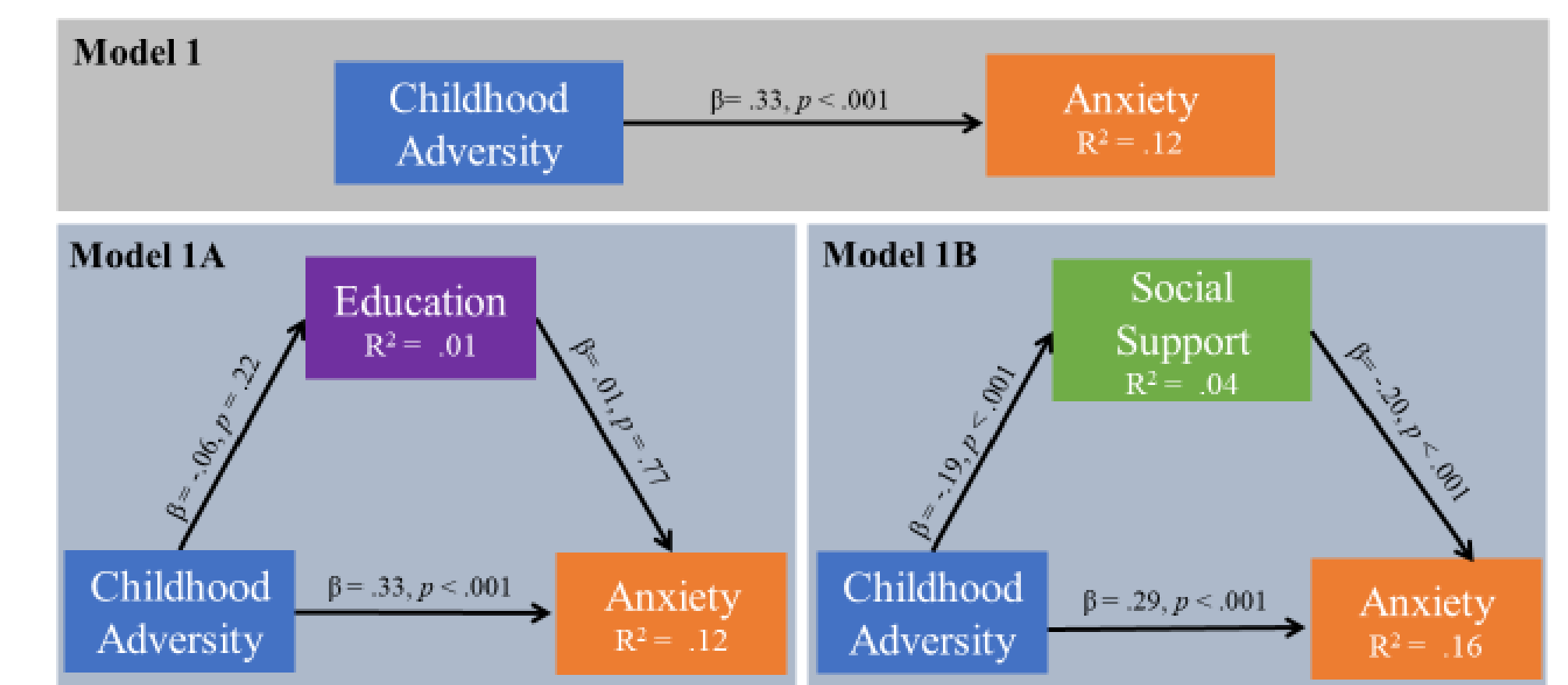
## CONCLUSION

- It was expected that education would have a stronger impact on ACEs, anxiety, and positive mental well-being. Though, this is not the case. Education played no role in reducing impact of ACEs, anxiety, or positive mental well-being. Social support, in contrast, did play as protective factor in reducing the impact of ACEs, anxiety, and positive well-being. This suggests that the presence of social support is significant in alleviating the negative outcomes of adverse childhood experiences as well as promoting positive mental health.
- If individuals will most likely experience at least one ACE during their lifetime or experience a cluster of them, we must insure these systems are present in different aspects of adult life.
- Minimizing the impact of childhood adversity experiences on anxiety and mental well-being is possible, and most effectively done through means of social support.
- Resources must be allocated to ensure that adults have access to various systems of social support. Programs and/or initiatives that attempt to strengthen these systems should be further examined to understand the role and effectiveness of diverse types of social support.
- If we aim to reduce negative health, social, and behavioral outcomes in adults, our institutions should emphasize the significance of and make certain the presence of social support.

## REFERENCES

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Indirect effects of Education and Social Support on the relationship between ACEs and Anxiety



Indirect effects of Education and Social Support on the relationship between ACEs and Mental Well-being

