

**The Association Between a History of Adverse
Childhood Experiences and Current Parenting
Beliefs and Attitudes**

By

Megan Barnes

A Master's Paper submitted to the faculty of the
University of North Carolina at Chapel Hill in partial
fulfillment of the requirements for the degree of
Master of Public Health in the Public Health
Leadership Program

Chapel Hill

2019



Sue Tolleson-Rinehart, PhD, Advisor and First Reader

30 June 2019

Date



Samantha Schilling MD, Second Reader

1 July 2019

Date

Abstract

Background: Adverse Childhood Experiences are a significant health problem with some negative consequences persisting into subsequent generations. One proposed mechanism for this is the influence of ACEs on parenting behavior.

Objective: This study seeks to examine the relationship between a history of ACEs and parenting attitudes and styles.

Participants and Setting: This study investigates the baseline data of the Child Adult Relationship Enhancement in Primary Care (PriCARE) trial at the University of North Carolina Children's Primary Care Clinic. 150 parents of 2 to 6 year old children were enrolled.

Methods: Parents filled out questionnaires that assessed ACEs and parenting beliefs and styles. The measures to assess parenting beliefs and styles included the Adult Adolescent Parenting Interview-2 (AAPI-2) and the Parenting Scale. Further data were collected on demographics, depression risk, and resiliency. Regression analyses were used to analyze the relationships.

Results: After adjustment for gender, race, and income, when compared to experiencing zero ACEs, prior exposure to four or more ACEs was associated with lower odds of being high risk for inappropriate parental empathy and oppression of children's power and independence using the AAPI-2. A history of ACEs was not associated with differences in the parenting scale measures. Experiencing an increasing number of ACEs did not demonstrate increased odds in adopting riskier parenting behaviors in a dose-responsive manner.

Conclusions: These findings contradict previous and expected findings of a positive relationship between number of ACEs and higher risk parenting attitudes and styles. Findings indicate the need to identify additional factors that may moderate the relationship between a history of adversity and parenting beliefs.

Keywords: Adverse Childhood Experiences, Abuse, Neglect, Parenting, Resiliency

Table of Contents

The Association Between a History of Adverse Childhood Experiences and Current Parenting Beliefs and Attitudes	i
Abstract	ii
Table of Contents	iii
Acknowledgements	iv
List of Abbreviations	v
Introduction	1
Methods	3
<i>Data Analysis</i>	5
Results	6
Discussion.....	8
References	14
Tables	17
Table 1: Demographic characteristics of parents	17
Table 2: Questionnaire Scores	19
Table 3: Prevalence of ACEs	20
Table 4: Association between ACE score and High Risk Parenting Style according to the AAPI-2	21
Table 5: Regression coefficients for Parenting Scale and ACE score	22
Appendices	23
Appendix A: PriCARE Trial.....	23
Appendix B: Questionnaires	24
Adverse Childhood Experiences (ACEs).....	24
Resiliency Questionnaire.....	25
Adult Adolescent Parenting Inventory-2 (AAPI-2)	26
Parenting Scale	29
Appendix C: Directed Acyclic Graph	35
Appendix D: Association between Adverse Childhood Experiences and Parenting Stress Later in Life: A Systematic Review	36

Acknowledgements

I would like to take the time to thank the individuals who have helped me complete this Master's Paper work. First, I would like to thank Dr. Sue Tolleson-Rinehart for her aid as an advisor and mentor throughout this process. Thank you for your dedication to students and our growth as public health and medical professionals. I am very grateful for the wisdom you have shared through this process and the entire MPH year.

Next, I would like to thank Dr. Samantha Schilling, who, without her willingness and generosity to share data and take on another student project, none of this would have been possible. Thank you Dr. Schilling for brainstorming this project and guiding me through the process. Thank you for your willingness to provide feedback, your flexibility, and your invaluable expertise throughout this work. It has been a pleasure to work with you!

I also want to thank my fellow MPH students, who kept me motivated throughout this process and who struggled through the writing stages with me. Together we were able to make it through and produce pieces of work we could be proud of. Finally, thank you to my family who have listened to the many points of work I have done throughout this year. Especially to my mother, who is always willing to provide feedback and come to my aid when I hit a writer's block.

List of Abbreviations

AAPI= Adult Adolescent Parenting Inventory

ACE=Adverse Childhood Experiences

aOR=Adjusted Odds Ratio

CES-D=Center for Epidemiologic Studies Depression Scale

CDC=Centers for Disease Control SD=Standard Deviation

CI=Confidence Interval

DAG=Directed Acyclic Graph

ECBI=Eyberg Child Behavior Inventory

OR=Odds Ratio

PriCARE=Child Adult Relationship Enhancement in Primary Care

UNC=University of North Carolina

Introduction

The effect of adverse childhood experiences (ACEs) on the health and wellbeing of adults later in life is profound and is a significant public health problem (About the CDC-Kaiser ACE Study, 2016; Felitti VJ et al., 1998; Chapman et al., 2004; Dube et al., 2001; Schilling et al., 2007; Dube, Felitti, and Dong, 2003; Brown et al., 2009; Hughes et al., 2017; Wilkins et al., 2014). ACEs, in the domains of abuse, neglect, and household dysfunction, affect an individual over an entire life span in various aspects of health from social, emotional, and cognitive impairment to disease and high-risk behaviors (Substance Abuse and Mental Health Services Administration, 2018). The early exposure to traumatic experiences disrupts a child's development by altering early brain development and hormonal axis functioning; the result of these alterations can be (1) anatomical and physiologic propensity for disease and (2) subsequent increased risk for adoption of high-risk behaviors (Sheridan and McLaughlin, 2014; Teicher and Samson, 2016; Danese and McEwen, 2012). ACEs are associated with a range of negative physical, mental, social, and emotional health outcomes including diabetes, chronic heart and lung disease, cancer, problematic drug and alcohol use, sexual risk taking, mental health problems, interpersonal and self-directed violence, and premature mortality (Felitti VJ et al., 1998; Chapman et al., 2004; Dube et al., 2001; Schilling et al., 2007; Dube, Felitti, and Dong, 2003; Brown et al., 2009; Hughes et al., 2017).

In addition to ACEs' association with morbidity and mortality decades later, there is also an intergenerational transmission of the ACEs. Parents who faced adversity as children are at increased risk of having children who suffer from maltreatment (Bifulco et al., 2002; Berlin, Appleyard, and Dodge, 2011; Dixon, Browne, and Hamilton-Giachritsis, 2005). The mechanism for this trend is unknown, but one theory proposes the adoption of riskier parenting after experiencing adversity. Parenting styles are passed down from one generation to the next (Conger et al., 2003, Belsky et al., 2005, Scaramella et al., 2008, Bailey et al., 2009), a mechanism that may be an essential driver of the intergenerational transmission of ACEs

(Reitman et al., 2001). In particular, studies have focused on specific childhood trauma exposures such as sexual abuse and future parenting practices that include corporal punishment or insecure parent-child attachments (Chung et al., 2009; Kawako, Noll, Putnam, and Trickett 2010; Smith, Williamson, Walsh, and McCartney 2016). Parents with histories of adversity demonstrate more intrusive parenting (Moehler, Biringen, and Poustka, 2007), higher levels of child neglect, greater use of physical punishment, lack of emotional control (Roberts et al., 2004), and hostile or inconsistent parenting (Driscoll and Easterbrooks, 2007; Lyons-Ruth and Block, 1996). This pattern of parenting transmission also applies to positive parenting practices (Chen and Kaplan, 2001; Belsky et al., 2005; Chen, Liu, and Kaplan, 2008). The apparent associations in those studies are juxtaposed to the various studies that have not found any relationship between a history of adversity and parenting practices (Lange, Callinan, and Smith, 2019; Grella and Greenwall, 2006; Lutenbacher and Hall, 1998; Meyers and Battisoni, 2003).

Importantly, these studies suggest that a history of childhood adversity does not adequately predict one's life course. Specific individuals experience ACEs yet avoid damaging health outcomes because they are resilient. Resilience skills help a person transform the stress of chronic adverse experiences into manageable loads to reduce the harmful effects during childhood and throughout life (Center on the Developing Child at Harvard University, 2015; Smith et al., 2008).

This study aims to further understanding of the mechanisms for the continuance of childhood adversity. We have not found a study that examined the relationship between parental ACEs and dysfunctional parenting beliefs and attitudes, nor considered the potential benefit of childhood resilience on this relationship. The aims of this research were (1) to determine the association between parent ACEs and risk of dysfunctional parenting styles and (2) to determine whether resiliency modifies the relationship between ACEs and dysfunctional parenting. I hypothesized that parents with increased exposure to ACEs demonstrate a higher

risk for dysfunctional parenting on two separate scales. Furthermore, I hypothesized that high resiliency scores would diminish the relationship between ACEs and dysfunctional parenting.

Methods

Overview

One hundred fifty parents of 2 to 6 year-old-children were enrolled in a study to assess a primary care-based parenting intervention at the University of North Carolina (UNC) Children's Primary Care Clinic. At enrollment, parents answered questionnaires about ACEs, resiliency, dysfunctional parenting beliefs, and dysfunctional parenting practices.

Data Sources

For the present research, I have had access to, and have analyzed, the baseline data collected from the Child Adult Relationship Enhancement in Primary Care (PriCARE) trial at the UNC Children's Primary Care Clinic (see appendix A for details regarding this trial). Upon enrollment, parents provided demographic data and completed several questionnaires, including the Adverse Childhood Experiences (ACEs) questionnaire, the Resiliency questionnaire, the Eyberg Child Behavior Inventory (ECBI), the Center for Epidemiologic Studies Depression Scale-Revised (CES-D-R-10), the Adult-Adolescent Parenting Inventory-2 (AAPI-2), and the Parenting Scale (see Appendix B for relevant questionnaires).

Variables

Participants were given baseline questionnaires to assess demographic data. Each demographic variable was categorical; thus, frequencies are reported unless otherwise specified in Table 1. Baseline score on the ECBI and CES-D-R-10 can be seen in Table 2. The ECBI assesses children's behavior on an intensity scale to measure the frequency of a child's behavior, and on a problem scale that identifies how strongly the parent identifies that behavior as a problem. Scores greater than 131 for the intensity scale and greater than 15 for the problem scale on the ECBI indicate potential problems (Eyberg and Pincus, 1999). A score of 10 or higher on the CESD-R-10 indicates significant depressive symptoms (Andresen, 1999).

Key Independent Variables

Ace Questionnaire:

The Children's Clinic ACE and Resiliency questionnaire uses 10 items to assess ACEs (see appendix for full questionnaire). Scores range from 0-9. ACEs were categorized by the number of ACEs experienced: 0, 1, 2, 3, or ≥ 4 , following the CDC-Kaiser study and subsequent studies (Felitti et al., 1998).

Resilience Questionnaire

The resiliency score was generated from a scale of 0-15 based on answers of yes or no to the 15 questions of this instrument. The resilience questionnaire is a tool developed to assess parental resilience and support systems. It was not designed for research.

Outcome Variables

The outcomes of interest were parenting attitudes and behavior as measured with two parenting instruments, the Adult-Adolescent Parenting Inventory-2 (AAPI-2) and the Parenting Scale.

The AAPI-2 is a 40 item parent-reported questionnaire to assess parenting attitudes (Bavolek, 1984). The AAPI-2 produces a risk category of low, medium, or high for five constructs: (A) inappropriate parental expectations; (B) parental lack of an empathetic awareness of children's needs; (C) strong belief in the use and value of corporal punishment; (D) parent-child role reversal; and (E) oppressing children's power and independence. I further dichotomized each construct into high-risk or medium-or low-risk. This measure has a test-retest reliability of 0.76 and an internal consistency of 0.70-0.86 (Woods et al., 2003; McKelvey, Burrow, Balamurugan, Whiteside-Mansell, and Plummer, 2012). The most recent psychometric examination of the AAPI-2 yielded acceptable internal consistency for the full score (0.85) and the following alphas for the subscales: lack of empathy (0.79), inappropriate expectations (0.64), corporal punishment (0.79), role reversal (0.59), and oppressing power and independence (0.50) (Conners, Whiteside-Mansell, Deere, Ledet, and Edwards, 2006).

The Parenting Scale is a 30-item questionnaire measuring dysfunctional parenting practices of parents of young children. Scores result in an overall total as well as individual scores for three categories of parenting behaviors: laxness, over-reactivity, and verbosity, reflecting permissive, harsh, and overly wordy responses to child misbehavior, respectively (Reitman et al., 2001). Scores are graded on a score of 1 (effective discipline) to 7 (ineffective discipline). The Parenting Scale has demonstrated adequate internal consistency, test-retest reliability, and convergent validity with other validated measures. It is correlated with observational measures of poor parental discipline and child misbehavior (Reitman et al., 2001; Freeman and DeCoursey, 2007).

Data Analysis

I generated univariate analyses to assess the frequency of covariates and ACEs with means, percentages, and standard deviations to summarize the study sample characteristics. Given the dichotomy of demographic criteria, averages and frequencies were calculated, as shown in Table 2.

The primary analyses assessed the association between ACE score with measures of parenting scores. I used logistic regression to test the study hypothesis with risk for each AAPI constructs (A-E) categorized as a binary outcome, high risk or moderate and low risk. I reported the odds ratios (ORs) and 95% confidence intervals (CIs) using zero ACEs as the reference group. I used an Ordinary Least Squares multiple linear regression analysis to test the association between the ACE score and Parenting Scale subscales (laxness, overreactivity, and verbosity). A Directed Acyclic Graph (DAG) was used to determine potential confounders that were adjusted for in the models (see Appendix C for DAG). I adjusted for parent's gender, age, income, and race, as these are related to both ACEs and parenting outcomes. Gender, race, and income differences affect both exposure to ACEs and parenting styles. I adjusted for age to account for any generational differences. Other possible confounders included depression,

ECBI scores, and resiliency. However, rather than causing ACEs, these variables are likely on the causal pathway between a history of ACEs and future outcomes.

Missing data (<2%) were excluded from the analysis. The alpha value was set at 0.05. All analyses were conducted using STATA version 15.1. (StataCorp, 2017).

Resiliency Analysis

Because the resiliency questionnaire was neither designed for research nor validated in studies, we have chosen to conduct analyses without and with the resiliency questions included. Resiliency score was added as a covariate in each of the models to determine any change in odds.

Results

Demographics

The demographic information is presented in Table 1 with the distribution across the categorical ACE scores: 0, 1, 2, 3, and 4+. Except for gender, this population was fairly diverse. The parents were primarily 30-39 years old (47%), female (93%), and white (49%). Most parents had achieved further education after high school (83%). The majority of parents reported a total household income less than \$70,000 per year (63%), with approximately 12% earning less than \$10,000 per year. The average number of children in the household was two (SD 1.04). The average age of the children was 3.5 (SD 1.3).

As Table 2 shows, the average ECBI Intensity Score was 106.2 (34.6). The average ECBI problem score was 10.73 (7.52). The average depression score was 6.73 and increased as the exposure to ACEs increased. Additionally, the proportion of parents with scores higher than 10, indicating the presence of significant depressive symptoms, increased as the ACE score increased. More than a third, 34.8%, of the parents who experienced four or more ACEs, experienced depressive symptoms.

ACEs

The average number of ACEs was 2.48 (Table 3). Thirty-seven respondents (24.7%) experienced 0 ACEs, and 46 respondents (30.7%) experienced four or more ACEs during childhood. The most commonly experienced ACE was the experience of parental separation or divorce, (n = 72, 48%). The other commonly experienced ACEs included living with a family member who was depressed or mentally ill (n = 46, 30.7%), the feeling that no one in your family loved you or supported you (n = 43, 28.7%), and living with a problem drinker or drug user (n = 42, 28%).

Association between ACEs and AAPI-2 Risks

Table 4 shows the prevalence of parents at high risk for each of the AAPI constructs across the ACE scores. Construct B, parental empathy, had the most substantial proportion of parents who were identified as high risk for lack of an empathetic awareness of children's needs (42%).

Logistic regression allows the examination of the association between ACE score and high-risk scores for the AAPI-2 constructs; it reveals statistically significant findings for constructs B, parental empathy, and E, oppression of children's power and independence ($p < 0.05$) (Table 4). Living through four or more ACEs was associated with lower odds of high risk for inappropriate parenting attitudes for constructs B (aOR 0.29; 95% CI, 0.1-0.9) and E (aOR 0.2; 95% CI 0.04-0.9). After adjustment for confounders, the associations between the number of ACEs and the odds for adopting high-risk parenting attitudes did not reveal dose-response relationships. For construct B, there are increased odds for high-risk parental empathy after experiencing 1 or 2 ACEs compared to 0, but there are reduced odds for high-risk parental empathy after experiencing 3 or more ACEs. A similar trend exists for construct E. There are increased odds for experiencing 2 ACEs, but reduced odds for exposure to any other number of ACEs compared to no exposure to ACEs.

Association between ACEs and Parenting Scale Scores

The average scores for each of the subscales in the Parenting Scale are shown in Table 5. This sample of parents had the highest scores for verbosity, 3.79 (SD 0.95). Modeled multiple linear regressions for Parenting Scale subcategories were not statistically significant ($p < 0.05$) (Table 5).

Resiliency analyses

The average resiliency score in this population was 52.5 (7.2). There was no clear trend as the number of ACEs increased, though the parents who experienced zero ACEs scored as most resilient. Adding resiliency score to the model did not reveal significant relationships.

Discussion

This study is one of the few to investigate a relationship between a history of childhood adversity and later parenting attitudes and beliefs. The sample of parents whose data I have analyzed here has reported higher rates of ACEs than is true of national samples in which about 50% of those surveyed experienced at least one ACE (Sacks and Murphey, 2018; Dube et al., 2001). In our sample, 75% of parents experienced at least one ACE, and 30.7% of the sample experienced four or more ACEs. The majority of the sample was not at high risk for inappropriate parenting beliefs and attitudes based on the AAPI-2. The highest proportion of high-risk parents was for harmful verbosity practices, or the use of lengthy explanations to children.

Though there was statistical significance for a number of the AAPI-2 construct measures, the results were weak, without clear trends of association with increasing exposure to ACEs. The results do not support our hypothesis of a dose-response relationship in which experiencing more ACEs is related to increased odds of high-risk parenting styles. Furthermore, there is no support for an association between the number of ACEs and adverse scores on the Parenting Scale measures. The presence of widened confidence intervals and a lack of a dose-response relationship introduce uncertainty into our conclusion of actual effects. This indicates

the possibility that there is no difference in odds between exposure to zero ACEs and to any number of ACEs for parenting beliefs. Adding resiliency to the model resulted in non-significant findings.

These results were neither in accordance with previous studies nor my own expectation. Previous literature documents the positive associations between history of adversity and unsafe parenting practices (Moehler, Biringen, and Poustka, 2007; Driscoll and Easterbrooks, 2007; Lyons-Ruth and Block, 1996). Research demonstrates that children who experience sexual abuse are at risk of developing impaired parenting skills (Roberts et al., 2004), and more dysfunctional (?) parent-child relationships. Though the literature shows mixed effects of the association between a history of adversity and poor parenting practices, I did not identify literature that would suggest a reduced risk of adopting poorer parenting attitudes or practices.

For the AAPI parenting belief outcomes, I was most surprised that the group of parents who experienced four or more ACEs, had reduced odds of being high risk for low parental empathy and oppressing children's power and independence. Parents at risk of having low levels of empathy are characterized by fearing spoiling children, not understanding or valuing children's normal development, believing children must act right, lacking nurturing parenting skills, and lacking adequate skills to cope with parenting stresses (AAPI-2, n.d.). Parents at risk of restricting children's power and independence are characterized by believing that children should be strictly obedient and children should not have their own power to think independently (AAPI-2, n.d.). I hypothesized that adult agents of abuse or neglect are more likely to adopt these beliefs and attitudes. Given the learning of children based on experience and the intergenerational transmission of parenting, I expected that children who had experienced these forms of adversity would more likely adopt these higher risk parenting attitudes. I did not anticipate the opposite effect.

My not finding significant associations and, indeed, uncovering findings in discordance with previous literature, may result from several different causes. First, this study may lack

power to detect any real association in this sample. Second, recall bias could enter into any testing of the association of a retrospective exposure and a current outcome. In the context of whether one had experienced an ACE, this could introduce non-differential measurement error, which would bias findings towards the null. Similarly, parents may not disclose that they engage in parenting behaviors or have beliefs that suggest negative parenting because of social desirability. Third, the actual association could be masked by another mediating variable between adversity and parenting beliefs. I attempted to ameliorate this concern with the use of a resiliency questionnaire, but this has various limitations. The temporality of experiencing ACEs may also matter, but I was unable to assess temporality. Finally, the real association could be that there is no association between history of adversity and parenting beliefs.

The results of this study support the ability of parents to change their course of risk. Ultimately, this sample of parents demonstrates that people are not destined to adopt more inferior parenting beliefs and attitudes because they themselves come from a background of adversity. This study suggests that important variables may mediate any potential effect, but we may not have identified them with the measures we have used. These findings support the need to identify the mediating variables so that these factors can be addressed to prevent parents who come from backgrounds of adversity from developing risky parenting beliefs. Further research should incorporate the use of a validated resiliency measure to determine if resiliency is playing a more significant role in any association between ACEs and parenting beliefs.

Strengths and Limitations

One of the strengths of this study is its focus on parenting attitudes and beliefs, in addition to the behaviors of parents. By focusing on beliefs and attitudes, we can better develop interventions for changing beliefs and attitudes, as these will subsequently alter actions. The use of two different surveys of parenting captures a more comprehensive view of parents' attitudes that can be predictive of parenting behavior. A larger scale study would do well to

examine children's health outcomes in concurrence with parenting styles to further support the use of these measures.

The results of this study must also be assessed in the context of various limitations. First, while a sample size of 150 would typically have appropriate power, using multiple categories for the exposure based on the number of ACEs leads to smaller sizes of subcategories. Reduced power leads to widened confidence intervals and uncertainty within the statistical significance of the results. This effect is emphasized in the lack of a dose-response relationship in the results. In our sample, a small number of people experienced zero ACEs, which limits the statistical comparison to other groups of exposure. Furthermore, it limits generalizability.

This study is also limited in the wide variety of factors assessed. Possible confounders not assessed here include family composition, family and social support (Wind and Silvern, 1994; Kaufman et al., 2004; Jaffee et al., 2007; Seeman et al., 2002), parenting stress, and confidence in parenting skills.

Another acknowledged limitation is our measure of resilience. The survey is designed for clinical use, as a means to identify forms of resiliency, and it has not been validated as a research tool. Because, in the clinic environment, there is less emphasis on the overall score, we also do not have any cutoffs for scores that indicate levels of high resiliency versus low or moderate levels. Therefore, it is difficult to make statements about the accuracy of the analyses that included resiliency score. There are no validated measures of resilience available at this time.

Generalizability

Our sample was disproportionately composed of mothers but was otherwise diverse across other demographic categories. The use of a voluntary sample of parents may introduce some selection bias, though participants were enrolled for a different overall study purpose.

Future Directions

With the addition of this study to the understanding of adversity and future parenting, more thorough research experiences are needed to develop a greater understanding of adversity and parenting. Repeated studies with larger sample sizes would increase the power to detect an exact effect among the different number of ACEs. Studies should also seek to identify mediating factors in the relationship between childhood adversity and parenting later in life. These factors include previously suggested confounders that were not measured in our study in addition to resiliency. Though our study includes an assessment of resiliency, I suggest either validating this commonly used clinical tool for research purposes, or using a different, validated measurement form of resiliency.

The timing and frequency of adversity possibly influences the potential for developing poor parenting styles. More studies are needed to assess the effect of age at which adversities occur and the frequency of exposure to adversity. Previous research has found the timing of exposure to adversity to be an essential consideration in the context of the neurobiological developmental model of child development. The disruption of a child's social and cognitive development early in life can lead to poorer long-term developmental outcomes, though these effects on brain development are not irreversible (McEwen, 2003). Similarly, the length of exposure can demonstrate similar trends because children do not experience a time of normalcy for healthy development.

Conclusions

Despite the limitations of these findings, the lack of evidence for increased odds of higher risk parenting attitudes and behaviors contributes to the idea that there are likely moderating forces between a history of adversity and development of poor parenting styles, including attitudes and beliefs. Discovering these moderating forces will aid the development of interventions to improve parenting and reduce the intergenerational transmission of adversity. In light of the growing emphasis on parenting interventions, greater understanding of the potential

for a history of adversity to affect parenting beliefs and the variables that moderate this relationship is essential.

References

1. AAPI-2.1. (n.d.). Retrieved from <https://assessingparenting.com/assessment/aapi>
2. Andresen E.M. Screening for depression in well older adults: Evaluation of a short form of the CES-D. *American Journal of Preventive Medicine*. 1994;10(2):77.
3. Bailey J.A., Hill K.G., Oesterle S, Hawkins J.D. (2009) Parenting practices and problem behavior across three generations: monitoring, harsh discipline, and drug use in the intergenerational transmission of externalizing behavior. *Dev Psychol* 45:1214–1226.
4. Bavolek S. Handbook for the AAPI (Adult-Adolescent Parenting Inventory) Park City, UT: Family Development Resources; 1984.
5. Belsky J, Jaffee S.R., Sligo J, Woodward L, Silva P.A. (2005) Intergenerational transmission of warm-sensitive-stimulating parenting: a prospective study of mothers and fathers of 3-year-olds. *Child Dev* 76:384–396.
6. Berlin L.J., Appleyard K, Dodge K.A. Intergenerational continuity in child maltreatment: Mediating mechanisms and implications for prevention. *Child Development*. 2011;82:162–176.
7. Bifulco A., Moran P.M., Ball C., Jacobs C., Baines R., Bunn A., Cavagin J. Childhood adversity, parental vulnerability and disorder: examining inter-generational transmission of risk. *J. Child Psychol. Psychiatry*. 2002;43(8):1075–1086.
8. Brown D.W., Anda R.F., Tiemeier H., et al. Adverse childhood experiences and the risk of premature mortality. *Am J Prev Med*. 2009;37(5):389-396. doi:10.1016/j.amepre.2009.06.021
9. Centers for Disease Control and Prevention. (2016). About the CDC-Kaiser ACE Study. Retrieved from <http://www.cdc.gov/violenceprevention/acestudy/about.html>
10. Center on the Developing Child at Harvard University . Working paper 13. Cambridge MA: National Scientific Council on the Developing Child; 2015. Supportive relationships and active skill-building strengthen the foundations of resilience.
11. Chapman D.P., Whitfield C.L., Felitti V.J., Dube S.R., Edwards V.J., Anda R.F. Adverse childhood experiences and the risk of depressive disorders in adulthood. *J Affect Disord*. 2004;82(2):217–225.
12. Chen Z-Y., Kaplan H.B. (2001) Intergenerational transmission of constructive parenting. *J Marriage Fam* 63:17–31.
13. Chen Z-Y., Liu R.X., Kaplan H.B. (2008) Mediating mechanisms for the intergenerational transmission of constructive parenting: a prospective longitudinal study. *J Fam Issues* 29:1574–1599.
14. Chung, E. K., Mathew, L., Rothkopf, A. C., Elo, I. T., Coyne, J. C., & Culhane, J. F. (2009). Parenting attitudes and infant spanking: the influence of childhood experiences. *Pediatrics*, 124(2), e278–e286. doi:10.1542/peds.2008-3247
15. Conger R.D., Neppl T.K., Kim K.J., Scaramella L.V. (2003) Angry and aggressive behavior across three generations: a prospective, longitudinal study of parents and children. *J Abnorm Child Psychol* 31:143–160.
16. Connors N.A., Whiteside-Mansell L., Deere D., Ledet T, Edwards M.C. Measuring the potential for child maltreatment: The reliability and validity of the Adult Adolescent Parenting Inventory—2. *Child Abuse & Neglect*. 2006;30(1):39-53.
17. Danese A., McEwen B.S. Adverse childhood experiences, allostasis, allostatic load, and age-related disease. *Physiol Behav*. 2012;106:29–39. doi: 10.1016/j.physbeh.2011.08.019.
18. Dixon L., Hamilton-Giachritsis C., Browne K. Attributions and behaviours of parents abused as children: A mediational analysis of the intergenerational continuity of child maltreatment (Part II) *Journal of Child Psychology and Psychiatry*. 2005;46:58–68.

19. Dube S.R., Anda R.F., Felitti V.J., Chapman D.P., Williamson D.F., Giles W.H. Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: findings from the Adverse Childhood Experiences Study. *JAMA*. 2001;286(24):3089–3096.
20. Dube S., Felitti V., Dong M. Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: the adverse childhood experiences study. *Pediatrics*. 2003; 111(3):564–572. doi: 10.1542/peds.111.3.564.
21. Eyberg, S., & Pincus, D. (1999). *Eyberg Child Behavior Inventory & Sutter-Eyberg Student Behavior Inventory-Revised: Professional Manual*. Odessa, FL: Psychological Assessment Resources.
22. Felitti V.J., Anda R.F., Nordenberg D., et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *The Adverse Childhood Experiences (ACE) Study*. *Am J Prev Med*. 1998;14(4):245–258.
23. Freeman K.A., DeCoursey W. Further analysis of the discriminate validity of the parenting scale. *Journal of Psychopathology and Behavioral Assessment*. 2007;29(3):169-176.
24. Grella C.E., Greenwell L. Correlates of parental status and attitudes toward parenting among substance-abusing women offenders. *Prison Journal*. 2006;86:89–113.
25. Hughes K., Bellis M.A., Hardcastle K.A., et al. The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *Lancet Public Health* 2017;2:e356–e366. 10.1016/S2468-2667(17)30118-4
26. Jaffee, S.R., Caspi, A., Moffitt, T.E., Polo-Toma´s, M., & Taylor, A. (2007). Individual, family, and neighborhood factors distinguish resilient from non-resilient maltreated children: A cumulative stressors model. *Child Abuse and Neglect*, 31, 231–253.
27. Kaufman, J., Yang, B., Douglas-Palumberi, H., Houshyar, S., Lipschitz, D., Krystal, J.H., et al. (2004). Social supports and serotonin transporter gene moderate depression in maltreated children. *Proceedings of the National Academy of Sciences of the United States of America*, 101, 17316–17321.
28. Kwako L.E., Noll J.G., Putnam F.W., Trickett P.K. Childhood sexual abuse and attachment: An intergenerational perspective. *Clin Child Psychol Psychiatry*. 2010;15(3):407–22. 10.1177/1359104510367590
29. Lange B.C.L., Callinan L.S., Smith M.V. Adverse Childhood Experiences and Their Relation to Parenting Stress and Parenting Practices. *Community Ment Health J*. 2019 May;55(4):651-662. doi: 10.1007/s10597-018-0331-z. Epub 2018 Sep 7.
30. Lutenbacher M., Hall L.A. The effects of maternal psychosocial factors on parenting attitudes of low-income, single mothers with young children. *Nursing Research*. 1998;47:25–34.
31. McKelvey L.M., Burrow N.A., Balamurugan A., Whiteside-Mansell L., Plummer P. Effects of home visiting on adolescent mothers' parenting attitudes. *American journal of public health*. 2012;102(10):1860-1862.
32. McEwen, B.S. (2003). Early life influences on life-long patterns of behavior and health. *Mental Retardation and Developmental Disabilities Research Reviews*, 9, 149–154 4.
33. Meyers S.A., Battistoni J. Proximal and distal correlates of adolescent mothers' parenting attitudes. *Applied Developmental Psychology*. 2003;24:33–49.
34. Moehler E., Biringen Z., Poustka L. (2007) Emotional availability in a sample of mothers with a history of abuse. *Am J Orthopsychiatry* 77:624–628.
35. Reitman D., Currier R.O., Hupp S.D., Rhode P.C., Murphy M.A., O'Callaghan P.M. Psychometric characteristics of the parenting scale in a head start population. *Journal of Clinical Child Psychology*. 2001;30(4):514-524.
36. Roberts R., O'Connor T., Dunn J., Golding J. (2004) The effects of child sexual abuse in later family life; mental health, parenting and adjustment of offspring. *Child Abuse Negl*

28:525–545.

37. Sacks V., Murphey D. (2018). The Prevalence of Adverse Childhood Experiences Nationally, by State, and by Race or Ethnicity. Retrieved May 30, 2019, from <https://www.childtrends.org/publications/prevalence-adverse-childhood-experiences-nationally-state-race-ethnicity>.
38. Scaramella L.V., Neppl T.K., Ontai L.L., Conger R.D. (2008) Consequences of socioeconomic disadvantage across three generations: parenting behavior and child externalizing problems. *J Fam Psychol* 22:725–733.
39. Schilling E.A., Aseltine R.H., Gore S. Adverse childhood experiences and mental health in young adults: a longitudinal survey. *BMC Public Health*. 2007;7:30.
40. Seeman T.E., Singer, B.H., Ryff, C.D., Dienberg Love, G., & Levy-Storms, L. (2002). Social relationships, gender, and allostatic load across two age cohorts. *Psychosomatic Medicine*, 64, 395–406.
41. Sheridan M.A., McLaughlin K.A. Dimensions of early experience and neural development: deprivation and threat. *Trends Cogn Sci*. 2014;18:580–585. doi: 10.1016/j.tics.2014.09.001.
42. Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine*, 15(3), 194-200.
43. Smith M., Williamson A. E., Walsh D., & McCartney G. (2016). Is there a link between childhood adversity, attachment style and Scotland's excess mortality? Evidence, challenges and potential research. *BMC Public Health*, 16, 655–658. 10.1186/s12889-016-3201-z
44. StataCorp. 2017. *Stata Statistical Software: Release 15.1*, College Station, TX: STataCorp LLC (-0.1).
45. Substance Abuse and Mental Health Services Administration. *Adverse Childhood Experiences*. 2018. Retrieved from <https://www.samhsa.gov/capt/practicing-effective-prevention/prevention-behavioral-health/adverse-childhood-experiences>. Accessed February 2, 2019.
46. Teicher M.H., Samson J.A. Annual Research Review: Enduring neurobiological effects of childhood abuse and neglect. *J Child Psychol Psychiatry*. 2016;57:241–266. doi: 10.1111/jcpp.12507.
47. Wilkins N., Tsao B., Hertz M., Davis R., Klevens J. Connecting the dots: An overview of the links among multiple forms of violence. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention; Oakland, CA: Prevention Institute; 2014.
48. Wind, T.W., & Silvern, L. (1994). Parenting and family stress as mediators of the long-term effects of child abuse. *Child Abuse and Neglect*, 18, 439–453.
49. Woods E.R., Obeidallah-Davis D., Sherry M.K., et al. The parenting project for teen mothers: the impact of a nurturing curriculum on adolescent parenting skills and life hassles. *Ambulatory Pediatrics*. 2003;3(5):240-245.

Tables

Table 1: Demographic characteristics of parents

Characteristic	Total (n=150) (n, %)	0 ACEs (n=37) %	1 ACEs (n=32) %	2 ACEs (n=19) %	3 ACEs (n=16) %	4+ ACEs (n=46) %
Parent Age						
18-29	56 (37.3)	24.3	34.4	21.5	43.8	54.4
30-39	71 (47.3)	62.2	56.3	47.4	37.5	32.6
40-49	20 (13.3)	13.5	6.3	31.6	18.8	8.7
50-59	3 (2.0)	0	3.1	0	0	4.4
Gender						
Female	139 (92.7)	91.9	84.4	94.7	100	95.7
Male	11 (7.3)	8.1	15.6	5.3	0	4.4
Race/Ethnicity						
White	74	62.2	40.6	42.1	31.3	54.3
Black or African American	54	24.3	43.8	36.8	43.8	37.0
Other	14	13.5	6.2	5.3	18.9	6.5
Hispanic						
No	127 (85.8)	97.2	80.7	84.2	93.8	78.3
Yes	21 (14.2)	2.3	19.4	15.8	6.3	21.7
Relationship to child						
Father	11	8.1	15.6	5.3	0	4.4
Mother	136	89.2	84.4	94.7	100	91.3
Other (Grandparent, stepparent)	3	2.7	0	0	0	4.4
Education						
<8 th grade	1 (0.67)	0	3.1	0	0	0
9-12 grade	1 (0.67)	0	3.1	0	0	0
High school grad	23 (15.3)	10.8	21.9	26.3	6.3	13.0
1+ college, no degree	37(24.7)	13.5	21.9	10.5	31.3	39.1
Associate degree	17(11.3)	2.7	12.5	10.5	12.5	17.4
Bachelor's degree	34 (22.7)	27.0	18.8	21.1	25.0	21.7
Master's or Professional	37(24.7)	46.0	18.8	31.6	25.0	8.7
Child's age*	3.5 (1.3)	3.2 (1.2)	3.6 (1.5)	3.8 (1.0)	3.5 (1.5)	3.6 (1.4)
How many children in household?*	2.0 (1.0)	2.2 (1.5)	2.1 (0.8)	2.3 (0.9)	1.8 (0.9)	1.8 (0.80)
Household Income						

<10,000	18 (12.3)	2.8	6.9	10.5	25.0	9 (19.6)
10,000-19,999	13 (8.9)	5.6	10.3	0	18.8	5 (10.9)
20,000-29,999	16 (11.0)	8.3	17.2	5.3	0.0	7 (15.2)
30,000-39,999	15 (10.3)	11.1	10.3	15.8	6.3	4 (8.7)
40,000-49,999	12 (8.2)	5.6	17.2	5.3	6.3	3 (6.5)
50,000-59,999	12 (8.2)	8.3	6.9	21.1	0.0	3 (6.5)
60,000-69,999	7 (4.8)	2.8	0	5.3	6.3	4 (8.7)
70,000+	53 (36.3)	55.6	31.0	36.8	37.5	11 (23.9)

*Expressed as mean (SD)

Table 2: Questionnaire Scores

Characteristic	Total (n=150) (n, %)	0 ACEs (n=37) %	1 ACEs (n=32) %	2 ACEs (n=19) %	3 ACEs (n=16) %	4+ ACEs (n=46) %
Eyberg Child Behavior Inventory Intensity Score*	106.2 (34.6)	96.3 (26.0)	95.8 (33.7)	121 (35.8)	109.75 (35.2)	114.2 (37.2)
ECBI Problem score*	10.73 (7.52)	9.0 (6.2)	9.4 (8.2)	12.6 (7.3)	11 (7.7)	12.20 (7.77)
CES D Score*	6.73 (5.38)	4.2 (4.8)	5.4 (5.1)	8.1 (6.0)	7.8 (5.0)	8.74 (5.02)
Positive screen CES-D symptoms	34 (22.7)	8.1	15.6	26.3	31.25	34.8
Resiliency score*	52.5 (7.2)	57.3 (2.7)	53.8 (5.2)	50.7 (6.5)	53.6 (6.0)	48 (8.7)

*Expressed as mean (SD)

Table 3: Prevalence of ACEs

ACEs	Total n (n=150)	1 (n=37) %	2 (n=32) %	3 (n=19) %	4+ (n=46) %
Average number of ACEs experienced*	2.48 (2.38)				
1: psychological abuse	39	6.3	26.3	50	52.2
2: physical abuse	36	3.1	15.8	31.3	58.7
3: sexual abuse	33	18.8	0	12.5	54.3
4: psychological neglect	43	12.5	26.3	25	65.2
5: living needs neglect	17	0	0	6.3	34.8
6: divorce, separation	72	34.4	68.4	81.3	76.1
7: mother treated violently	28	6.3	10.5	18.9	45.7
8: substance abuse	42 (1 missing)	6.3	21.1	25	69.6
9: mental illness	46	12.5	21.1	37.5	69.6
10: criminal behavior	16 (1 missing)	0	10.5	12.5	26.1

*Mean (SD)

Table 4: Association between ACE score and High Risk Parenting Style according to the AAPI-2

Construct	# of ACEs	% high risk	Adjusted OR		95% CI	P value
			w/out resiliency	w/ resiliency		
A: parental expectations	0	8.1	1		Reference	-
	1	31.0	4.9		(0.9-26.0)	-
	2	21.1	2.2		(0.3-14.7)	-
	3	25.0	5.5		(0.7-45.7)	-
	4+	17.4	1.0		(0.2-6.2)	-
	Total	19.3				
B: parental empathy	0	35.1	1	1	Reference	-
	1	62.5	1.9	2.0	(0.6-5.8)	-
	2	57.9	2.3	2.7	(0.6-8.5)	-
	3	43.8	0.62	0.70	(0.1-2.6)	-
	4+	26.1	0.29	0.36	(0.1-0.9)	0.032
	Total	42.0				
C: belief in corporal punishment	0	18.9	1		Reference	-
	1	25.0	1.1		(0.3-4.0)	-
	2	36.8	2.3		(0.6-9.6)	-
	3	31.3	1.4		(0.3-6.7)	-
	4+	30.4	1.1		(0.3-3.7)	-
	Total	27.3				
D: parent-child role reversal	0	8.1	1		Reference	-
	1	37.5	3.7		(0.7-18.5)	-
	2	10.5	1.0		(0.1-8.4)	-
	3	31.3	2.4		(0.3-17.3)	-
	4+	10.9	0.7		(0.1-4.0)	-
	Total	18.0				
E: oppressing child's power and independence	0	21.6	1	1	Reference	-
	1	25	0.8	0.97	(0.2-3.0)	-
	2	27.8	1.5	3.8	(0.3-7.8)	-
	3	18.9	0.2	0.23	(0.03-1.5)	-
	4+	10.9	0.2	0.36	(0.04-0.9)	0.036
	Total	19.5				

Bolded values are significant

Table 5: Regression coefficients for Parenting Scale and ACE score

Parenting Scale Subscale	ACE score	Average Score	Beta coefficient	P value
Laxness	0	2.52 (0.76)	Reference	0.4565
	1	2.64 (0.90)	0.20	
	2	2.95 (0.83)	0.48	
	3	2.32 (0.90)	-0.29	
	4+	2.75 (1.16)	0.18	
	Total	2.65 (0.95)		
Overreactivity	0	2.04 (0.50)	Reference	0.4884
	1	2.15 (0.73)	0.24	
	2	2.38 (0.70)	0.42	
	3	2.31 (0.84)	0.34	
	4+	2.38 (0.78)	0.49	
	Total	2.24 (0.71)		
Verbosity	0	3.63 (0.90)	Reference	0.0797
	1	4.01 (0.89)	0.23	
	2	4.11 (1.05)	0.40	
	3	3.64 (0.90)	-0.21	
	4+	3.69 (1.29)	-0.03	
	Total	3.79 (0.95)		

***95% CI not included. Each passes through 0.0

Appendices

Appendix A: PriCARE Trial

Inclusion/Exclusion Criteria

Parents or legal guardians who enroll in the PriCARE program at the UNC Children's Primary Care Clinic were eligible to participate in this study. The CARE program criteria are as follows: English speaking parent or legal guardian (ages 18 years or older) of a child who met the following criteria:

Inclusion criteria:

- UNC Children's Primary Care clinic patient
- 2-6 years old

Exclusion criteria:

- Cognitively delayed < 2 years old as determined by their pediatrician
- Currently receiving mental health treatment including therapy or medication for mental health diagnosis

Baseline Data Collection

The PriCARE program is standard of care at the clinic. Parents were able to enroll in the program without participating in this study. Upon enrollment, demographic data was collected along with conducting the Adverse Childhood Experiences, the Resiliency, the Adult Adolescent Parenting Interview-2, the Parenting Scale, the Eyberg Child Behavior Inventory, and the Center for Epidemiologic Studies Depression Scale questionnaires.

Appendix B: Questionnaires

Adverse Childhood Experiences (ACEs)

While you were growing up, during your first 18 years of life:		
Question	No	Yes
1.) 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.) 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.) 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 or actually have oral, anal, or vaginal intercourse with you?		
4.) Did you often or very often feel that...no one in your family loved you or through you were important or special? OR your family didn't look out for each other, feel close to each other, or support each other?		
5.) Did you often or very 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?		
6.) Were your parents ever separated or divorced?		
7.) 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 at least a few minutes or threatened with a gun or knife?		
8.) Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?		
9.) Was a household member depressed or mentally ill, or did a household member attempt suicide?		
10.) Did a household member go to prison?		

Resiliency Questionnaire

Please tell me how often the following are true: definitely not true, probably not true, not sure, probably true, definitely true					
	Definitely Not True	Probably Not True	Not Sure	Probably True	Definitely True
1.) I believe my mother loved me when I was little.					
2.) I believe that my father love me when I was little.					
3.) When I was little, other people helped my parents take care of me and they seemed to love me.					
4.) I've heard that when I was an infant, someone in my family enjoyed playing with me and I enjoyed it too.					
5.) When I was a child, there were relatives in my family who helped me feel better when I was sad or worried.					
6.) When I was a child, neighbors or my friends' parents seemed to like me.					
7.) When I was a child, teachers, coaches, youth leaders, or ministers were there to help me.					
8.) Someone in my family cared about how I was doing in school.					
9.) My family, neighbors, and friends talked about making our lives better.					
10.) We had rules in our house and were expected to keep them.					
11.) When I felt really bad, I could almost always find someone I trusted to talk to.					
12.) As a youth, people noticed that I was capable and could get things done.					
13.) I was independent and a go-getter.					
14.) I believe that life is what you make it.					
15.) There are people I can count on now in my life.					

Adult Adolescent Parenting Inventory-2 (AAPI-2)

Please tell me how much you agree or disagree with each statement. The response options are: Strongly Agree, Agree, Disagree, Strongly Disagree, or Not Sure					
Question	Strongly Agree	Agree	Disagree	Strongly Disagree	Uncertain
1.) Children need to be allowed freedom to explore their world in safety.					
2.) Time-out is an effective way to discipline children.					
3.) Children who are one-year-old should be able to stay away from things that would harm them.					
4.) Strong-willed children must be taught to mind their parents.					
5.) The sooner children learn to feed and dress themselves and use the toilet, the better off they will be as adults.					
6.) Spanking teaches children right from wrong.					
7.) Babies need to learn how to be considerate of the needs of their mother.					
8.) Strict discipline is the best way to raise children.					
9.) Parents who nurture themselves make better parents.					
10.) Children can learn good discipline without being spanked.					
11.) Children have a responsibility to please their parents.					
12.) Good children always obey their parents.					
13.) In father's absence, the son needs to become the man of the house.					
14.) A good spanking never hurt anyone.					
15.) Parents need to push their children to do better.					
16.) Children should keep their feelings to themselves.					
17.) Children should be aware of ways to comfort their parents					

after a hard day's work.					
18.) Children learn respect through strict discipline.					
19.) Hitting a child out of love is different than hitting a child out of anger.					
20.) A good child sleeps through the night.					
21.) Children should be potty trained when they are ready and not before.					
22.) A certain amount of fear is necessary for children to respect their parents.					
23.) Spanking teaches children it's alright to hit others.					
24.) Children who feel secure often grow up expecting too much.					
25.) There is nothing worse than a strong-willed two-year-old.					
26.) Sometimes spanking is the only thing that will work.					
27.) Children who receive praise will think too much of themselves.					
28.) Children should do what they're told to do, when they're told to do it. It's that simple.					
29.) Children should be taught to obey their parents at all times.					
30.) Children should know what their parents need without being told.					
31.) Children should be responsible for the well-being of their parents.					
32.) It's OK to spank as a last resort.					
33.) Parents should be able to confide in their children.					
34.) Parents who encourage their children to talk to them only end up listening to complaints.					
35.) Children need discipline, not spanking.					
36.) Letting a child sleep in the					

parents' bed every now and then is a bad idea.					
37.) A good spanking lets children know parents mean business.					
38.) A good child will comfort both parents after they have argued.					
39.) "Because I said so" is the only reason parents need to give.					
40.) Children should be their parents' best friend.					

Parenting Scale

At one time or another, all children misbehave or do things that could be harmful, are "wrong", or that parents don't like. Examples include: hitting someone, having a tantrum, whining, throwing food, lying, arguing back, not picking up things, or refusing to go to bed. Parents have many different ways or styles of dealing with these types of problems. I am going to read a list of items that describe some styles of parenting.

Before I start, please get out a piece of paper and write the numbers 1,2,3,4,5,6,7 in a row. I want you to look at this scale as I read the statements. I will tell you two extremes for responses to each statement. One response is assigned to the number 1, and the other response is assigned to the number 7. I want you to tell me where your response falls on the spectrum of responses from one extreme to the other. That is 1 to 7.

For each item, indicate the degree (1-7) that best describes your style of parenting during the past TWO MONTHS with your child.

1. When my child misbehaves:

- (1) I do something right away
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I do something later

2. Before I do something about a problem:

- (1) I use only one reminder or warning
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I give my child several reminders and warnings

3. When I'm upset or under stress:

- (1) I am not more picky than usual
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I am picky and on my child's back

4. When I tell my child NOT to do something:

- (1) I say very little
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I say a lot

5. When my child pesters me:

- (1) I can ignore the pestering
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I can't ignore the pestering

6. When my child misbehaves:

- (1) I don't get into an argument
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I usually get into a long argument with my child

7. I threaten to do things that:

- (1) I'm sure I can carry out
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I know I won't actually do

8. I am the kind of parent that:

- (1) Sets limits on what my child is allowed to do
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) Lets my child do whatever he/ she wants

9. When my child misbehaves:

- (1) I keep my talks short and to the point
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I give my child a long lecture

10. When my child misbehaves:

- (1) I speak to my child calmly
- (2)
- (3)
- (4)

- (5)
- (6)
- (7) I raise my voice or yell

11. If saying "no" doesn't work right away:

- (1) I take some other kind of action
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I keep talking and try to get through to my child

12. When I want my child to stop doing something:

- (1) I firmly tell my child to stop
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I coax or beg my child to stop

13. When my child is out of sight:

- (1) I always have a good idea of what my child is doing
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I often don't know what my child is doing

14. After there's been a problem with my child:

- (1) Things get back to normal quickly
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I often hold a grudge

15. When we're not at home:

- (1) I handle my child the way I do at home
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I let my child get away with a lot more

16. When my child does something I don't like:

- (1) I do something about it every time it happens

- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I often let it go

17. When there is a problem with my child:

- (1) Things don't get out of hand
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) Things build up and I do things I don't mean to do

18. When my child misbehaves I spank, slap, grab, or:

- (1) Never or rarely hit my child
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) Most of the time

19. When my child doesn't do what I ask:

- (1) I take some other action
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I often let it go or end up doing it myself

20. When I give a fair threat or warning:

- (1) I always do what I said
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I often don't carry it out

21. If saying "no" doesn't work:

- (1) I take some other kind of action
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I offer my child something nice so he/she will behave

22. When my child misbehaves:

- (1) I handle it without getting upset
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I get so frustrated or angry that my child can see I'm upset

23. When my child misbehaves:

- (1) I say "no" or take some other action
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I make my child tell me why he/she did it

24. If my child misbehaves and then acts sorry:

- (1) I handle the problem like I usually would
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I let it go that time

25. When my child misbehaves:

- (1) I rarely use bad language or curse
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I almost always use bad language

26. When I say my child can't do something:

- (1) I stick to what I said
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I let my child do it anyway

27. When I have to handle a problem:

- (1) I don't say I'm sorry
- (2)
- (3)
- (4)

- (5)
- (6)
- (7) I tell my child I'm sorry about it

28. When my child does something I don't like, I:

- (1) Never or rarely insult my child, say mean things, or call my child names
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) Most of the time

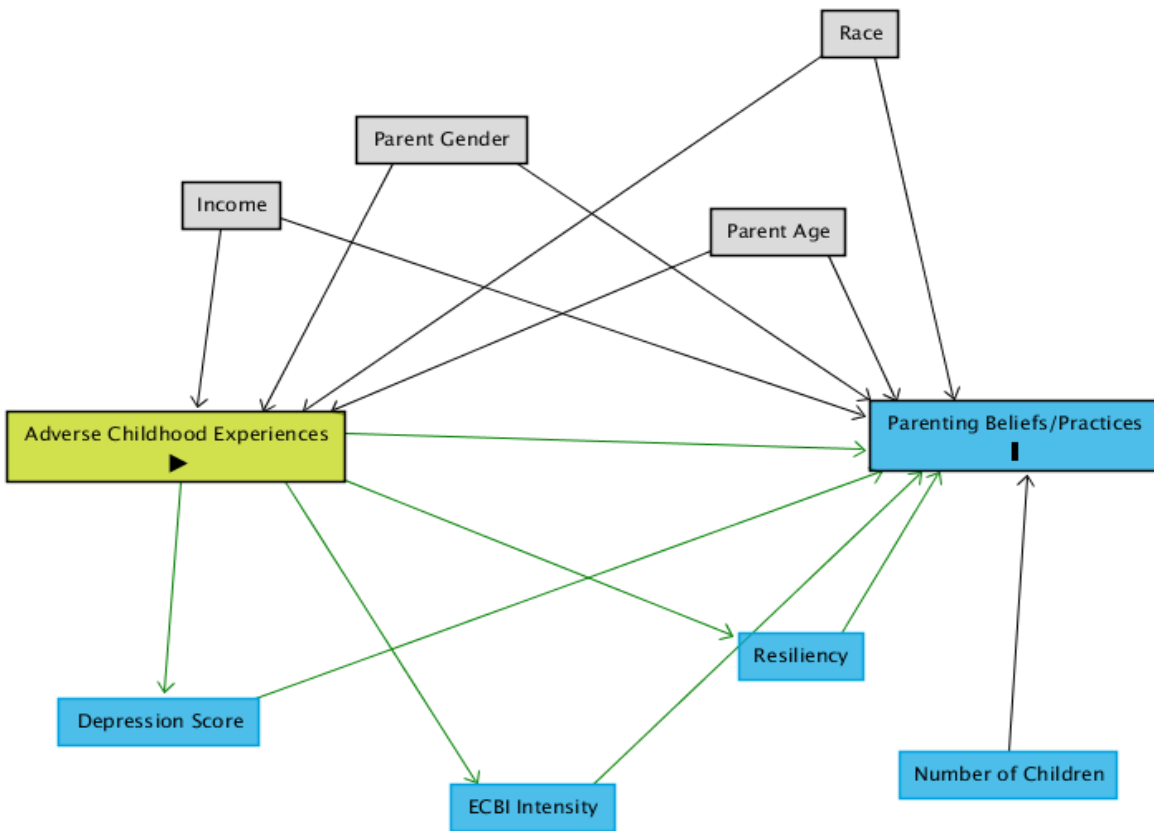
29. If my child talks back or complains when I handle:

- (1) I ignore the complaining and stick to what I a problem said
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I give my child a talk about not complaining

30. If my child gets upset when I say "no:"

- (1) I stick to what I said
- (2)
- (3)
- (4)
- (5)
- (6)
- (7) I back down and give in to my child

Appendix C: Directed Acyclic Graph



Adverse Childhood Experiences: Exposure
Parenting Beliefs/Practices: Outcome
Grey boxes: Confounders
Blue boxes with green arrows: Causal pathway

Appendix D: Association between Adverse Childhood Experiences and Parenting Stress Later in Life: A Systematic Review

Introduction

Social and behavioral research into parenting demonstrates the immense impact parenting can have on a child's future (Schor 2003; Letourneau et al., 2017; Rodriguez and Tamis-LeMonda 2011). Parenting stress is defined as “a set of processes that lead to aversive psychological and physiological reactions arising from attempts to adapt to the demands of parenthood (Deater-Deckard, 2004).” Parenting stress is known to predict the “potential for parental behavior problems and child adjustment difficulties within the family system (Abidin, 1995).” This can lead to poor emotional adaptation in children or behavioral problems (Neece, Green, and Baker 2012; Baker et al., 2002; Deater-Deckard, 1998).

One potential determinant of parenting stress levels is the experience of childhood adversity. Adverse Childhood Experiences (ACEs) represent a significant public health problem. ACEs—which represent challenging experiences of abuse, neglect, and household dysfunction—have been implicated in poor downstream health outcomes and adoption of high risk behaviors for adults and their children (Centers for Disease Control and Prevention 2016; Felitti et al., 1998; Chapman et al., 2004; Dube et al., 2001; Schilling, Aseltine, and Gore 2007; Dube, Felitti, and Dong 2003; Brown et al., 2009; Hughes et al., 2017; Wilkins et al., 2014). However, there is limited evidence on the relationship between ACEs and experienced parenting stress later in life. One similar systematic review focuses on sexual abuse alone as a predictor (Hugill, Berry, and Fletcher 2017). This systematic review synthesizes evidence from observational studies on history of abuse or neglect on parenting stress later in life to investigate the question: does a history of ACEs increase parenting stress later in life?

Methods:

Scope of Review:

This review aimed to understand the association between adverse childhood experiences and experienced parenting stress later in life. There is no registered protocol. This systematic review was performed in alignment with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement (Liberati et al., 2009).

Eligibility Criteria

Peer-reviewed, published literature was included if it met the following criteria (Table 1): 1) parents were over the age of 18 with a child over the age of 1, but were not included if only assessed during a specified stressful time period; 2) had at least one measure of childhood adversity such as abuse or neglect; 3) had one self-reported measure of parenting stress; 4) was conducted in the US or Canada; 5) was a cohort, cross sectional, or case-control study; and 6) was in English. No articles were excluded based on publication date.

Search Strategy:

PubMed and Scopus databases were searched for studies. The following search criteria were used in both searches: (parenting stress OR parental stress) AND (adverse childhood experiences or abuse or neglect). Search terms were selected from the definition of adverse childhood experiences and by reviewing search terms used in previous systematic reviews of childhood abuse. Additionally, reference lists of potential articles were hand searched. Clinicaltrials.gov was not searched in this systematic review as clinical trials related to parenting stress are focused on interventions to change parenting and are, moreover, excluded from inclusion in the review.

The PRISMA flow diagram is presented in Figure 1 to summarize study screening and selection. The PubMed search identified 311 publications, and the Scopus search identified 677 publications. Additional hand searching of reference lists identified three publications. Identified publications were transferred to Covidence for screening process. After removal of duplicates there were 571 records screened for eligibility according to the criteria in Appendix 1. This led to the exclusion of 530 records. Reading the full text for inclusion screened the remaining 41

records. 28 studies were excluded for reasons shown in the PRISMA diagram. The main reason for exclusion was the lack of an appropriate measure of parenting stress.

Data extraction:

Relevant information from 13 studies was abstracted including: setting, study design, demographic information of exposure groups, measure of ACEs, measure of parenting stress, the type of data analysis, and results.

Risk of bias assessment:

Each included study was individually assessed for risk of bias. The Newcastle-Ottawa score was used for observational studies (Study Quality Assessment Tools). No studies were excluded based on risk of bias, but risk of bias is reported in the results section.

Results

Study characteristics:

Thirteen unique studies met full eligibility criteria (Figure 1). The reasons for exclusion are included in Figure 1. The most common reason for exclusion was the wrong outcome, or no measure of parenting stress.

There were 10 unique data sets included in this review. There were four published studies (Mapp 2006, Pazdera et al. 2013; Renner et al. 2015; Schuetze and Eiden 2005) that used the same data set for analysis. There were nine cross-sectional studies and one cohort study. Sample sizes ranged from 79 to 291. All studies involved mothers. Two studies did not report ethnicity; five were majority Caucasian, and the remaining were majority African American. Table 2 describes the remaining demographic characteristics.

Measures

Table 3 lists the assessment forms for parenting stress and adversity measures. All studies used the Parenting Stress Index as the measure of parenting stress. The measure of childhood adversity varied. The four studies on the same data set used the Child Sexual Abuse (CSA) questionnaire. The ACE questionnaire was used by two studies. Other assessment forms

included direct self-assessment of forms of adversity, History of Maltreatment and Trauma Form, Childhood Trauma Questionnaire (3 studies), and the Life Experience Survey.

Association between childhood adversity and parenting stress

The majority of these studies found a weak association between childhood adversity and parenting stress (correlations ranged from $r = 0.01$ to 0.49 ; regression ranged from $beta = 0.31$ to 3.69). Eight of the studies found a statistically significant relationship ($p < 0.05$). All results agreed in the direction of results demonstrating an increase in childhood adversity as positively correlated with parenting stress. Various studies found the influence of potential mediators. One study found that CSA predicted current level of depression that positively predicted the level of parenting stress. Another study found that the relationship between childhood maltreatment and parenting stress could be explained by the influence of social support and depressive symptoms.

Risk of bias

Using the Newcastle-Ottawa scoring guide, eleven of the studies were rated as fair risk of bias and two were rated as poor. The reasons for ranking most studies as fair were the risk of selection bias, lack of sample size justification or power discussion, or lack of reliable measure of childhood adversity.

Discussion

The results of this review suggest a positive relationship between childhood adversity or maltreatment and increased levels of parenting stress. All studies showed an increase in experience of parenting stress as childhood adversity was experienced. Importantly, these studies cannot conclude a causal relationship between childhood adversity and experience of higher parenting stress in adulthood. The design of these studies does not allow for causality determination and given the sensitivity of this question, a study cannot be conducted ethically to study that question.

The suggestion of increased parenting stress after having experienced childhood adversity could play a role in the intergenerational transmission of ACEs. Because we know parenting stress can increase risk for poor parenting, it could play a mediating role in the relationship between parental history of adversity and their children's risk of experiencing adversity. Furthermore, it must be reemphasized that parenting can cause stress to any parent regardless of life experiences. One's history does not predetermine their future parenting stress or their parenting practices. Various arbitrating factors exist to influence these outcomes.

Future directions

Though some of these studies attempted to do a pathway analysis to determine the moderating factors, further research is needed to identify these factors. These studies were limited by the sample sizes and reliability of measurement tools for childhood adversity. A larger study would do well to include a larger sample size and use a validated tool that will allow measurement of a variety of childhood adversity events such as the Adverse Childhood Experiences questionnaire. This allows for further study of the type of adversity experienced. With the plethora of interest in studying childhood adversity, there will likely be many more studies in the upcoming years. This systematic review should be updated in 5-10 years.

Funding: There were no funding sources for this review.

Affiliations: The author is affiliated with University of North Carolina School of Medicine and Gillings School of Public Health.

COI: No conflicts of interest to disclose.

References:

1. Abidin R.R. Parenting stress index. 3. Odessa: Psychological Assessment Resource; 1995.
2. Alexander, P. C., Teti, L., & Anderson, C. L. (2000). Childhood sexual abuse history and role reversal in parenting. *Child Abuse and Neglect*, 24, 829-838.
3. Bailey, H. N., DeOliveira, C. A., Wolfe, V. V., Evans, E. M., & Hartwick, C. (2012). The impact of childhood maltreatment history on parenting: A comparison of maltreatment types and assessment methods. *Child Abuse & Neglect*, 36, 236–246. <http://dx.doi.org/10.1016/j.chiabu.2011.11.005>
4. Baker B.L., Blacher J., Crnic K.A., Edelbrock C. Behavior problems and parenting stress in families of three-year-old children with and without developmental delays. *American Journal on Mental Retardation*. 2002;107:433–444.
5. Brown D.W., Anda R.F., Tiemeier H., et al. Adverse childhood experiences and the risk of premature mortality. *Am J Prev Med*. 2009;37(5):389-396. doi:10.1016/j.amepre.2009.06.021
6. Centers for Disease Control and Prevention. (2016). About the CDC-Kaiser ACE Study. Retrieved from <http://www.cdc.gov/violenceprevention/acestudy/about.html>
7. Chapman D.P., Whitfield C.L., Felitti V.J., Dube S.R., Edwards V.J., Anda R.F. Adverse childhood experiences and the risk of depressive disorders in adulthood. *J Affect Disord*. 2004;82(2):217–225.
8. Deater-Deckard, K. 2004. *Parenting stress*. New Haven, CT: Yale Univ. Press.
9. Deater-Deckard K. Parenting stress and child adjustment: Some old hypotheses and new questions. *Clinical Psychology: Science and Practice*. 1998;5:314–332.
10. Dube S.R., Anda R.F., Felitti V.J., Chapman D.P., Williamson D.F., Giles W.H. Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: findings from the Adverse Childhood Experiences Study. *JAMA*. 2001;286(24):3089–3096.
11. Dube S., Felitti V., Dong M. Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: the adverse childhood experiences study. *Pediatrics*. 2003;111(3):564–572. doi: 10.1542/peds.111.3.564.
12. Ethier, L. S., Lacharite, C., & Couture, G. (1995). Childhood adversity, parental stress, and depression of negligent mothers. *Child Abuse and Neglect*, 19(5), 619-632.
13. Felitti V.J., Anda R.F., Nordenberg D., et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med*. 1998;14(4):245–258.
14. Hughes K., Bellis M.A., Hardcastle K.A., et al. The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *Lancet Public Health* 2017;2:e356–e366. 10.1016/S2468-2667(17)30118-4
15. Hugill M., Berry K., Fletcher I. The association between historical childhood sexual abuse and later parenting stress: a systematic review. *Arch Womens Ment Health*. 2017;20(2):257–271. doi:10.1007/s00737-016-0708-3
16. Lange B.C.L., Callinan L.S., Smith M.V. Adverse Childhood Experiences and Their Relation to Parenting Stress and Parenting Practices. *Community Ment Health J*. 2019 May;55(4):651-662. doi: 10.1007/s10597-018-0331-z. Epub 2018 Sep 7.
17. Letourneau N.L., Dennis C.L., Cosic N., Linder J. The effect of perinatal depression treatment for mothers on parenting and child development: A systematic review. *Depress Anxiety*. 2017; 34:928–966. doi: 10.1002/da.22687
18. Liberati A., Altman DG., Tetzlaff J., et al. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate healthcare interventions: explanation and elaboration. *Brit Med J*. 2009;339.

19. Mapp SC (2006) The effects of sexual abuse as a child on the risk of mothers physically abusing their children: a path analysis using systems theory. *Child Abuse Negl* 30:1293–1310. doi:10.1016/j.chiabu.2006.05.006
20. Nair P., Schuler M. E., Black M. M., Kettinger, L., & Harrington D. (2003). Cumulative environmental risk in substance abusing women: Early intervention, parenting stress, child abuse potential and child development. *Child Abuse & Neglect*, 27, 997–1017. doi:10.1016/S0145-2134(03)00169-8
21. Neece C.L., Green S.A., Baker B.L. Parenting Stress and Child Behavior Problems: A Transactional Relationship across Time. *Am. J. Intellect. Dev. Disabil.* 2012;117:48–66. doi: 10.1352/1944-7558-117.1.48.
22. Pazdera AL, McWey LM, Mulli A, Carbonell J (2013) Child sexual abuse and the superfluous association with negative parenting outcomes: the role of symptoms as predictors. *J Marital Fam Ther* 39:98–111. doi:10.1111/j.1752-0606.2011.00272.x
23. Pereira J, Vickers K, Atkinson L, Gonzalez A, Wekerle C, Levitan R (2012) Parenting stress mediates between maternal maltreatment history and maternal sensitivity in a community sample. *Child Abuse Negl* 36:433–437. doi:10.1016/j.chiabu.2012.01.006
24. Renner LM, Whitney SD, Easton SD (2015) Profiles of self-reported parenting competence and stress among women with/without histories of childhood sexual abuse. *J Child Fam Stud* 24:749–761. doi:10.1007/s10826-013-9886-z
25. Rodriguez E.T., Tamis-LeMonda C.S. Trajectories of the home learning environment across the first 5 years: Associations with children's vocabulary and literacy skills at prekindergarten. *Child Development*. 2011;82(4):1058–1075.
26. Schilling E.A., Aseltine R.H., Gore S. Adverse childhood experiences and mental health in young adults: a longitudinal survey. *BMC Public Health*. 2007;7:30.
27. Schor E.L. American Academy of Pediatrics task force on the family. *Family pediatrics: report of the task force on the family*. *Pediatrics*. 2003;111(6 Pt 2):1541–1571
28. Schuetze P, Eiden RD (2005) The relationship between sexual abuse during childhood and parenting outcomes: Modelling direct and indirect pathways. *Child Abuse Negl* 29:645–659. doi:10.1016/j.chiabu.2004.11.004
29. Shenk, C. E.; Ammerman, R. T.; Teeters, A. R.; Bensman, H. E.; Allen, E. K.; Putnam, F. W.; Van Ginkel, J. B. (2017). History of Maltreatment in Childhood and Subsequent Parenting Stress in At-Risk, First-Time Mothers: Identifying Points of Intervention During Home Visiting. *Prevention Science*, 18(3), 361–370. doi: 10.1007/s11121-017-0758-4
30. Steele, H., Bate, J., Steele, M., Dube, S. R., Danskin, K., Knafo, H.,... Murphy, A. (2016). Adverse childhood experiences, poverty, and parenting stress. *Canadian Journal of Behavioural Science*, 48, 32–38.
31. Steele, H., Bate, J., Steele, M., Dube, S. R., Danskin, K., Knafo, H.,... Murphy, A. (2016). Adverse childhood experiences, poverty, and parenting stress. *Canadian Journal of Behavioural Science*, 48, 32–38.
32. Study Quality Assessment Tools. National Heart Lung and Blood Institute. Retrieved from <https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools>. Accessed April 28, 2019.
33. Wilkins N., Tsao B., Hertz M., Davis R., Klevens J. Connecting the dots: An overview of the links among multiple forms of violence. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention; Oakland, CA: Prevention Institute; 2014.
34. Wright MO, Fopma-Loy J, Fischer S (2005) Multidimensional assessment of resilience in mothers who are child sexual abuse survivors. *Child Abuse Negl* 29:1173–1193. doi:10.1016/j.chiabu.2005.04.004

Figure 1: PRISMA Diagram

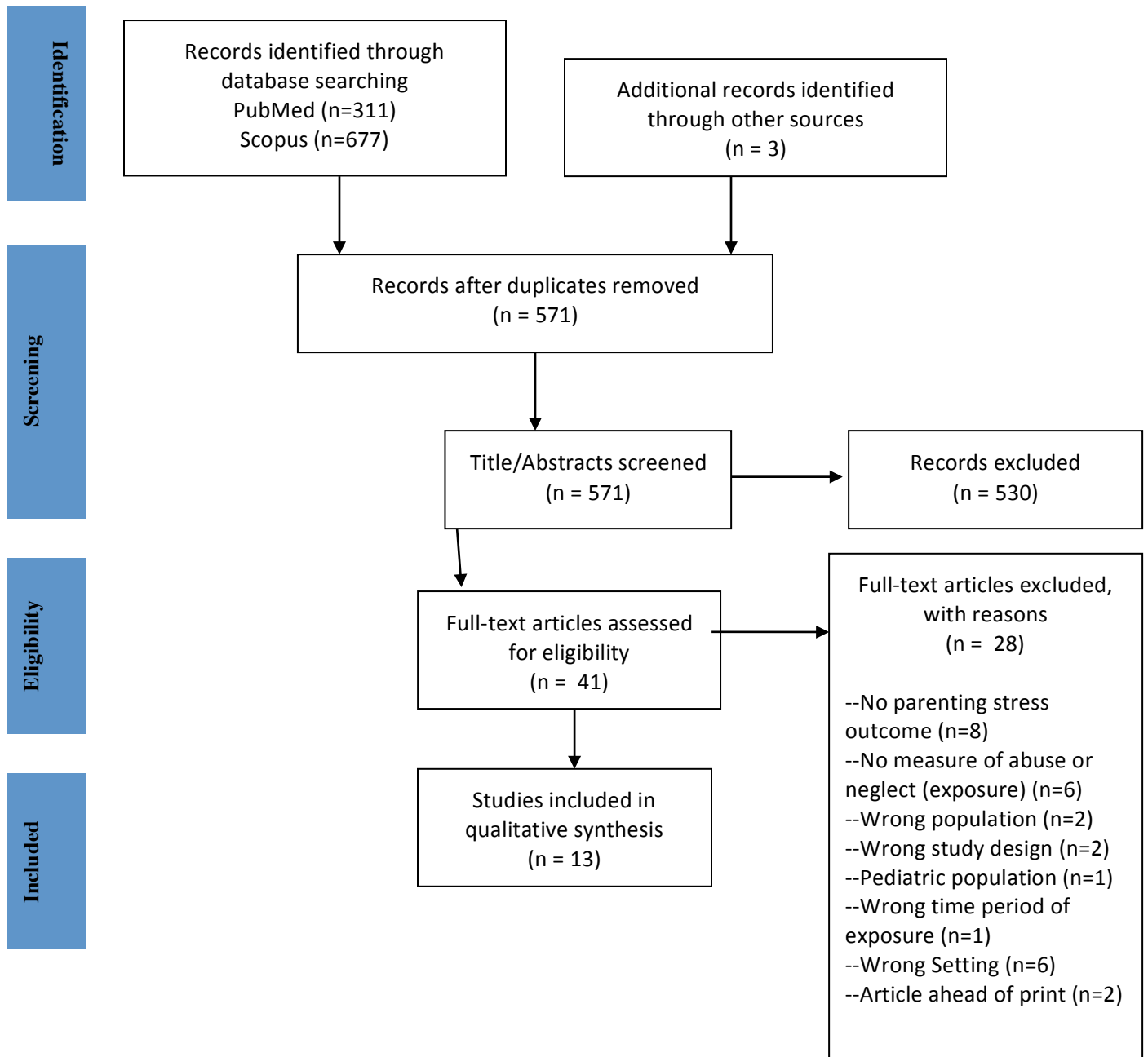


Table 1: Inclusion and Exclusion Criteria

	Inclusion	Exclusion
Population	Parents ages 18+ with children aged 1+	Parents ages<18 Other caregivers Parents assessed during stressful time period of child (i.e. during childhood birth-1 year, cancer diagnosis, children with psychiatric diagnosis)
Exposure	History of adverse childhood experiences, other measures of adverse effects (neglect, abuse, family dysfunction)	
Outcomes	Parenting stress: must report one self-report measure of parenting stress	Mental health outcomes only Physical health outcomes Effects on children
Timing	Any	
Setting	US or Canada	All other countries
Study Design	Cohort, cross sectional, case control	Systematic reviews
Language	English	All other

Table 2: Demographic Characteristics of Studies

Study, Year	Study Design	Setting	Demographic Information
Alexander, 2000	Cross-sectional	USA	107 mothers of 5-8 year old children -currently involved in an intimate relationship -mean age of 36.4 (SD 5.4) -80% Caucasian
Bailey, 2012	Cross-sectional	Canada	93 mothers of a child 4-6 years old -at least one of the parenting risk factors: single mother, adolescent at time of child's birth, or low household income -77% Caucasian
Éthier, 1995	Case-Control	Canada	40 mothers who were negligent, 40 control mothers
Lange, 2018	Cross-sectional	USA	81 mothers -72% between the ages of 25-44 -77.5% African American -53.7% completed between 9 and 12 years of schooling -63.6% unemployed
Mapp, 2006	Cross-sectional	USA	265 mothers -73% African American -81% had high school diploma or GED -over 50% never married -over 40% had income <\$15000/yr., 33% had income greater than 30,000/year
Nair, 2003	Cross-sectional	USA	161 Substance abusing women
Pazdera, 2013	Cross-sectional	USA	265 mothers -73% African American -81% had high school diploma or GED -over 50% never married -over 40% had income <\$15000/yr., 33% had income greater than 30,000/year
Pereira, 2012	Cross sectional	Canada	291 mothers -mean age 33.38 (SD 4.35) -67.2% Caucasian -94.8% in a relationship -median income of \$114,000-149,999 - Canadian-infants mean age 15.98 months

Renner, 2015	Cross-sectional	USA	<p>264 mothers</p> <ul style="list-style-type: none"> -mean age of 26.98 -73% African American -81.44% with high school diploma or GED -55.68% never married -50.76% reported a total household income of less than \$20,000 in the past year
Schuetze, 2005	Cross-sectional	USA	<p>263 mothers</p> <ul style="list-style-type: none"> -73% African American -81% had high school diploma or GED -over 50% never married -over 40% had income <\$15000/yr., 33% had income greater than 30,000/year
Shenk, 2017	Cross-sectional	USA	<p>220 first time mothers</p> <ul style="list-style-type: none"> -95% low income -85.8% unmarried -18.3% under 18 -32.4% inadequate prenatal care -80.5% Caucasian -84.1% unmarried -51.4% with high school degree or less (33.2%) -median annual household income of \$10,000-\$19,999
Steele, 2016	Cross-sectional	USA	<p>118 mothers</p> <ul style="list-style-type: none"> -33 low SES/impoverished and 85 middle/high SES -39% Caucasian -majority married
Wright, 2005	Cross-sectional	USA + 2 from Canada and Belgium	<p>79 mothers</p> <ul style="list-style-type: none"> -96% Caucasian -Mean age of 38.2 (SD 8.03) -mean educational attainment was partial college -73% currently married -average of 2.2 children with mean age of 10.5 years

Table 3: Measures, Data Analysis, Results, and Risk of Bias for Studies

Study, Year	Measure of Childhood Adversity	Measure of Parenting Stress	Data Analysis	Results	Risk of Bias
Alexander, 2000	Sexual abuse: unwanted sexual touching by someone who was at least 5 years older than the child or who had used threat or force -Childhood physical abuse -parental alcoholism	PSI	Analyses of covariance	$F(1.72)=4.39$. $p=0.04$	Fair
Bailey, 2012	History of Maltreatment and Trauma Form -Childhood Trauma Questionnaire	PSI	Correlations	Aggregate childhood maltreatment and Parent domain $r=0.20$ ($p<0.10$) -for the competency domain $r=0.28$, ($p<0.05$)	Fair
Éthier, 1995	Psychosocial interview	PSI	Regression analysis; Multiple regression	A history of childhood adversity was associated with increased parenting stress most strongly in the control sample $r=0.23$ (negligent group, ns) $r=0.33$ (control group, $p<0.01$)	Poor
Lange, 2018	ACE questionnaire	PSI	Linear regression	$\beta=3.19$ for Total Stress score ($p=0.02$) $\beta =3.69$ for the Difficult Child subscale ($p=0.03$)	Fair

Mapp, 2006	"Child Sexual Abuse (adaptation of Russell's 1983 questionnaire) Sexual abuse: at least one contact or noncontact episode before the age of 18; perpetrator ...had to be at least 5 years older except in cases where force was used"	PSI	Path analysis	CSA predicted current level of depression (0.11) which was found to impact the PSI (0.32)	Poor
Nair, 2003	Life Experience Survey: Mothers given a score based on having more or less positive life experiences versus negative life experiences. Combined into a cumulative risk index.	PSI	Repeated measures analysis/Tukey comparisons	Perceived parenting stress was higher for women with 5+ risks than for women with 4 or fewer risks (p<0.05)	Fair
Pazdera, 2013	Child Sexual Abuse (adaptation of Russell's 1983 questionnaire) Sexual abuse: at least one contact or noncontact episode before the age of 18; perpetrator ...had to be at least 5 years older except in cases where force was used	PSI	Path analysis	$\beta = 0.07$ (ns)	Fair
Pereira, 2012	Childhood Trauma Questionnaire	PSI	Bivariate correlations; Ordinary least squares regression with bootstrapping	Correlation of PSI total and CTQ total: 0.29 (p<0.005); Relationship between history of maltreatment and parenting stress: $\beta = 0.31$ (p<0.00005)	Fair

Renner, 2015	Child Sexual Abuse (adaptation of Russell's 1983 questionnaire) Sexual abuse: at least one contact or noncontact episode before the age of 18; perpetrator ...had to be at least 5 years older except in cases where force was used	PSI	Latent Profile Analysis with multinomial logistic regression	No difference in history of CSA across different levels of stress . OR of high stress compared to average of 1.02 (ns).	Fair
Schuetze, 2005	Child Sexual Abuse (adaptation of Russell's 1983 questionnaire) Sexual abuse: at least one contact or noncontact episode before the age of 18; perpetrator ...had to be at least 5 years older except in cases where force was used	PSI and Parenting Sense of Competence Scale (PSOC) as a combined parenting perceptions score	Structural Equation Modeling	Mothers with a history of CSA were more likely to have negative parental perceptions (beta=-0.13, p=.05)	Fair
Shenk, 2017	Childhood Trauma Questionnaire	PSI	Mediation modeling	Maternal history of maltreatment in childhood predicted worsening parenting stress at the 18-month assessment. -Difference = 0.19 (95%CI 0.06-0.32) -Relationship explained by social support and depressive symptoms.	Fair
Steele, 2016	ACE questionnaire	PSI	Pearson correlation and linear regression	r = 0.49 for parent distress and ACEs; β = 0.93 (p<0.01)	Fair

Wright, 2005	Self-identification as a survivor of CSA -Child sexual abuse severity rating	PSI	Bivariate correlations; Hierarchical regression analysis	CSA severity and Child domain correlation of 0.01 (ns); CSA sample's mean scores elevated on six of the seven subscales of PSI (not role restriction)	Poor
-----------------	---	-----	---	---	------

PSI=Parenting Stress Index
CSA=Childhood Sexual Abuse
CTQ=Childhood Trauma Questionnaire
ns=Nonsignificant ($p>0.05$)