



# Adverse and Protective Childhood Experiences and Parenting Attitudes: the Role of Cumulative Protection in Understanding Resilience

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## Abstract

Theory and research indicate that adverse childhood experiences (ACEs) are linked to negative parenting attitudes and behaviors. We posit that protective and compensatory experiences (PACEs) in childhood buffer the negative effects of ACEs on later parenting. To test this premise, the present study examined associations between ACEs, PACEs, and attitudes towards nurturing and harsh parenting in an ethnically diverse sample of parents with children of various ages ( $N = 109$ ; 65% mothers, 35% fathers;  $M$  age = 38). Parents completed a widely used parenting attitudes questionnaire and the ACEs and PACEs surveys. PACEs were negatively correlated with ACEs and positively correlated with nurturing parenting attitudes and parent income and education levels. Linear regression models indicate that higher PACEs, ACEs, and family income and less harsh parenting attitudes predict nurturing parenting attitudes. In contrast, higher ACEs and less nurturing attitudes were correlated with harsh parenting attitudes. As expected, moderation analyses indicated that the association between ACEs and harsh parenting attitudes was conditional upon the level of PACEs. When PACE scores were low ( $M - 1$  SD), but not when PACE scores were average or high ( $M + 1$  SD), ACEs were associated with harsh parenting attitudes, suggesting a buffering effect of PACEs on negative parenting attitudes. These findings support the importance of including protective as well as adverse childhood experiences when assessing the role of childhood experiences on parenting attitudes and practices. Implications of these findings for researchers and practitioners are discussed, as well as new directions for PACEs research using a cumulative protection approach.

**Keywords** Adverse childhood experiences (ACEs) · Protective and compensatory experiences (PACEs) · Resilience · Parenting attitudes · Harsh parenting

Epidemiological data from thousands of participants in many countries and cultures substantiate the cumulative harmful effects of adverse childhood experiences (ACEs) on health and psychological and social functioning (Anda et al., 2006; Felitti et al., 1998; Hillis et al., 2016; Hughes et al., 2017). ACE scores typically include 10 categories of abuse (physical, sexual, emotional), neglect (physical, emotional), and family dysfunction (divorce/separation, criminality, alcohol/substance abuse, mental illness, domestic violence) that occur between birth and 18 years. Higher ACE scores have also been linked

with increased risks of adolescent pregnancy (Hillis et al., 2004), alcohol and substance abuse (Dube et al., 2002, 2003), suicide attempts (Dube et al., 2001), intimate partner violence (Whitfield et al., 2003), and anger regulation difficulties (Campbell et al., 2016; Dong et al., 2005; Hillis et al., 2004). These problems create child-rearing environments that perpetuate the intergenerational cycles of adversity and may jeopardize parents' capacity to provide sensitive and responsive caregiving (Barrett & Fleming, 2011; Fraiberg et al., 1975). ACEs are associated with high levels of parenting stress (Lange et al., 2019; Steele et al., 2016), which can influence parenting practices, beliefs, and the parent–child relationship. Mothers with a history of ACEs are more likely to spank their infants (Chung et al., 2009), and mothers' childhood maltreatment is associated with observed parental hostility (Bailey et al., 2012). Exposure to ACEs and other childhood trauma has been found to disrupt both the neurological

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and socioemotional development necessary to create later positive parent–child relationships and child-rearing attitudes in adulthood (Miller et al., 2011). Nevertheless, there has been criticism regarding the assessment of ACEs (Danese, 2020), and often adversity is assessed in studies without considering the role of protective factors (Hays-Grudo & Morris, 2020).

However, not all parents who experience ACEs perpetuate the cycle. There are a number of moderating and mediating factors in the association between ACEs and parenting practices. For example, the hypothalamic-pituitary-adrenal (HPA) axis stress response and executive functioning have been found to mediate the relationship between maternal early life experiences and parenting (Gonzalez et al., 2012). In an American Indian/Alaskan Native community, parent ACEs were found to be related to their children’s social–emotional problems through parent mental distress, but this association only held in parents exhibiting low emotional availability to their children (Wurster et al., 2019). Memories of benevolent interactions with caregivers have been found to buffer the effects of childhood maltreatment on trauma exposure in the next generation (Narayan et al., 2020), and reduce stress and PTSD symptoms during pregnancy (Narayan et al., 2018). Positive experiences in childhood may also mediate associations between ACEs and parenting behaviors in adulthood. For example, having adaptive childhood experiences was associated with increased maternal sensitivity among mothers with substance abuse disorders who had experienced childhood adversity (Håkansson et al., 2018). In the current study, we focused on associations between ACEs and parenting attitudes specifically, as parenting attitudes and beliefs have been associated with parenting behaviors in a number of studies (e.g., Vittrup et al., 2006). We also examined the role of early life protective factors, specifically as a moderator between ACEs and parenting attitudes, as is discussed in more detail in the next section.

**Protective and Compensatory Experiences** Decades of research on the factors that promote resilience in children exposed to trauma and adversity support the importance of positive experiences and relationships (Rutter, 1987; Sameroff, 1975; Werner & Smith, 1992). Resilience has been defined as “the capacity of a dynamic system to adapt successfully to disturbances that threaten system function viability, or development” (Masten, 2014, p. 6) and requires both the exposure to severe adversity and positive adaptation despite this threat to development (Luthar et al., 2000). Despite the accumulation of evidence demonstrating the importance of nurturing relationships and enriching environments for mediating or moderating the effects of childhood adversity, few studies have explored the potential cumulative effects of positive experiences in promoting resilience. The examination of these factors will improve the understanding of resilience and may point toward parenting and early childhood interventions to lessen the intergenerational effects of ACEs.

Hays-Grudo and Morris (2020, p. 157) propose a dynamic systems model of adversity and resilience in which cumulative protective and compensatory experiences (PACEs) exert complementary actions that mediate and moderate the harmful biobehavioral adaptations to ACEs. The 10-item PACEs survey was created from a review of the developmental literature on resilience and was designed to be administered as a companion to the ACEs survey (for a review, see Hays-Grudo & Morris, 2020). The PACEs survey includes 10 questions focused on two primary dimensions associated with positive development from ages 0–18 years, *relationships* and *resources* (Morris et al., 2018). Previous research documents positive associations between nurturing relationships and biobehavioral regulation among children experiencing trauma and adversity (Dozier et al., 2018; Masten et al., 1990; Narayan et al., 2018) and the importance of resources that promote cognitive, social–emotional, and physical development (Duncan & Brooks-Gunn, 2000; Masten & Coatsworth, 1998; McLoyd, 1998; Syvertsen et al., 2019). Each of the PACEs items reflect external or *modifiable* factors, rather than internal or innate characteristics associated with resilience. Whereas internal qualities are important predictors of resilience, our intention was to focus on those aspects of children’s lives that are more amenable to change and can provide targets for policy initiatives and interventions for children, families, schools, and communities (Hays-Grudo et al., 2021; Morris et al., *in press*).

Relationship factors included in PACEs are (a) unconditional love from a parent or primary caregiver; (b) having a best friend; (c) being part of a social group; (d) volunteering in the community; and (e) having the support of an adult outside of the immediate family, such as a teacher, coach, or trustworthy mentor (see *Appendix*, and Morris et al., 2018). The research is clear that unconditional love from a primary caregiver, often studied as responsiveness or warmth, is of utmost importance in promoting resilient outcomes for children with ACEs and other types of trauma (Baumrind, 1971; Morris et al., 2013; Steinberg, 2001). Beginning in the first year of life, children form attachments to their parent or primary caregiver, and this attachment sets the foundation for children’s social, emotional, and cognitive development (Ainsworth, 1989; Bowlby, 2008). Children who experience trauma early in life are at greater risk for insecure attachments (van Ijzendoorn et al., 1999), which increase the likelihood of internalizing disorders (i.e., anxiety, depression) or externalizing behaviors (aggression, conduct disorders). In contrast, forming a secure attachment relationship with a caring primary caregiver can help buffer the negative effects of early maltreatment and neglect (Munson & McMillen, 2009; Toth & Manly, 2019). Peer relationships are also important in social and emotional development (Rubin et al., 2015), as having a best friend is inversely associated with experiencing negative life events, such as peer victimization, maternal hostility,

harsh discipline, stress, or abuse (Adams et al., 2011; Schwartz et al., 2013). Participation in community service also has positive developmental effects (Yates & Youniss, 1996) and is associated with resilience in children with a history of adverse family experiences (Kwong & Hayes, 2017). For adolescents who have experienced high levels of stressful life events, family volunteerism is related to overall well-being (Roehlkepartain, 2013). Participation in extracurricular activities such as school clubs and activities that promote civic engagement and belongingness can serve as a protective factor by promoting positive developmental outcomes among peers (Fredricks & Eccles, 2006, 2010). Children and adolescents who have caring adults in their lives are less likely to experience psychological distress (Woolley & Bowen, 2007), are less likely to engage in high-risk behavior (Resnick et al., 1993), and have more positive outcomes such as academic success concurrently and over time (Herrera et al., 2011; Hurd & Sellers, 2015; Sanchez et al., 2008).

Resources identified as PACEs include (a) living in a home that is clean and safe with enough food to eat, (b) attending a school or having other educational opportunities that provide resources and opportunities to learn, (c) having an engaging hobby, artistic or intellectual pursuit, (d) participating in organized sports or other physical activities; and (e) being part of a family with predictable routines and rules that are administered fairly (Hays-Grudo & Morris, 2020; Morris et al., 2018). Children who are raised in homes that are clean and safe, have consistent routines and rules, and have enough food to eat experience less anxiety and fewer stressful situations than those children growing up in more chaotic home environments (Evans et al., 2005; Masten, 2001; Morris et al., 2013). Children who experience food insecurity are more likely to experience academic difficulties and mental health problems (Slopen et al., 2010). Attending a school or having a learning environment equipped with the materials and resources to provide learning experience is an important resource for children and youth (Zigler, 1989). Participation in high-quality early childhood programs has been found to improve lifelong health and education outcomes, reduce use of welfare and social intervention programs, and lower arrest rates and increase earnings in adulthood (Morris et al., *in press*; Reynolds et al., 2007, 2011; Zigler & Bishop-Josef, 2006). Both the home and school environments serve as proximal experiences that can reduce acute or chronic stressors and lead to improvements in academic success, positive socioemotional development, self-esteem, and prosocial behavior, which have been shown to serve as protective factors for children at risk (Blair & Raver, 2012; Morris et al., 2017; Sameroff, 2010). Participation in activities such as hobbies and sports can have positive effects on self-confidence, psychological adjustment, and social relationships (Fraser-Thomas et al., 2005; Fredricks & Eccles, 2006; Shaw et al., 1995; Zarobe & Bungay, 2017). Physical activity is associated

with psychological well-being and healthy brain development (Fox, 1999; Penedo & Dahn, 2005; Perez et al., 2019), and may be of particular importance as a protective factor for children experiencing adversity.

**PACEs and Parenting Attitudes** Positive childhood experiences may be transmitted intergenerationally through their later effects on parenting practices, attitudes, and behaviors. Adolescents who report having strong, positive relationships with their parents in turn engage in more constructive parenting practices themselves (Chen et al., 2008; Friesen et al., 2013). As noted, memories of being loved and supported by caregivers may play a protective role in the intergenerational transmission of childhood trauma (Narayan et al., 2017, 2019). Indeed, many programs for parents at risk for harsh or neglecting parenting focus on helping them understand how their own early adversity affects their current attitudes toward caring for their children (Hoffman et al., 2006; Lieberman, 2004). Finally, positive childhood experiences are associated with adaptive functioning in early adulthood (Kosterman et al., 2011), which is likely to affect future parenting and parenting beliefs. Thus, we posit that a cumulative measure of PACEs is likely to be positively associated with attitudes that reflect appropriate parenting styles and strategies.

**The Present Study** The purpose of the present investigation was twofold. The first objective was to examine whether adverse and protective childhood experiences, as measured by the ACEs and PACEs surveys, were associated with nurturing parenting and harsh parenting attitudes. We hypothesized that positive childhood experiences (PACEs) would be positively associated with nurturing parenting attitudes and negatively associated with harsh parenting, whereas negative childhood experiences (ACEs) would show the opposite pattern. The second objective was to test the hypothesis that PACEs moderated the potential associations between ACEs and harsh parenting attitudes, such that higher levels of PACEs would attenuate or eliminate the positive association between ACEs and harsh parenting attitudes.

## Method

### Participants

Survey data were collected from 109 parents from different families (38 fathers, 71 mothers) living in an urban city in the south, central region of the USA. The sample was diverse with regard to ethnicity (13% Black/African American, 4% Latino, 25% Native American, 58% White), marital status (34% single parents), education (30% high school graduate or less), and income (median income = \$25,000–\$40,000, with 25% of the sample earning less than \$25,000 a year). Parents' number of children ranged from 1 to 7 ( $M = 2.33$ ), and parents'

ages ranged from 25 to 50 years ( $M = 38.06$ ). Child age was not collected as part of the study, but all parents reported on general parenting attitudes, and all parents had at least one child.

## Procedure

Surveys were administered to parents by students participating in an undergraduate research methods class. Survey packets included basic demographic information, questions about early adverse and protective experiences (prior to age 19), and current parenting attitudes. Students administered the surveys to individuals who were at least 18 years of age, spoke English, and were parents. Participants received an informed consent document and were given written and spoken instructions on study participation and on how to complete the surveys. Participants were instructed to place completed surveys in an envelope provided so the surveys would be kept private. All the surveys were anonymous, and completed surveys were given to the instructor and redistributed to the class for data entry. University IRB was obtained prior to data collection, and all students completed CITI human subjects training.

## Measures

**AAPI** Parents completed selected items from the Adult-Adolescent Parent Inventory (AAPI-2), a widely used survey designed to measure parenting attitudes and beliefs of parents of children at various ages (Bavolek & Keene, 1984). The AAPI-2 is an inventory that assesses parenting and child-rearing attitudes of parents and pre-parent populations. It can be used to assess parenting attitudes among adolescents and adults. The items are presented in a Likert-type scale of “Strongly Agree, Agree, Disagree, Strongly Disagree and Uncertain.” The AAPI-2 has shown acceptable reliability and validity in a number of studies (Conners et al., 2006), and is often used to predict child maltreatment. The AAPI has been normed in both Spanish and English populations (for more information see <https://assessingparenting.com/assessment/aapi>).

All 10 items from the parental empathy for children’s needs (i.e., *nurturing parenting sub-scale*) were used (Cronbach’s  $\alpha = .73$ ). Sample items in this scale include, “Children should keep their feelings to themselves,” and “Children who feel secure often grow up expecting too much.” All items in the sub-scale were reverse coded, such that higher scores would reflect more favorable attitudes towards nurturing parenting, and a mean for all items was calculated. Three items were combined to create a *harsh parenting sub-scale* (Cronbach’s  $\alpha = .63$ ). The items were, “Children learn respect through strict discipline,” “A certain amount of fear is necessary for children to respect their parents,” and “It’s OK to spank as a last resort.” Answers to these three items were

averaged to create a total score whereby higher numbers indicate more favorable attitudes towards harsh parenting.

**ACEs and PACEs** Parents completed the 10-item ACEs survey (Felitti et al., 1998) and the 10-item PACEs survey (Morris et al., 2018) which assesses experiences through age 18. The ACEs is comprised of 10 items assessing childhood abuse, neglect, and household dysfunction. Endorsed items for the ACEs and PACEs surveys were summed separately. The PACEs survey includes five items assessing relationships and five items assessing resources. In the current study, the PACEs survey demonstrated adequate reliability for the whole sample (Cronbach’s  $\alpha = .76$ ). Reliability scores were also examined by subgroup and were acceptable for different ethnic/racial groups (Cronbach’s alphas ranged from .70 to .81) and levels of education (Cronbach’s alphas ranged from .62 to .78). Additional validity of the PACEs survey has been reported among a sample of 900 adults indicating PACEs are associated positively with adult secure attachment, better mental health, and higher education and income (see Hays-Grudo & Morris, 2020). Parents also reported their age, gender, race/ethnicity, marital status, level of education, annual household income, and number of children.

## Results

### Associations Among Childhood Experiences and Parenting Attitudes

ACE scores ranged from 0 to 8 ( $M = 2.7$ ,  $SD = 2.42$ ), and PACE scores ranged from 0 to 10 ( $M = 7.5$ ,  $SD = 2.25$ ). Correlational analyses in Table 1 show an inverse association among PACE and ACE scores. Higher PACE scores were associated with more favorable attitudes towards nurturing parenting, whereas higher ACE scores were associated with more favorable attitudes towards harsh parenting. As expected, attitudes towards nurturing parenting were inversely correlated with harsh parenting. Independent samples  $t$  tests showed no significant differences between fathers and mothers in PACE scores (fathers  $M = 7.53$ ,  $SD = 2.07$ ; mothers  $M = 7.50$ ,  $SD = 2.35$ ;  $t = .04$ ,  $p = .966$ ); ACE scores (fathers  $M = 2.32$ ,  $SD = 2.24$ ; mothers  $M = 2.94$ ,  $SD = 2.50$ ;  $t = -1.30$ ,  $p = .198$ ); nurturing parenting attitudes (fathers  $M = 3.98$ ,  $SD = 0.61$ ; mothers  $M = 4.01$ ,  $SD = 0.59$ ;  $t = -.030$ ,  $p = .764$ ) or harsh parenting attitudes (fathers  $M = 2.97$ ,  $SD = 0.99$ ; mothers  $M = 3.26$ ,  $SD = 0.88$ ;  $t = -1.58$ ,  $p = .117$ ). Thus, due to no statistically significant differences and the small number of fathers, analyses were conducted with the entire sample.

We conducted two linear regression models to examine the distinct contribution of ACEs and PACEs to nurturing and harsh parenting attitudes while controlling for parent

**Table 1** Bivariate correlations among PACEs, ACEs, parenting attitudes, education, and income (*N* = 109)

Variable	1	2	3	4	5	<i>M</i>	<i>SD</i>	Range
1. PACEs	-					7.51	2.25	0.00–10.00
2. ACEs	-.40**	-				2.72	2.41	0.00–08.00
3. Nurturing parenting	.29**	-.06	-			4.00	0.59	2.22–05.00
4. Harsh parenting	-.07	.20*	-.37**	-		3.16	0.93	1.00–5.00
5. Education level	.33**	-.19	.18	-.11	-	9.02	1.18	4.00–11.00
6. Family income	.32**	-.18	.29**	-.13	.26**	4.71	1.27	2.00–6.00

\**p* < .05; \*\**p* < .01

ACEs, adverse childhood experiences; PACEs, protective and compensatory childhood experiences

education level, family income, and the opposite parenting attitude in each model (Table 2). The regression model for nurturing parenting attitudes indicates that higher ACEs (unexpectedly) and PACEs were predictive of favorable attitudes towards nurturing parenting controlling for the opposite parenting attitude. Consistent with the correlational data, positive attitudes towards harsh parenting were predictive of unfavorable attitudes towards nurturing parenting. A higher family income, but not education level, was linked to more positive attitudes towards nurturing parenting. The regression model for harsh parenting attitudes indicated that higher ACE scores were predictive of favorable attitudes towards harsh parenting.

**PACEs as a Moderator of the Relationship Between ACEs and Harsh Parenting Attitudes**

We used the PROCESS macro (Hayes, 2013) for SPSS to examine whether PACEs moderated the relationship between ACEs and harsh parenting attitudes while controlling for the effects of education level and family income on both ACEs and harsh parenting attitudes. PROCESS computes all regression equations simultaneously, instead of step-by-step, and

tests moderation effects using ordinary least squares linear multiple regression.

Two types of moderation effects were analyzed using PROCESS. First, we examined the effects of the interaction between ACEs and PACEs on harsh parenting attitudes (i.e., a linear and bidirectional effect of PACEs on ACEs). Second, we tested conditional effects of PACEs on the relationship between ACEs and harsh parenting attitudes. Results showed no significant interaction between PACEs and ACEs on harsh parenting attitudes (PACEs × ACEs *b* = 0.02, *SE* = .02, *p* = .195). However, a conditional effect of PACEs on the relationship between ACEs and harsh parenting attitudes was found, such that at low levels of PACEs (the mean minus one standard deviation) higher ACE scores were associated with favorable attitudes towards harsh parenting. At average (mean) and high levels of PACEs (the mean plus one standard deviation), the relationship between ACEs and harsh parenting attitudes was not significant (Table 3; Fig. 1). Because the regression analyses revealed a positive association between PACEs and nurturing parenting attitudes while controlling for the other variables in the model, we further examined whether ACEs moderated this relationship. Analyses using PROCESS, however, showed no interaction or conditional effects of ACEs on the relationship between PACEs and

**Table 2** Summary of regression analyses showing associations between childhood experiences and parenting attitudes

Variable	Nurturing parenting attitudes			Harsh parenting attitudes		
	<i>B</i>	<i>SE B</i>	<i>β</i>	<i>B</i>	<i>SE B</i>	<i>β</i>
PACEs	.08**	.03	.33**	.07	.05	.18
ACEs	.06*	.02	.24*	.10*	.04	.25*
Nurturing parenting				-.67***	.16	-.41***
Harsh parenting	-.22***	.05	-.36***			
Education level	.00	.05	.00	-.05	.08	-.06
Family income	.08*	.04	.18*	-.00	.07	-.00
<i>R</i> <sup>2</sup>	.29			.19		
<i>F</i>	8.04***			4.67**		

\**p* < .05; \*\**p* < .01; \*\*\**p* < .001

ACEs, adverse childhood experiences; PACEs, protective and compensatory childhood experiences

**Table 3** Summary of the moderating effect of PACEs on the association between ACEs and harsh parenting attitudes

PACEs	Effect	SE	t	p
Low (5.26)	0.12	0.05	2.33	.02*
Average (7.51)	0.07	0.04	1.75	.08
High (9.76)	0.02	0.06	0.28	.78

Values for PACEs are the mean plus/minus one standard deviation from the mean. PACEs, protective and compensatory childhood experiences

nurturing parenting attitudes, further confirming the lack of an interaction between PACEs and ACEs in predicting nurturing parenting attitudes.

## Discussion

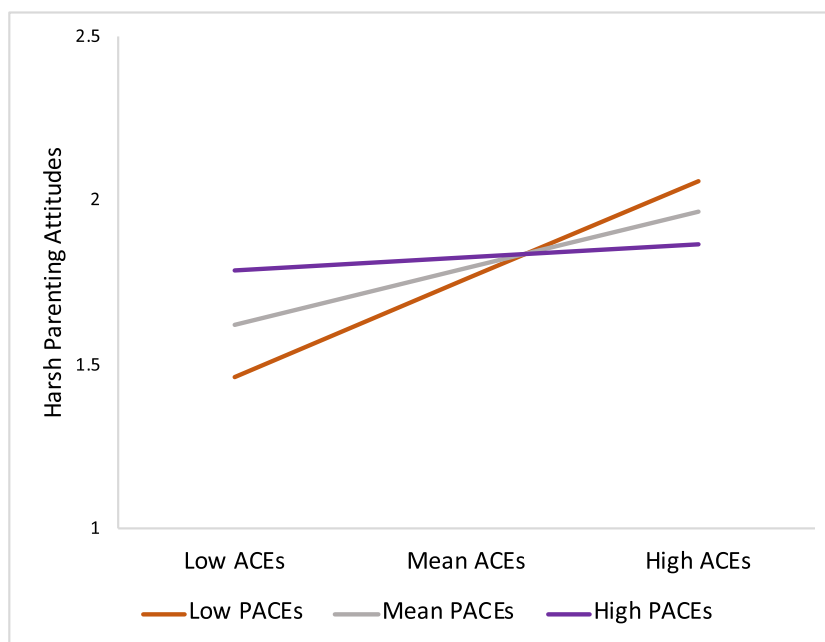
Developmental research has established the negative effects of child maltreatment and adverse conditions on cognitive, social, emotional development, and mental health (Cicchetti, 1984; Masten et al., 1990; Rutter, 1987; Sameroff et al., 1987). More recently, epidemiologic research provides evidence that adverse childhood experiences (ACEs) are prevalent (Felitti et al., 1998), with profoundly negative effects on individual physical and mental health (Anda et al., 2006), and massive public health and social problems costing Europe \$581 billion and North America \$748 billion annually (Bellis et al., 2019).

However, the relationship between ACEs and parenting attitudes has received much less attention. An emerging body

of literature suggests that ACEs may affect parenting attitudes and behaviors through multiple processes including intergenerational transmission of parenting practices and values, parents' own mental health, and stress responses from parent-child interactions that trigger unresolved childhood trauma (Fraiberg et al., 1975; Hays-Grudo & Morris, 2020; Lieberman et al., 2005). We hypothesized that an accumulation of PACEs would buffer the effects of ACEs on parenting attitudes. Specifically, we hypothesized that PACEs would be independently and additively associated with unfavorable attitudes towards harsh parenting and more favorable attitudes towards nurturing parenting, whereas ACEs would show the opposite pattern. Moreover, we hypothesized that PACEs would buffer the associations between ACEs and harsh parenting attitudes.

In general, our study hypotheses were supported, although when examining the standardized regression coefficients, the effect sizes were small. Results showed that ACEs and PACEs had independent effects on parenting. Correlational analyses indicated that PACEs were negatively associated with ACEs and positively associated with nurturing parenting attitudes and greater parent income and education levels, whereas ACEs were positively associated with greater harsh parenting attitudes. Linear regression models indicated that higher PACEs and family income were related to nurturing parenting attitudes. In contrast, higher ACEs and less nurturing attitudes were related to harsh parenting attitudes. As expected, moderation analyses indicated that the effect of ACEs on harsh parenting attitudes was conditional upon the level of PACEs. When PACE scores were low, but not when PACE scores were average or high, ACEs were associated with harsh parenting attitudes, suggesting a buffering effect of PACEs on

**Fig. 1** Conditional effect of PACEs on the association between ACEs and harsh parenting attitudes. Low levels of PACEs (mean minus one standard deviation; orange line) and higher ACE scores were associated with more favorable attitudes towards harsh parenting. At average (mean; gray line) and high levels of PACEs (the mean plus one standard deviation; purple line), the relationship between ACEs and harsh parenting attitudes was not significant. PACEs, protective and compensatory childhood experiences; ACEs, adverse childhood experiences



negative parenting. These findings support the importance of assessing both protective and adverse childhood experiences in parenting research and clinical practice.

Research on early life stress and ACEs has focused on the negative effects of adversity on health, mental health, behaviors, and conditions that affect parenting (Anda et al., 2006; Bailey et al., 2012; Felitti et al., 1998; Hillis et al., 2004; Liu et al., 2013). We argue that as adults, parents and caregivers can and do overcome unresolved trauma (Lieberman et al., 2005); a number of intervention studies support this notion, e.g., Attachment Biobehavioral Catch-up (Dozier et al., 2018), Circle of Security (Hoffman et al., 2006), and Child-Parent Psychotherapy (Ghosh Ippen et al., 2011). Child-Parent Psychotherapy, specifically, actively works with parents to recall positive attachment experiences during childhood in order to help with healing and to channel such experiences to current caregiving. In line with this premise, we found that PACEs were associated with greater nurturing parenting attitudes. This is consistent with previous research finding that positive parenting experienced during childhood is related to greater parental responsiveness/warmth and more secure attachment in adulthood (e.g., Atzl et al., 2019; Egeland et al., 1988).

We also found that PACEs were negatively correlated with ACEs, supporting past study findings indicating children who experience ACEs and early life adversity tend to have low levels of resources and more negative relationship experiences (Lacey et al., 2020). Interestingly, we found PACEs were positively correlated with education and income in adulthood. This suggests children growing up in homes with more PACEs are more likely to pursue and reach higher levels of education and earn more money in adulthood, possibly due to having more resources and opportunities during childhood.

Results of both correlational and regression analyses indicated an association between ACEs and harsh parenting attitudes. This is consistent with studies that find parents who experienced early life stress and adversity were more likely to be harsh and punitive as parents (e.g., Chung et al., 2009) and were at an increased risk for child maltreatment (Bartlett et al., 2017). Unexpectedly, we also found in regression analyses (when controlling for PACEs, harsh parenting, and parents' education level and income) that ACEs were related to more nurturing attitudes. It may be that parents try to compensate for their own experience and that they want to be more nurturing than their parents were. This has been found in studies of trauma indicating that caregivers want to break the cycle of ACEs when parenting their own children (Dozier et al., 2018). In correlational analyses, ACEs were unrelated to nurturing parenting attitudes, supporting our moderation findings that suggest parents with average and high PACEs may be less likely to endorse harsh parenting attitudes.

As expected, we found that the association between ACEs and harsh parenting attitudes was not significant among adults with high or average PACEs. It was only significant among

parents with low PACEs. This suggests that PACEs may buffer the effects of ACEs on negative parenting attitudes, and possibly parenting behavior. Results from other studies examining attitudes and values find that attitudes are often associated with behavior, although this cannot be assumed (see Chaiklin, 2011).

There are several limitations of the current study that must be noted. First, all the measures were self-report, and the assessment of harsh parenting had only three items. Moreover, ACEs and PACEs were retrospectively reported. Retrospective and prospective reports of abuse and neglect have been found to be only modestly correlated (Baldwin et al., 2019; Baldwin & Danese, 2019). However, it has been argued that this does not negate the value of retrospective reports, only that retrospective and prospective reports of childhood trauma should not be used interchangeably (Danese, 2020). Indeed, retrospectively reported trauma, i.e., memories of actual traumatic experiences, may be the “key triggers” for maladaptive functioning and psychopathology (Danese, 2020, p. 239). When reporting on factors like ACEs, PACEs, and parenting attitudes, we agree that self-report is appropriate due to the subjective nature of attitudes and the importance of the subjective experience of early life experiences (Carmel & Widom, 2020; Lavrakas, 2008). However, we do not know the accuracy of participants' recall of ACEs and PACEs. Rather our assessment revealed adults' current perceptions of their childhood and adolescence. Another limitation is that our study was cross-sectional, a limitation in much of the research on childhood adversity (Danese, 2020), and we did not ask parents about their parenting behaviors, only their attitudes. Thus, we cannot make causal claims regarding childhood adversity and parenting attitudes and behavior, and it may be that negative attitudes during adulthood and negative experiences in parenting affected past perceptions of childhood. More longitudinal research is needed to examine intergenerational effects of both adverse and protective experiences on both parenting behaviors and attitudes to answer such questions. We also did not assess the age of the child, only parents' current age, and it may be that findings differed based on the age of the children parented.

Despite these limitations, the current study has multiple strengths and adds to the literature on parenting. The sample was diverse, with 42% reporting that they were Black, Indigenous, or People of Color, and 34% reported being single parents. Moreover, the sample was primarily low income (yearly median income was \$25,000–\$40,000—only ranges and not specific income was asked), and 30% of the sample had a high school or lower level of education. We also had data from both mothers and fathers. Importantly, no differences were found in the reports of mothers and fathers on any of the study variables. Unfortunately, due to the relatively low number of fathers ( $n = 38$ ), we were not able to examine differences in patterns of findings. Nevertheless, this is an important direction for future research, as early life experiences may affect parenting

differentially among mothers versus fathers and dyad types (mother–daughter, mother son, father–daughter, father–son).

## Implications and Next Steps

This is one of the first studies to examine whether PACEs before age 19 buffer associations between ACEs and parenting attitudes. Our findings suggest that PACEs may buffer the negative associations between ACEs and harsh parenting attitudes. Like other studies examining adverse and protective childhood experiences (Affifi & MacMillan, 2011; Bethell et al., 2019; Yamaoka & Bard, 2019), our findings also support the premise that positive experiences in childhood should be considered along with adverse experiences when examining risk and resilience-related factors. Indeed, positive experiences matter, and examining experiences that predict resilience is an important piece of the story that is often missed in understanding adversity. Developmental science has a long history of studying resilience (Masten, 2001; Rutter, 1979; Sameroff et al., 1987). Unfortunately, the science of resilience has not been fully integrated with ACEs science until recently (see Hays-Grudo & Morris, 2020).

Moreover, developmental science has a long history of examining cumulative risk (Rutter, 1979; Sameroff et al., 1987), but not necessarily cumulative protection. It is important to note that our examination of PACEs was based on a cumulative factor, adding up the PACEs reported on, rather than examining the factors individually. Several recent studies indicate that cumulative positive experiences in childhood should be considered when examining resilience (Armans et al., 2020; Bethell et al., 2019; Narayan et al., 2020; Yamaoka & Bard, 2019). For example, Bethell and colleagues found a dose-response between positive childhood experiences and adult mental and relational health, “analogous to the cumulative effects of multiple ACEs” in a large, retrospective study of adults (Bethell et al., 2019, p. 8). Narayan and colleagues have found that a number of benevolent childhood experiences are positively associated with “angel memories” during and after pregnancy, memories associated with positive infant mental health (Narayan et al., 2020). Research using the Search Institute’s Developmental Assets also supports the cumulative effects of supportive relationships and resources for improving educational and social outcomes for at-risk youth (Syvertsen et al., 2019).

Findings of this study also point to additional evidence for the reliability and validity of the PACEs instrument. Internal consistencies ranged from .70 to .81 across different racial/ethnic groups, and PACEs were associated with other study variables (ACEs, income, education) in expected directions. Nevertheless, there are a number of next steps that should be addressed in PACEs research. First, as with examining cumulative risk, item analysis and potential weighting of items should be considered in future studies. Moreover, more fine-grained assessments should be considered, such as assessing the ages during which PACEs occurred (see Hays-Grudo & Morris, 2020), and the degree to

which PACEs were present using a Likert-type scale. Second, like the ACEs research, it is important to examine the co-occurrence of PACEs, the cumulative effects of PACEs (dose), and their prevalence. Large, diverse, longitudinal studies are needed to disentangle the potential effects of PACEs on development. In addition, there is need for measures of adversity to include an assessment of racial discrimination and for measures of protective experiences to include assessments of racial identity and racial socialization. The inclusion of such assessments is an important next step for research on adversity and resilience.

We argue that when examining ACEs in research and practice, protective and resilience-promoting factors should also be examined. Doing so helps researchers more fully understand developmental trajectories and outcomes, and helps practitioners gain a more robust understanding of early experiences. Importantly, having research participants or therapy clients complete surveys like the PACEs along with ACEs also gives participants/clients a fuller, more nuanced perspective on their childhoods and potential opportunities for continued growth. Most individuals have at least one PACE (in fact, the mean PACE score in our study was 7.5 out of 10). Even if a PACE score is zero, practitioners can invite clients to identify PACEs to create for themselves and/or for their children. We have developed PACEs plans for adults and children of different ages, and clinicians can use these plans with clients to support healing and positive development (see Hays-Grudo & Morris, 2020). The list of PACEs for children (0–18), which we have found can be an informative parenting tool as well, is included in the [Appendix](#).

It would be remiss not to discuss how this study fits into the broader context of our world today in the midst of the COVID-19 pandemic. PACEs can be applied to the COVID-19 context (see <http://www.acesandpaces.com/resourcesin-press.html>), as many of the protective factors are particularly important during times of adversity and stress. Based on the results of the current study, researchers working with families during the pandemic and other times of disaster will benefit from examining strengths-based and resilience-promoting experiences in addition to experiences of stress and adversity. Indeed, focusing on the positive despite the hardships we are all experiencing can be healing during such challenging times.

## Appendix

### 10 Experiences Children Need to Prevent Risk and Promote Resilience: PACEs (Protective and Compensatory Experiences)

1. A caregiver who loves them unconditionally. They do not doubt that they are cared about, no matter what.



2. At least one best friend. Someone they can trust and have fun with.
3. Regular opportunities to help others (e.g., volunteer at a hospital, nursing home, church) or participate in special projects in the community to help others (food drives, Habitat for Humanity).
4. Regular involvement in organized sports groups (e.g., soccer, basketball, track) or other physical activity (e.g., competitive cheer, gymnastics, dance, marching band).
5. Active membership in at least one civic group or a non-sport social group such as scouts, faith-based, or youth group.
6. An engaging hobby—a creative or intellectual pastime either alone or in a group (e.g., musical instrument or vocal group, theater, chess club, debate team, spelling bee, or reading a lot).
7. An adult (not a parent) they can trust and can count on when they need help or advice (e.g., coach, teacher, minister, neighbor, relative).
8. A home that is typically clean AND safe with enough food to eat.
9. A school that provides the resources and academic experiences children need to learn.
10. A home with routines and rules that are clear and fairly administered.

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## Declarations

**Disclaimer** The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

## References

- Adams, R. E., Santo, J. B., & Bukowski, W. M. (2011). The presence of a best friend buffers the effects of negative experiences. *Developmental Psychology, 47*, 1786–1791. <https://doi.org/10.1037/a0025401>.
- Afifi, T. O., & Macmillan, H. L. (2011). Resilience following child maltreatment: A review of protective factors. *Canadian Journal of Psychiatry. Revue Canadienne de Psychiatrie, 56*(5), 266–272. <https://doi.org/10.1177/0706743711105600505>.
- Ainsworth, M. S. (1989). Attachments beyond infancy. *American Psychologist, 44*, 709–716.
- Anda, R. F., Felitti, V. J., Bremner, J. D., Walker, J. D., Whitfield, C., Perry, B. D., Dube, S. R., & Giles, W. H. (2006). The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epidemiology. *European Archives of Psychiatry and Clinical Neuroscience, 256*(3), 174–186.
- Armans, M., Addante, S., Ciciolla, L., Anderson, M., & Shreffler, K. (2020). Resilience during pregnancy: How early life experiences are associated with pregnancy-specific stress. *Adversity and Resilience Science, 1*, 295–305. <https://doi.org/10.1007/s42844-020-00017-3>.
- Atzl, V. M., Grande, L. A., Davis, E. P., & Narayan, A. J. (2019). Perinatal promotive and protective factors for women with histories of childhood abuse and neglect. *Child Abuse & Neglect, 91*, 63–77.
- 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 and Neglect, 36*(3), 236–246. <https://doi.org/10.1016/j.chiabu.2011.11.005>.
- Baldwin, J. R., & Danese, A. (2019). Considering the source of information in the evaluation of maltreatment experiences-Reply. *JAMA Psychiatry, 76*(9), 985–986. <https://doi.org/10.1001/jamapsychiatry.2019.1685>.
- Baldwin, J. R., Reuben, A., Newbury, J. B., & Danese, A. (2019). Agreement between prospective and retrospective measures of childhood maltreatment: A systematic review and meta-analysis. *JAMA Psychiatry, 76*(6), 584–593. <https://doi.org/10.1001/jamapsychiatry.2019.0097>.
- Barrett, J., & Fleming, A. S. (2011). All mothers are not created equal: Neural and psychobiological perspectives on mothering and the importance of individual differences. *Journal of Child Psychology and Psychiatry, 52*(4), 368–397.
- Bartlett, J. D., Kotake, C., Fauth, R., & Easterbrooks, M. A. (2017). Intergenerational transmission of child abuse and neglect: Do maltreatment type, perpetrator, and substantiation status matter? *Child Abuse & Neglect, 63*, 84–94.
- Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology, 4*(1, Pt.2), 1–103.
- Bavolek, S. J., & Keene, R. G. (1984). *Adult-Adolescent Parenting Inventory AAPI-2 Form A*. Park City, Utah: Family Development Resources, Inc..
- Bellis, M. A., Hughes, K., Ford, K., Rodriguez, G. R., Sethi, D., & Passmore, J. (2019). Life course health consequences and associated annual costs of adverse childhood experiences across Europe and North America: A systematic review and meta-analysis. *The Lancet Public Health, 4*(10), e517–e528.
- Bethell, C., Jones, J., Gombojav, N., Linkenbach, J., & Sege, R. (2019). Positive childhood experiences and adult mental and relational health in a statewide sample: Associations across adverse childhood experiences levels. *JAMA Pediatrics, 173*(11), e193007–e193007.
- Blair, C., & Raver, C. C. (2012). Child development in the context of adversity: Experiential canalization of brain and behavior. *American Psychologist, 67*, 309–318. <https://doi.org/10.1037/a0027493S>.
- Bowlby, J. (2008). *A secure base: Parent-child attachment and healthy human development (Reprint, 1988 ed.)*. New York, NY: Basic Books.
- Campbell, J. A., Walker, R. J., & Egede, L. E. (2016). Associations between adverse childhood experiences, high-risk behaviors, and morbidity in adulthood. *American Journal of Preventive Medicine, 50*(3), 344–352.
- Carmel, T., & Widom, C. S. (2020). Development and validation of a retrospective self-report measure of childhood neglect. *Child Abuse & Neglect, 106*, 104555. <https://doi.org/10.1016/j.chiabu.2020.104555>.
- Chaiklin, H. (2011). Attitudes, behavior, and social practice. *Journal of Sociology. & Social Welfare, 38*, 31–54.
- Chen, Z., Liu, R. X., & Kaplan, H. B. (2008). Mediating mechanisms for the intergenerational transmission of constructive parenting: A prospective longitudinal study. *Journal of Family Issues, 29*(12), 1574–1599.
- Chung, E. K., Mathew, L., Rothkopf, A. C., Elo, I. T., Coyne, J. C., & Culhane, J. F. (2009). Parent attitudes and infant spanking: The

- influence of childhood experiences. *Pediatrics*, 124(2), e278–e286. <https://doi.org/10.1542/peds.2008-3247>.
- Cicchetti, D. (1984). The emergence of developmental psychopathology. *Child Development*, 55(1), 1–7. <https://doi.org/10.2307/1129830>.
- Conners, N. A., Whiteside-Mansell, L., Deere, D., Ledet, T., & Edwards, M. C. (2006). Measuring the potential for child maltreatment: The reliability and validity of the Adult Adolescent Parenting Inventory—2. *Child Abuse and Neglect*, 30, 39–53. <https://doi.org/10.1016/j.chiabu.2005.08.011>.
- Danese, A. (2020). Annual Research Review: Rethinking childhood trauma—new research directions for measurement, study design and analytical strategies. *Journal of child psychology and psychiatry*, 61(3), 236–250.
- Dong, M., Anda, R. F., Felitti, V. J., Williamson, D. F., Dube, S. R., Brown, D. W., & Giles, W. H. (2005). Childhood residential mobility and multiple health risks during adolescence and adulthood: The hidden role of adverse childhood experiences. *Archives of Pediatrics and Adolescent Medicine*, 159(2), 1104–1110. <https://doi.org/10.1001/archpedi.159.12.1104>.
- Dozier, M., Bernard, K., & Roben, C. K. P. (2018). Attachment and biobehavioral catch-up. In *Handbook of Attachment-Based Interventions* (pp. 27–49).
- Dube, S. R., Anda, R. F., Felitti, J. J., Chapman, D., Williamson, D. F., & Giles, W. H. (2001). Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: Findings from the Adverse Childhood Experiences Study. *Journal of the American Medical Association*, 286, 3089–3096.
- Dube, S. R., Anda, R. F., Felitti, V. J., Croft, J. B., Edwards, V. J., & Giles, W. H. (2002). Growing up with parental alcohol abuse: Exposure to childhood abuse, neglect and household dysfunction. *Child Abuse & Neglect*, 25, 1627–1640.
- Dube, S. R., Felitti, V. J., Dong, M., Chapman, D. P., Giles, W. H., & Anda, R. F. (2003). Childhood abuse, neglect and household dysfunction and the risk of illicit drug use: The adverse childhood experiences study. *Pediatrics*, 111, 564–572.
- Duncan, G. J., & Brooks-Gunn, J. (2000). Family Poverty, Welfare Reform, and Child Development. *Child Development* 71(1):188–196
- Egeland, B., Jacobvitz, D., & Sroufe, L. A. (1988). Breaking the cycle of abuse. *Child Development*, 59, 1080–1088. <https://doi.org/10.2307/1130274>.
- Evans, G. W., Gonnella, C., Marcynyszyn, L. A., Gentile, L., & Salpekar, N. (2005). The role of chaos in poverty and children's socioemotional adjustment. *Psychological science*, 16(7), 560–565.
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., et al. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, 14, 245–258. [https://doi.org/10.1016/S0749-3797\(98\)00017-8](https://doi.org/10.1016/S0749-3797(98)00017-8).
- Fox, K. R. (1999). The influence of physical activity on mental well-being. *Public Health Nutrition*, 2(3a), 411–418. <https://doi.org/10.1017/S1368980099000567>.
- Fraiberg, S., Adelson, E., & Shapiro, V. (1975). Ghosts in the nursery. *Journal of the American Academy of Child and Adolescent Psychiatry*, 14(3), 387–421.
- Fraser-Thomas, J. L., Cote, J., & Deakin, J. (2005). Youth sport programs: an avenue to foster positive youth development. *Physical Education and Sport Pedagogy*, 10(1), 19–40.
- Fredricks, J. A., & Eccles, J. S. (2006). Is extracurricular participation associated with beneficial outcomes? Concurrent and longitudinal relations. *Developmental Psychology*, 42, 698–713. <https://doi.org/10.1037/0012-1649.42.4.698>.
- Fredricks, J. A., & Eccles, J. S. (2010). Breadth of extracurricular participation and adolescent adjustment among African-American and European-American youth. *Journal of Research on Adolescence*, 20, 307–333. <https://doi.org/10.1111/j.1532-7795.2009.00627.x>.
- Friesen, M. D., Woodward, L. J., Horwood, L. J., & Fergusson, D. M. (2013). Quality of parent-child relations in adolescence and later adult parenting outcomes. *Social Development*, 22(3), 539–554.
- Ghosh Ippen, C., Harris, W. W., Van Horn, P., & Lieberman, A. F. (2011). Traumatic and stressful events in early childhood: Can treatment help those at highest risk? *Child Abuse & Neglect*, 35(7), 504–513. <https://doi.org/10.1016/j.chiabu.2011.03.009>.
- Gonzalez, A., Jenkins, J. M., Steiner, M., & Fleming, A. S. (2012). Maternal early life experiences and parenting: The mediating role of cortisol and executive function. *Journal of the American Academy of Child and Adolescent Psychiatry*, 51(7), 673–682. <https://doi.org/10.1016/j.jaac.2012.04.003>.
- Håkansson, U., Watten, R., Söderström, K., Skårderud, F., & Glenne, M. (2018). Adverse and adaptive childhood experiences are associated with parental reflective functioning in mothers with substance use disorder. *Child Abuse & Neglect*, 81(May), 259–273.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
- Hays-Grudo, J., & Morris, A. S. (2020). *Adverse and Protective Childhood Experiences: A Developmental Perspective*. Washington DC: APA Press.
- Hays-Grudo, J., Morris A. S., Beasley, L., Ciciolla, L., Shreffler K., & Croff, J. (2021). Integrating and synthesizing adversity and resilience knowledge and action: The ICARE model. *American Psychologist* 76(2):203–215.
- Herrera, C., Grossman, J. B., Kauh, T. J., & McMaken, J. (2011). Mentoring in schools: An impact study of big brothers big sisters school-based mentoring. *Child Development*, 82(1), 346–361. <https://doi.org/10.1111/j.1467-8624.2010.01559.x>
- Hillis, S. D., Anda, R. F., Dube, S. R., Felitti, V. J., Marchbanks, P. A., & Marks, J. S. (2004). The association between adverse childhood experiences and adolescent pregnancy, long-term psychosocial consequences, and fetal death. *Pediatrics*, 113, 320–327.
- Hillis, S., Mercy, J., Amobi, A., & Kress, H. (2016). Global prevalence of past-year violence against children: A systematic review and minimum estimates. *Pediatrics*, 137(3), e20154079. <https://doi.org/10.1542/peds.2015-4079>.
- Hoffman, K. T., Marvin, R. S., Cooper, G., & Powell, B. (2006). Changing toddlers' and preschoolers' attachment classifications: the Circle of Security intervention. *Journal of consulting and clinical psychology*, 74(6), 1017–1026.
- Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., Jones, L., & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis. *The Lancet. Public health*, 2(8), e356–e366. [https://doi.org/10.1016/S2468-2667\(17\)30118-4](https://doi.org/10.1016/S2468-2667(17)30118-4).
- Hurd, N. M., & Sellers, R. M. (2013). Black adolescents' relationships with natural mentors: Associations with academic engagement via social and emotional development. *Cultural Diversity and Ethnic Minority Psychology*, 19(1), 76–85. <https://doi.org/10.1037/a0031095>
- van Ijzendoorn, M. H., Schuengel, C., & Bakermans-Kranenburg, M. J. (1999). Disorganized attachment in early childhood: Meta-analysis of precursors, concomitants, and sequelae. *Development and psychopathology*, 11(2), 225–249. <https://doi.org/10.1017/s0954579499002035>.
- Kosterman, R., Mason, W. A., Haggerty, K. P., Hawkins, J. D., Spoth, R., & Redmond, C. (2011). Positive childhood experiences and positive adult functioning: Prosocial continuity and the role of adolescent substance use. *Journal of Adolescent Health*, 49(2), 180–186. <https://doi.org/10.1016/j.jadohealth.2010.11.244.Positive>.
- Kwong, T. Y., & Hayes, D. K. (2017). Adverse family experiences and flourishing amongst children ages 6–17 years: 2011/12 National

- Survey of Children's Health Tammie. *Child Abuse and Neglect*, 70, 240–246. <https://doi.org/10.1016/j.chiabu.2017.06.016>.
- Lacey, R. E., Howe, L. D., Kelly-Irving, M., Bartley, M., & Kelly, Y. (2020). The Clustering of Adverse Childhood Experiences in the Avon Longitudinal Study of Parents and Children: Are Gender and Poverty Important? *Journal of Interpersonal Violence*. Advance online publication. <https://doi.org/10.1177/0886260520935096>
- Lange, B. C. L., Callinan, L. S., & Smith, M. V. (2019). Adverse Childhood Experiences and Their Relation to Parenting Stress and Parenting Practices. *Community Mental Health Journal*, 55(4), 651–662. <https://doi.org/10.1007/s10597-018-0331-z>.
- Lavrakas, P. J. (2008). *Encyclopedia of survey research methods* (Vols. 1–10). Thousand Oaks, CA: Sage Publications, Inc. <https://doi.org/10.4135/9781412963947>
- Lieberman, A. F. (2004). Traumatic stress and quality of attachment. *Reality and internalization in disorders of infant mental health*, 25(4), 336–351. <https://doi.org/10.1002/imhj.20009>.
- Lieberman, A. F., Padrón, E., Van Horn, P., & Harris, W. W. (2005). Angels in the nursery: The intergenerational transmission of benevolent parental influences. *Infant Mental Health Journal*, 26(6), 504–520. <https://doi.org/10.1002/imhj.20071>.
- Liu, Y., Croft, J. B., Chapman, D. P., Perry, G. S., Greenlund, K. J., Zhao, G., & Edwards, V. J. (2013). Relationship between adverse childhood experiences and unemployment among adults from five U.S. states. *Social Psychiatry and Psychiatric Epidemiology*, 48(3), 357–369. <https://doi.org/10.1007/s00127-012-0554-1>.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543–562. <https://doi.org/10.1111/1467-8624.00164>.
- Masten, A. S. (2001). Ordinary magic. Resilience processes in development. *American Psychologist*, 56(3), 227–238.
- Masten, A. S. (2014). Global perspectives on resilience in children and youth. *Child Development*, 85(1), 6–20. <https://doi.org/10.1111/cdev.12205>.
- Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist*, 53(2), 205–220. <https://doi.org/10.1037/0003-066X.53.2.205>.
- Masten, A., Best, K., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Development and Psychopathology*, 2(4), 425–444.
- McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *The American Psychologist*, 53(2), 185–204. <https://doi.org/10.1037/0003-066X.53.2.185>.
- Miller, G. E., Chen, E., & Parker, K. J. (2011). Psychological stress in childhood and susceptibility to the chronic diseases of aging: Moving toward a model of behavioral and biological mechanisms. *Psychological Bulletin*, 137, 959–997. <https://doi.org/10.1037/a0024768>.
- Morris, A. S., Cui, L., & Steinberg, L. (2013). Parenting research and themes: What we have learned and where to go next. In R. E. Larzelere, A. S. Morris, & A. W. Harrist (Eds.), *Authoritative parenting: Synthesizing nurturance and discipline for optimal child development*. Washington, DC: American Psychological Association.
- Morris, A. S., Robinson, L. R., Hays-Grudo, J., Claussen, A. H., Hartwig, S. A., & Treat, A. E. (2017). Targeting parenting in early childhood: A public health approach to improve outcomes for children living in poverty. *Child Development*, 88, 388–397. <https://doi.org/10.1111/cdev.12743>.
- Morris, A. S., Treat, A., Hays-Grudo, J., Chesher, T., Williamson, A. C., & Mendez, J. (2018). Integrating research and theory on early relationships to guide intervention and prevention. In A. S. Morris & A. C. Williamson (Eds.), *Building early social and emotional relationships with infants and toddlers: Integrating research and practice* (pp. 1–26). Cham, Switzerland: Springer Nature.
- Morris, A. S., Hays-Grudo, A., Kerr, K. L., & Beasley, L. (in press). The heart of the matter: Developing the whole child through community resources and caregiver relationships. *Development and Psychopathology*.
- Munson, M. R., & McMillen, J. C. (2009). Natural mentoring and psychosocial outcomes among older youth transitioning from foster care. *Children and Youth Services Review*, 31, 104–111. <https://doi.org/10.1016/j.chilyouth.2008.06.003>.
- Narayan, A. J., Ippen, C. G., Harris, W. W., & Lieberman, A. F. (2017). Assessing angels in the nursery: A pilot study of childhood memories of benevolent caregiving as protective influences. *Infant Mental Health Journal*, 38(4), 461–474.
- Narayan, A. J., Rivera, L. M., Bernstein, R. E., Harris, W. W., & Lieberman, A. F. (2018). Positive childhood experiences predict less psychopathology and stress in pregnant women with childhood adversity: A pilot study of the benevolent childhood experiences (BCEs) scale. *Child Abuse and Neglect*, 78(October 2017), 19–30. <https://doi.org/10.1016/j.chiabu.2017.09.022>.
- Narayan, A. J., Ippen, G., Harris, W. W., & Lieberman, A. F. (2019). Protective factors that buffer against the intergenerational transmission of trauma from mothers to young children: A replication study of angels in the nursery. *Development and Psychopathology*, 31, 173–187. <https://doi.org/10.1017/S0954579418001530>.
- Narayan, A. J., Atzl, V. M., Merrick, J. S., Harris, W. W., & Lieberman, A. F. (2020). Developmental origins of ghosts and angels in the nursery: Adverse and benevolent childhood experiences. *Adversity and Resilience Science*, 1, 121–134. <https://doi.org/10.1007/s42844-020-00008-4>.
- Penedo, F. J., & Dahn, J. R. (2005). Exercise and well-being: A review of mental and physical health benefits associated with physical activity. *Current Opinion in Psychiatry*, 18(2), 189–193.
- Perez, E. C., Bravo, D. R., Rodgers, S. P., Khan, A. R., & Leasure, J. L. (2019). Shaping the adult brain with exercise during development: Emerging evidence and knowledge gaps. *International Journal of Developmental Neuroscience*, 78, 147–155. <https://doi.org/10.1016/j.ijdevneu.2019.06.006>.
- Resnick, M. D., Harris, L. J., & Blum, R. W. (1993). The impact of caring and connectedness on adolescent health and well-being. *Journal of Paediatrics and Child Health*, 29(Suppl 1), S3–S9.
- Reynolds, A. J., Temple, J. A., Ou, S.-R., Robertson, D. L., Mersky, J. P., Topitzes, J. W., & Niles, M. D. (2007). Effects of a school-based, early childhood intervention on adult health and well-being: A 19-year follow-up of low-income families. *Archives of Pediatrics and Adolescent Medicine*, 161, 730–739.
- Reynolds, A. J., Temple, J. A., Ou, S.-R., Arteaga, I. A., & White, B. A. B. (2011). School-based early childhood education and age-28 well-being: Effects by timing, dosage, and subgroups. *Science*, 333, 360–364. <https://doi.org/10.1126/science.1203618>.
- Roehlkepartain, E. C. (2013). *Families and communities together: strength and resilience during early adolescence*. Retrieved from the University of Minnesota Digital Conservancy, <https://hdl.handle.net/11299/162517>.
- Rubin, K. H., Bukowski, W. M., & Bowker, J. C. (2015). Children in peer groups. In *Handbook of Child Psychology and Developmental Science* (7th ed., pp. 321–412). Hoboken, NJ: Wiley.
- Rutter, M. (1979). Maternal deprivation, 1972–1978: New findings, new concepts, new approaches. *Child Development*, 50, 283–305.
- Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, 57(3), 316–331.
- Sameroff, A. (1975). Transactional models in early social relations. *Human Development*, 18(1–2), 65–79. <https://doi.org/10.1159/000271476>.

- Sameroff, A. (2010). A unified theory of development: A dialectic integration of nature and nurture. *Child Development, 81*, 6–22. <https://doi.org/10.1111/j.1467-8624.2009.01378.x>.
- Sameroff, A. J., Seifer, R., Barocas, R., Zax, M., & Greenspan, S. (1987). Intelligence quotient scores of 4-year-old children: Social-environmental risk factors. *Pediatrics, 79*(3), 343–350.
- Sanchez, B., Esparza, P., & Colon, Y. (2008). Natural mentoring under the microscope: An investigation of mentoring relationships and latino adolescents' academic performance. *Journal of Community Psychology, 36*(4), 468–482. <https://doi.org/10.1002/jcop>.
- Schwartz, D., Lansford, J. E., Dodge, K. A., Pettit, G. S., & Bates, J. E. (2013). The link between harsh home environments and negative academic trajectories is exacerbated by victimization in the elementary school peer group. *Developmental Psychology, 49*, 305–316. <https://doi.org/10.1037/a0028249>.
- Shaw, S. M., Kleiber, D. A., & Caldwell, L. L. (1995). Leisure and identity formation in male and female adolescents: A preliminary examination. *Journal of Leisure Research, 27*(3), 245–263.
- Slopen, N., Fitzmaurice, G., Williams, D. R., & Gilman, S. E. (2010). Poverty, food insecurity, and the behavior for childhood internalizing and externalizing disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 49*, 444–452. <https://doi.org/10.1016/j.jaac.2010.01.018>.
- Steele, H., Bate, J., Steele, M., Dube, S. R., Danskin, K., Knafo, H., Nikitiades, A., Bonuck, K., Meissner, P., & Murphy, A. (2016). Adverse childhood experiences, poverty, and parenting stress. *Canadian Journal of Behavioural Science, 48*(1), 32–38. <https://doi.org/10.1037/cbs0000034>.
- Steinberg, L. (2001). We know some things: Parent-adolescent relationships in retrospect and prospect. *Journal of Research on Adolescence, 11*(1), 1–19.
- Syvetsen, A. K., Scales, P. C., & Toomey, R. B. (2019). Developmental Assets framework revisited: Confirmatory analysis and invariance testing to create a new generation of assets measures for applied research. *Applied Developmental Science, 1–16*. <https://doi.org/10.1080/10888691.2019.1613155>.
- Toth, S. L., & Manly, J. T. (2019). Developmental consequences of child abuse and neglect: Implications for intervention. *Child Development Perspectives, 13*(1), 59–64. <https://doi.org/10.1111/cdep.12317>.
- Vittrup, B., Holden, G. W., & Buck, J. (2006). Attitudes predict the use of physical punishment: A prospective study of the emergence of disciplinary practices. *Pediatrics, 117*(6), 2055–2064.
- Werner, E. E., & Smith, R. S. (1992). *Overcoming the odds: High risk children from birth to adulthood*. Ithaca, NY: Cornell University Press.
- Whitfield, C. L., Anda, R. F., Dube, S. R., & Felitti, V. J. (2003). Violent childhood experiences and the risk of intimate partner violence in adults: Assessment in a large health maintenance organization. *Journal of Interpersonal Violence, 18*(2), 166–185.
- Woolley, M. E., & Bowen, G. L. (2007). In the context of risk: Supportive adults and the school engagement of middle school students. *Family Relations, 56*, 92–104. <https://doi.org/10.1111/j.1741-3729.2007.00442.x>.
- Wurster, H. E., Sarche, M., Trucksess, C., Morse, B., & Biringen, Z. (2019). Parents' adverse childhood experiences and parent-child emotional availability in an American Indian community: Relations with young children's social-emotional development. *Development and Psychopathology, 32*, 1–12. <https://doi.org/10.1017/S095457941900018X>.
- Yamaoka, Y., & Bard, D. E. (2019). Positive parenting matters in the face of early adversity. *American Journal of Preventive Medicine, 56*(4), 530–539.
- Yates, M., & Youniss, J. (1996). A developmental perspective on community service in adolescence. *Social Development, 5*(1), 85–111.
- Zarobe, L., & Bungay, H. (2017). The role of arts activities in developing resilience and mental wellbeing in children and young people a rapid review of the literature. *Perspectives in Public Health, 137*(6), 337–347. <https://doi.org/10.1177/1757913917712283>.
- Zigler, E. F. (1989). Addressing the nation's child care crisis: The school of the twenty-first century. *American Journal of Orthopsychiatry, 59*(4), 484–491.
- Zigler, E. F., & Bishop-Josef, S. J. (2006). *The cognitive child versus the whole child: Lessons from 40 years of Head Start. Play=learning: How play motivates and enhances children's cognitive and social-emotional growth, 15-35*. Oxford: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780195304381.003.0002>.