INTERGENERATIONAL TRAUMA OF MOTHERS TO CHILDREN:

RELATION TO PRESCHOOLERS' NEGATIVE LIFE EVENTS AND SOCIAL

EMOTIONAL SKILLS

by

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Childhood trauma has negative effects across development and into adulthood, including within parenting. Young children may be vulnerable to intergenerational trauma when their mothers have past histories of adverse childhood experiences (ACEs), given the importance of mother-child attachment and lifelong risks associated with ACEs. When children transition to preschool, their social emotional learning (SEL) skills develop rapidly as they navigate friendships and emotions, but these skills may be at risk if early negative life events (NLEs) are experienced, especially if those are linked with mothers' early traumas. The purpose of this study was to examine associations between mothers' ACEs and their children's SEL skills, and to see whether children's NLEs and mother-child SEL behaviors separately moderated this relationship. Participants included 88 biological mother-child dyads, with children 3- to 5-years-old. Results indicated that mothers' ACEs and children's SEL skills were negatively associated; early NLEs, especially those connected to mothers' traumas, were negatively associated with child SEL skills. ACEs were related differently across mother and child SEL behaviors. This study provides understanding that may inform prevention and intervention efforts related to mothers with ACE exposure and their preschool children.

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CHAPTER I

INTRODUCTION

The purpose of this dissertation study was to examine how and in what ways mothers' early childhood adversity (e.g., trauma, abuse) impacts their preschool children's social emotional learning (SEL) skills as reported by mothers. This study also tested how preschool children's early negative life events (NLEs) were associated with this relationship. Separately, this study tested how expression of SEL skills by preschool children and their mothers during interactions was associated with children's SEL skills as reported by mothers. This study addresses a gap in the literature on SEL skills by examining the influence of early trauma experienced by mothers and children and SEL skills of mothers and children in their interactions. Studying the development of child SEL skills and potential influences can better inform prevention and intervention efforts for parents who have histories of early adversity.

The following literature review first defines childhood trauma and discusses its prevalence and impact. Second, intergenerational trauma is defined and discussed regarding its influence on mother-child relationships. Third, SEL skills are discussed, including how early trauma and mother-child relationships may influence SEL skills. Finally, a summary of the research is provided along with research questions and hypotheses for this study.

**Childhood Trauma**

**Definition.** Trauma is defined by the American Psychiatric Association (2013) in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) as the experience, witnessing, or knowledge of an event that involved physical or sexual

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violence, serious harm, and/or near or threatened death. There are many trauma types experienced in childhood and adolescence, such as maltreatment, intimate partner violence exposure, natural disasters, bullying, medical trauma, terrorism, grief, and community violence (The National Child Traumatic Stress Network, 2018). Childhood maltreatment is defined as a trauma that impacts children from birth through age 17, including physical, sexual, and emotional abuse, and physical and emotional neglect (Child Abuse Prevention and Treatment Act, 2010). Adverse Childhood Experiences (ACEs) is another term for childhood trauma that includes maltreatment and other family or household dysfunction (e.g., living with a household member with a substance abuse issue or mental illness), all of which must have occurred prior to age 18 (Felitti et al., 1998).

**Prevalence in childhood.** According to the U.S. Department of Health and Human Services' (DHS, 2018) most recent data, Child Protective Services received substantiated reports of child maltreatment for 676,000 children aged 17 and younger in 2016, meaning that maltreatment affects a significant number of children yearly across U.S. states; of these children, 74.8% experienced neglect, 18.2% experienced physical abuse, and 8.5% experienced sexual abuse, with 14% experiencing multiple maltreatment types. These statistics indicate that maltreatment impacts many school-aged children in the U.S. Young children are especially at risk for maltreatment by a caregiver, as 91.4% experienced maltreatment by a parent, with 70% experiencing maltreatment by a mother; children under age 5 had the highest victimization rates, with the highest at 24.8 children per 1,000 children in the U.S. who were reported as experiencing a type of maltreatment (DHS, 2018).

Other types of trauma are not rare. In the most recent report of childhood trauma prevalence by Child Trends, Sacks et al. (2014) reported on a variety of traumas faced by children and adolescents and percentages of children who experienced them. Specifically, these authors reported that across the U.S. and age groups 0-17 years, 35% of children experienced 1 or 2 ACEs and 11% experienced 3 or more ACEs (with rates ranging between 7-17%). In addition, across children 0-17, 26% experienced difficult circumstances due to parent income, 20% lived with a caregiver who separated or divorced, 11% lived in a household where someone had substance abuse issues, 9% lived in a household where someone had a mental illness, 9% experienced or witnessed community violence, 7% witnessed intimate partner violence, 7% lived with a caregiver who had been incarcerated, and 3% experienced the death of a caregiver. Therefore, many children experience a range of different ACEs. Prevalence rates specific to U.S. states have also been reported. For example, in Oregon, where this dissertation study took place, 32.8% of children from birth to age 5 had at least one ACE, which is comparable to the national average of 35%; across children 0 to 17 in the U.S., 21.7% had at least two ACEs, which was similar to Oregon at 22.4% (Bethell et al., 2017).

Trauma prevalence also may vary depending on developmental timing. Bethell et al. (2017) reported on several ACEs for all children and also by specific age groups, including from birth through age 5; in this study, across all children, 46.3% experienced at least one ACE and 21.7% at least two ACEs; for children from birth to 5-years-old, 35% had experienced at least one ACE and 12.1% at least two or more ACEs. The following were reported for all children from birth through age 17, and then specifically for the birth to 5-year-olds: parent divorce or separation was 25.5% across all children

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(24.1% for the youngest subset), incarcerated caregiver was 8.2% across all (4.5% for youngest), lived with someone who had a mental illness, suicidal behavior, or was depressed was 7.8% for all (4.4% for youngest), household member had substance abuse was 9% for all (5% for youngest), and parent died was 3.3% for all (1.2% for youngest). Though younger children have lower percentages, there are still many children in this young age subset who are experiencing a range of traumas, all of which may have detrimental impacts on their development, especially given their young age.

**Prevalence in adulthood.** Felitti et al. (1998) reported on the original CDC-Kaiser Permanente ACE study, where ACEs were defined as abuse (physical, psychological, or sexual) and household dysfunction (household member engaged in substance abuse, had a mental illness, or went to prison; intimate partner violence exposure). In this study, across the 9,508 people who reported, about 50% stated that they had one ACE and about 75% stated that they had at least two ACEs; of the 4,197 women surveyed, on average 45.4% reported no ACEs, 46.1% reported 1-3 ACEs, and 8.5% reported 4 or more ACEs. Prevalence was recorded across the participants as 11.1% experienced psychological abuse, 10.8% physical abuse, 22% sexual abuse, 25.6% household substance abuse, 18.8% household mental illness, 12.5% intimate partner violence exposure, and 3.4% household member went to prison. While these data were collected over 20 years ago from adults reporting back on their childhood, recent studies have also reported that many adults report ACEs.

Using 2011-2014 Centers for Disease Control and Prevention (CDC) data, Merrick et al. (2018) analyzed prevalence of ACEs in 214,157 adults ($n = 125,483$ adult women). Across participants, 34.4% experienced emotional abuse (33.9% for women),

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17.9% physical abuse (17.5% for women), 11.6% sexual abuse (16.3% for women), 17.5% intimate partner violence exposure (18.2% for women), 27.6% had a household member with substance abuse (28.7% for women), 16.5% had a household member with a mental illness (19.2% for women), 7.9% had a household member go to prison (7.3% for women), and 27.6% had separated or divorced parents (27.8% for women); therefore, rates of trauma types were similar in comparing the average to the experiences of women, though women did report higher rates of sexual abuse than the average. Across these ACE scores reported by Merrick et al. (2018), on average adults reported experiencing 1.57 ACEs on average ($SD$ = 1.55-1.59), and women specifically reported 1.68 ACEs ($SD$ = 1.65-1.70). Today's adult women then are experiencing many ACEs, so focusing on these women as they become parents may be critical to providing supports that buffer the effects of ACEs on their parenting.

**Impacts in childhood.** Early trauma can have detrimental impacts in childhood and across the lifespan, depending on developmental timing and trauma type. Childhood maltreatment often results in an insecure or lack of attachment to a primary caregiver (Freyd, 1994), which can predict poor attachment to teachers (Craig, 2016), putting children further at risk for school problems. Children who experience maltreatment often show emotional, behavioral, and cognitive symptoms at school, which may make learning and interacting with others more difficult. Bell et al. (2013) describe several of these behaviors typical of these children, including physical (e.g., somatic complaints, falling asleep during class), behavioral (e.g., does not engage with other students during class, makes comments about drugs or sex), emotional (e.g., doesn't turn in homework, doesn't trust or work with others in group activities), and cognitive symptoms (e.g.,

difficulty remembering material or focusing). Experiencing early maltreatment also relates to poorer academic achievement (Ryan et al., 2018).

Early timing of trauma can have unique consequences that put children at risk for SEL development. Students in kindergarten who experience maltreatment also must navigate transitioning into the school environment successfully, despite early adversity that can impact their attachments with caregivers and teachers, affecting their relationship skills. When preschool children enter school with at least two ACEs, they are four times as likely as other children to be at risk for SEL problems (Bethell et al., 2017), and children with maltreatment exposure specifically have poorer SEL development in kindergarten compared to other children (Pears et al., 2012). In elementary school, when children have been exposed to maltreatment, they may engage in challenging externalizing behaviors, including noncompliance, cheating/lying, and tantrums (Crea et al., 2018) and physical aggression (Haskett et al., 2012). However, as students with maltreatment histories enter kindergarten, the impact of maltreatment can be buffered by research-based interventions for transition skills (Pears & Peterson, 2018). Therefore, intervening early in the elementary years is critical.

Brain wiring can be altered when children experience early trauma due to toxic stress, which could be associated with maltreatment or other household dysfunction issues. Being in an environment of abuse where there is constant input of negative, fearful, and confusing stimuli and lack of positive, healthy adult-child interactions can change the development of the brain; neglect can also do damage on developing systems given a lack or deprivation of input (Bucci et al., 2016). These changes, along with continued exposure environmentally to trauma, can cause children to become emotionally

dysregulated, leading to difficulties in behavior, learning, and memory; some of these alterations in specific brain systems due to maltreatment exposure has also been linked with mental health disorders, impulsive behaviors, and aggression towards others (Bucci et al., 2016). Children with maltreatment exposure then may be at risk for challenging behaviors given biological considerations, and these behaviors then may be tied to differences in brain development.

**Impacts in adulthood.** Childhood trauma negatively impacts skills across the lifespan and may lead to intergenerational trauma in parent-child relationships given the possible risks for providing a harmful early context for their children, impacting child outcomes. Felitti et al. (1998) originally defined and studied ACEs to understand the relationship between early trauma and adult health issues, finding across a sample of over 9,000 adults that when an adult had four or more ACEs compared to no ACEs, they had a marked increase in being at risk for a number of poor health outcomes in adulthood, including drug and alcohol addiction, suicidal behavior, poor overall health, a high number of sexual partners, obesity, and sexually transmitted diseases. There may be implications for the effects of childhood trauma across the lifespan, especially within parenting and the environment in which children of these adults with childhood trauma exposure are raised.

Adults with childhood trauma exposure are at risk for having poor adult education, criminality, and worse employment outcomes (Jones et al., 2015), and are at risk for divorce or separation in adulthood (Font & Maguire-Jack, 2016). Early trauma exposure also increases risk for later substance abuse, especially if the trauma occurs during specific sensitive periods in childhood, given the trajectory of early life stress, its

impact on increased internalizing and externalizing behaviors, and subsequent associated risks in adolescence related to poorer working memory, and increased depression, physical aggression, sexual behavior, all of which increase substance abuse risk (Andersen, 2019). Adults exposed to trauma in early childhood also have the most severe posttraumatic stress symptoms as adults (Dunn, 2017). In young adulthood, there are some indications that having a mental health disorder or antisocial behaviors are associated with past maltreatment (Ballard et al., 2015). Across childhood and into middle adulthood, individuals with maltreatment exposure overall report less social support, meaning having relationships where they could rely on others, either a parent for children or partner for adults, who provided emotional support (Horan & Widom, 2015). Petkus et al. (2017) also found that in older adulthood, childhood trauma shows associations with poor executive functioning, being able to process information quickly, and attending to information.

Given these findings for risks that adult survivors of childhood trauma experience, there may be several implications for later parenting. For their children, this means that they might be at risk for being in an environment that is lower SES or potentially grow up in a home where a parent is involved in the legal system or incarcerated. Since child maltreatment relates to later substance abuse, children of these parents also may be more likely to grow up with a parent who has substance abuse issues. The risk factors above also may mean a parent who experienced childhood trauma may be at risk for having a mental illness and/or suicidal behavior, which may cause their children stress or trauma. Childhood trauma also relates to less stability in romantic partnerships, so parents with

childhood trauma may expose their children to less stable caregiving if they do have multiple relationships.

**Intergenerational Trauma**

**Definition.** Intergenerational trauma occurs when an individual experiences trauma, and the effects of this trauma are transferred onto subsequent generations (Yehuda & Lehrner, 2018). This transmission can happen at a biological level, where stress changes in the body can impact the prenatal environment as well as postnatal care (Bowers & Yehuda, 2016). In addition, this transmission can happen at an environmental level where infant sleep disturbance and maternal depression impact early attachment (Hairston et al., 2011).

**Impacts on parent and child biology.** As reviewed by Yehuda and Lehrner (2018), trauma's effects can be passed through families due to epigenetic changes in DNA, impact of psychiatric conditions of parents on children, and changes in family functioning and dynamics across generations as outcomes tied to earlier family trauma. However, the literature is still untangling how trauma is transmitted and how environmental exposure to parents or other relatives affects development versus actual changes occurring in DNA.

Research has studied intergenerational trauma related to trauma experienced by mothers prior to their pregnancy. Much research has focused on historical traumas that show effects across generations. For example, survivors of the Holocaust and their children who had not been exposed to this traumatic event both showed methylation of DNA in specific genes (Yehuda et al., 2016). Prenatal effects have also been studied. Children of mothers who experienced intimate partner violence while pregnant with them

showed methylation of hypothalamic-pituitary-adrenal axis, or changes in their DNA, even though mothers themselves did not show methylation at these sites (Radtke et al., 2011). Stress external to the family during pregnancy also causes methylation; Yehuda et al. (2005) found that pregnant women who evacuated the World Trade Center on the September 11th, 2001 terrorist attack, and developed subsequent PTSD, had lower cortisol than pregnant women who experienced the same traumatic event but did not develop PTSD; in addition, the infants born of these mothers had lower cortisol at one year of age compared to infants of mothers who did not develop PTSD. Having lower cortisol puts these infants at risk for later PTSD development. Therefore, at the biological level, mothers' experiences of trauma may impact their children who did not experience those same events. Understanding this transfer of trauma genetically from mother to child may inform the effects of intergenerational trauma, especially when the negative impacts on the children in these dyads are discussed.

**Impacts on parenting.** Intergenerational effects of trauma have been cited in previous research. Parents' experience of early trauma can negatively impact their young children, including in externalizing and internalizing behaviors (Babcock Fenerci et al., 2018). Considerations for mothers in particular are found in the literature. Trauma experienced by females is common, beginning with higher rates of sexual abuse for young girls, and higher rates of sexual violence once girls reach adolescence (Finkelhor et al., 2015). Mothers with childhood maltreatment experiences often have more parenting stress (Lange et al., 2018), stress related to life events (Enlow et al., 2016), and distress (Murphy et al., 2014); even when controlling for socioeconomic status, mothers still had significantly more parenting distress if they had experienced ACEs (Steele et al.,

2016). This stress experienced by this population can be mediated by both social support

and extent of depression symptoms (Shenk et al., 2017). However, mothers with

childhood trauma who receive interventions targeted at stress reduction improve

significantly in their mental health (Rosenblum et al., 2017).

Mothers who experience childhood trauma may especially put their children at

risk for intergenerational trauma effects, especially given the interpersonal nature of both

maltreatment and other family traumas experienced in childhood and the mother-child

relationship. Experiencing child maltreatment is also a risk factor for one day being a

parent of a child who experiences maltreatment, contributing to a continued cycle of

abuse (Appleyard et al., 2011). Compared to children of mothers who were not abused,

children of mothers who were abused by a caregiver in childhood are 4.52 times more

likely to also be abused (Babcock Fenerci & Allen, 2018). Children of these mothers then

are at risk for experiencing maltreatment (Trickett et al., 2011). Intergenerational trauma

is a critical consideration when researching maltreatment, as both parents and children

should be considered for their experiences. Vast numbers of children experience

maltreatment daily, leaving them vulnerable to negative childhood, adolescent, and adult

outcomes. Other family trauma experienced by mothers in their childhood may also have

intergenerational effects. Sun and colleagues (2017) conducted a study with mothers and

their children (infants through preschool-aged) to better understand the associations

between mothers' ACEs and the mothers' reported developmental concerns for their

children, including in language, SEL behavior, gross motor skills, and academics, on a

10-item screening measure. Children were more likely to have at least one developmental

concern if they had a mother who had one or more childhood experiences of living with a

family member who went to prison, had a mental illness, and/or engaged in substance abuse (Sun et al., 2017). Therefore, understanding of mothers' past trauma is relevant for informing their children's functioning and skills. More understanding is needed for addressing the intergenerational impact of ACEs.

**SEL Skills**

**Definition.** SEL skills include being aware of thoughts and feelings of self and others, emotion and stress regulation, communicating and relating to others in relationships, and problem-solving (CASEL, 2013). SEL skills development is a critical process began in early childhood. Developing these skills early in kindergarten is critical for later life, as these skills predict better employment and high school graduation rates, less involvement in the legal system, and better mental health outcomes (Jones et al., 2015; Taylor et al., 2017). Development of these skills can be enhanced for pre-K through 12th-grade students through effective interventions targeted at SEL skills (Merrell, 2010; Durlak et al., 2011).

**Relationships skills.** Relationship skills are an SEL competency identified by CASEL (2013), which include effective communication, listening to others, engaging in efficient and appropriate problem solving in relationships, and engaging in prosocial behaviors with others. Developing these skills in kindergarten can be difficult for students who have experienced maltreatment given that they often have insecure attachments with caregivers (Pickreign Stronach et al., 2011). Teachers can serve as attachment figures, buffering risk factors for poor attachment as children enter school (Baker, 2006), considering that maltreatment by a caregiver can negatively impact attachment (Freyd, 1994). Poor early attachments with caregivers can result in poor

student-teacher relationships (Craig, 2016). Children who experience maltreatment are just as likely to have close relationships with teachers, however these students who additionally have negative relationship schemas often have poorer relationship quality with teachers (Montgomery Armstrong et al., 2017), indicating that relationship skills may be lacking for some students in this population.

      **Influence of early trauma.** Early maltreatment is detrimental for many outcomes, one of which is SEL development (Pears et al., 2012). SEL skills include forming relationships, communication, and relating to others (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2013); since early trauma involves relationships, knowing how trauma and SEL development are related is critical for informing prevention and intervention work with mothers who have experienced early adversity.

      Maltreatment can impact SEL skills in kindergarten, including in prosocial peer behavior (Pears et al., 2012). Relationship to the perpetrator matters. Children 3- to 5-years-old who experienced maltreatment in their families had poorer social emotional health as rated by caregivers compared to children who experienced trauma outside the family (e.g., witnessed community violence, natural disaster) (Campbell et al., 2016). Curriculum specifically targeted at SEL skills can be effective for improving SEL skills (Taylor et al., 2017), including for kindergarten students who experienced maltreatment (Pears et al., 2012).

      Children who experience early maltreatment often have poorer SEL development in kindergarten (Pears et al., 2012), which has widespread negative adult outcomes, including poor adult education, criminality, and employment outcomes (Jones,

Greenberg, & Crowley, 2015). Early maltreatment can impact school readiness for academics (Blodgett & Lanigan, 2018) as well as SEL skills (Font & Berger, 2015). Children who experience trauma within their families by kindergarten, typically maltreatment, have lower SEL skills compared to children who experience non-familial trauma (Campbell et al., 2016).

Emotion identification and use is part of SEL development and critical for growth in relationship skills. For children who experience abuse, the emotional expression of the abusive parent (e.g., angry face) can be a discriminative stimulus for an aversive stimulus (i.e., abuse), so oftentimes these children engage in emotion dissociation where they have difficulties in expressing and identifying other emotions (Prather & Golden, 2009). Being aware of this heightened or lack of response to specific emotions could be useful for clinicians in their work with these children. Children also may not tie their feelings with guilt or shame if they were neglected and did not ever have expectations put upon them (Dymond et al., 2009). Adolescents with trauma exposure are more likely to engage in self-harm than those without maltreatment history; emotion dysregulation is also a mediating factor in this relationship (Peh et al., 2017).

**Influence of mother-child relationship.** Parents have the opportunity to support children in developing SEL skills prior to entering school in the home environment, and these skills can be critical to develop early on for children from adverse backgrounds. Parents who were from low SES families and engaged in SEL play with their toddlers reported observing more behaviors of cooperation in their children (Kochanska et al., 2013). However, early trauma for children and parents may put SEL development at risk (Font & Berger, 2015). Promoting positive parent and child interactions then are critical

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in early childhood when the parent and/or child has been exposed to trauma. Rispoli and colleagues (2013) found that emotionally responsive parenting towards a child at 9-months predicted better social skills as that child entered kindergarten; negative interactions were also reflected as these children were more likely to express negative behavior in kindergarten when they had experienced this from their parents at age two. Learning more about how parents express SEL skills with their child could be useful in informing future intervention work.

Developing these skills in kindergarten can be difficult for students who have experienced maltreatment given that they often have insecure attachments with caregivers (Pickreign Stronach et al., 2011), considering that maltreatment by a caregiver can negatively impact attachment (Freyd, 1994). Children who experience maltreatment are just as likely to have close relationships with teachers, however these students who additionally have negative relationship schemas often have poorer relationship quality with teachers (Montgomery Armstrong et al., 2017), indicating that relationship skills may be lacking for some students in this population. Studies typically target SEL skills in general, but interventions can target specific skill areas, such as SEL relationship skills. For example, in a large-scale study of a trauma-informed SEL program with K to 8th-grade students, examining a number of practices across a tiered model of support, project staff-reported attachment issues of children who experienced maltreatment decreased from pre- to post-intervention (Dorado et al., 2016); however, many trauma-informed practices were implemented, not all focused on relationship skills, so it is unclear if relationship skills increasing related to attachment symptoms declining.

**Limitations of Extant Trauma Literature**

Literature on trauma has often focused on childhood maltreatment and used either current reports of children in foster care or retrospective reports of adults on their childhood experiences. Specifically, for intergenerational trauma, research has often focused on historical traumas and examined these in relation to cultural identity. When parent and child traumas are discussed these are often done so in the idea of the cycle of abuse. However, research has not extensively focused on intergenerational trauma related to mothers and their preschool children in a community sample, and more with a focus on the relationship and the wider context of trauma in the child's life outside of abuse. To better understand the full ramifications of childhood trauma and its effects in subsequent generations, it is vital to also focus on that wider context of trauma, the other negative events that occur to children when they are in a riskier environment.

**Study Purpose**

**Summary.** Prior research has established links between early adversity and poor SEL development, and between parents' experience of adversity and their children's behaviors. While some research has examined these skills within the context of maltreatment, research currently does not focus on intergenerational trauma as it relates to SEL skills, specifically for preschool children, and especially related to a wider definition of early trauma, such as NLEs. In addition, research typically does not target understanding SEL skills within the same sample by looking at SEL skills measured using video coding (SEL interactions of parents and children) as well as parent report of SEL skills of their children. Research also does not always conduct research with samples that include mothers with and without ACEs. Considering the risk of early trauma on SEL development, it is critical to understand the relationship between mother and child

traumas in the context of SEL, especially for preschool children who are now beginning to form friendships within the school context. Parents have the opportunity to support child development of SEL skills at home so knowing how parents influence these skills may help to inform prevention and intervention efforts.

This study will examine the relationship between mothers' reported ACEs and their children's SEL skills as reported by mothers. In addition, this study will examine potential moderators of this relationship, including children's NLEs and mother-child expression of SEL behaviors in interactions. (See Appendix A for conceptual model.)

**Research questions.** To better understand the association between mothers' early adversity and child SEL development, and how parent-child SEL interactions and child's experience of NLEs may influence this relationship, the following research questions were developed with accompanying hypotheses.

1. Are mothers' ACEs associated with mother-reported child SEL skills?

    a. Are higher numbers of mothers' ACEs associated with lower scores of child SEL skills?

    b. Are specific types of mothers' ACEs associated with lower scores of child SEL skills?

2. Do child NLEs moderate the relationship of mothers' ACEs and child SEL skills?

    a. Do higher numbers of NLEs moderate the relationship of mothers' ACEs and child SEL skills?

    b. Do specific NLEs as determined to be associated with mothers' ACEs moderate the relationship of mothers' ACEs and child SEL skills?

3. Does the expression of SEL behaviors between mothers and children moderate the

relationship of mothers' ACEs and child SEL skills?

a. Do more SEL behaviors by the mother towards the child moderate the relationship of mothers' ACEs and child SEL skills?

b. Do more SEL behaviors by the child towards the mother moderate the relationship of mothers' ACEs and child SEL skills?

c. Is a composite of SEL behaviors by mothers and children associated with child SEL skills?

d. Does a composite of SEL behaviors by mothers and children moderate the relationship of mothers' ACEs and child SEL skills?

**Hypotheses.** The following hypotheses were developed for each research question. For the first research question, I hypothesized that higher numbers of mothers' ACEs will be associated with worse child SEL skills scores as reported by mothers (Research Question [RQ] 1a), and that for mothers who experienced who experienced ACEs of abuse, these will be associated in the lowest scores of child SEL skills, followed by neglect (RQ1b).

For the second research question, I hypothesized first that higher numbers of NLEs will not moderate the relationship of mothers' ACEs and child SEL skills (RQ2a) and also that higher numbers of specific NLEs determined to be associated with mothers' ACEs will moderate the relationship of mothers' ACEs and child SEL skills (RQ2b).

For the third research question, there are four hypotheses: First, more SEL behaviors by the mother in interactions with the child will be associated with higher scores on mother-reported child SEL skills (RQ3a); second, more SEL behaviors by the child in interactions with the mother will be associated with higher scores on mother-

reported child SEL skills (RQ3b); third, an interaction of mother and child SEL behaviors in interactions with each other will be associated with higher scores on mother-reported child SEL skills (RQ3c); and fourth, an interaction of mother and child SEL behaviors in interactions with each other will moderate the relationship of mothers' ACEs and mother-reported child SEL skills (RQ3d).

CHAPTER II

METHOD

**Sample**

      **Participants.** The sample consisted of 88 dyads of biological mothers and their preschool children (aged 3-5 years), recruited from a larger study on mother-child self-regulation conducted by Dr. Nicole Giuliani. Mothers on average were 33.07 years old ($SD = 5.14$) with 15.15 years of education on average ($SD = 2.47$), household income on average was 68,593.96 USD ($SD = 46,184.31$), 90.7% were white, and none were Hispanic/Latino. Children on average were 4.05 years old ($SD = 0.76$), 85.2% were white, and 4.6% were Hispanic/Latino. (See Table 1 for a description of participant characteristics.) All mother-child dyads resided in the Pacific Northwest of the United States.

      **Recruitment.** Participants were recruited from existing recruitment databases internal to the University of Oregon and through a Facebook advertisement developed by project staff. Participants will not be excluded on the bases of race, ethnicity, sex or gender, sexual orientation, socio-economic status, mental illness, disability, or location; however, all participants must be able to speak English. To be eligible for participation in the study, the child had to: (1) be 3- to 5-years-old when doing behavioral tasks in the lab, (2) not have severe problem behaviors that would not allow the child to participate in behavioral tasks in the laboratory (according to mother report), and (3) be the biological child of the mother in the study.

**Setting and Procedures**

      First, mothers completed online surveys in the setting of their choice, which could

be in their home, in the laboratory, or in any location in which they had access to a wi-fi connection and electronic device for accessing the online surveys. Data were then transmitted online and stored on Qualtrics software. Second, mothers and their children came into the laboratory at the University of Oregon where they completed a series of tasks, one of which was the videotaped mother-child interactions reported on in this study. For this interaction task, the setting was one room with chairs, a couch, a table, and a set of toys. Doors remained shut during the task. One video camera recorded visual and audio data, which was then stored on secure, encrypted servers at the University of Oregon. Mother-child interaction tasks included: (1) 10-minutes of "free play" where mothers were instructed to play with their children as they normally would and were offered several types of toys; (2) 2-minutes of "clean up" where mothers instructed their child to pick up toys in the room, without helping the child; and (3) 2-minutes of "denied request" where mothers were asked to not let their child eat a snack that had been offered to the child by an assessor (with instructions to the child that s/he must ask the mother prior to eating the snack). All mother-child interaction tasks occurred in the same laboratory room, with an assessor reading instructions, and then letting the mother and child be in the room alone together as the interaction was video-recorded.

**Study Design**

This study was correlational and used a cross-sectional participant grouping. Participating mother-child dyads ($N = 88$) came to a laboratory at the University of Oregon to complete videotaped behavior tasks. Mothers completed online surveys, which they could do at home or in the laboratory. All IRB and ethical requirements were met

prior to recruitment. Mothers consented for themselves and their child in-person in the laboratory before data collection. Data collectors were graduate students at the University of Oregon who received training to ensure fidelity of study procedures.

The conceptual model for the present study is provided in Appendix A. The independent variable is parent ACEs, which consists of mothers reporting on abuse, neglect, and household dysfunction that they experienced prior to age 18. The dependent variable is child SEL skills. In the model, the experience of parent childhood adversity negatively predicts the SEL skills of parents' preschool children. Two moderators exist in this model. The first moderator is child NLEs, as reported by mothers. NLEs can include events that have the potential to have a negative impact on the child's life, such as death of a parent or parent substance abuse. In this model, child NLEs are expected to moderate the impact of mother ACEs on child SEL skills, where the presence of more child NLEs is expected to cause even worse outcomes on child SEL skills. Separately, another moderator is included, which is mother and child SEL behaviors, coded separately, as measured through video coded ratings. In this model, it is expected that more mother SEL behaviors and more child SEL behaviors will separately support better mother-reported child SEL skills (both in moderating the impact of mother ACEs and separately as mother and child SEL behaviors predict child SEL skills as reported by parents).

The following are advantages to conducting correlational designs using cross-sectional participant grouping. For this study, mother ACEs, child NLEs, mother-reported child SEL skills, and mother and child SEL behaviors cannot be manipulated, only observed, as we cannot assign individuals to conditions due to impossible and unethical practice. A cross-sectional study allows us to examine variables that happened in the

distant past (i.e., mothers' childhood) and variables that are more current (i.e., child NLEs and SEL). The current study reduces selection bias through inclusion of all participants in analysis, and there is limited attrition bias as participants were not expected to withdraw from the study due to participating in activities, though participants could drop out of the study due to external factors (e.g., family moves, scheduling conflicts). Therefore, internal and external validity remain high. Considering that recruitment targeted Oregon families across various demographic variables, then results may be generalized to Oregon preschool-aged children and their biological mothers.

There are disadvantages to correlational designs using cross-sectional grouping. This design does not have the strength of internal validity and lower bias and random error reduction as a randomized controlled trial would have. This design also includes mother-report measures of ACEs and child NLEs and SEL skills, which could have reporter bias. Child and parent SEL skills coded through video observations also may be biased through coder ratings, though bias will be reduced as interrater reliability will be established. Follow-up data are not included in this analysis, which reduces generalizability and increases bias in findings.

**Measures**

Two categories of measures exist in the study: trauma measures and SEL measures. Trauma measures included mothers reporting on their children's NLEs using the Modified Coddington Live Events Questionnaire and mothers reporting on their own ACEs, using the ACEs Questionnaire. SEL measures included mothers reporting on their children's SEL skills using the Devereux Early Childhood Assessment, and then SEL behaviors of mothers and children were coded for behavioral tasks using the Parent Child

Interaction System (PARCHISY) coding system. (See Appendix C for measures.)

**Trauma measures.**

*Child negative life events.* The Coddington Life Events Questionnaire

(Coddington, 1972) is designed for caregivers or children and adolescents to report on the

positive and negative life events experienced in the child's life, including in the past year

and more than one year ago. The modified version of the Coddington Life Events

Questionnaire used in this study includes only the negative events, per this study's

interest in childhood stressors. Questions were one statement, describing a specific NLE

(e.g., "Parent died," "Loss of job by parent," or "Substance abuse by family member),

and mothers indicated "Yes" or "No" responses only to each item, separately for whether

the child had experienced that event in the past year and/or at any point in the child's

lifetime. However, one additional modification occurred for the MCLEQ used in this

study, as the item, "Child was abused" was removed prior to the survey being given to

participants; this item was removed given ethical issues that could arise due to asking a

question related to mandatory reporting concerns. With the removal of this item, the

survey then included 22 items total. Prior studies have not reported reliability statistics

for the negative events scale given the lack of covariance expected between the events

(Johnston et al., 2003). In this study, Cronbach's alpha was 0.735 for all events,

indicating good internal consistency (Cronbach, 1951). For events in the past year,

Cronbach's alpha was 0.689, and for events more than one year ago, it was 0.497.

*Trauma-related NLEs coding.* To assess trauma-related NLEs, the NLEs data was

coded independently by two research assistants, including the lead author of this study.

Directions were provided for each research assistant. Research assistants examined each

item on the Coddington NLEs Questionnaire, and using literature searches determined whether or not that event either had (1) an association with childhood trauma in the past, meaning an individual who had childhood trauma may be more likely to have that event happen within their family in adulthood, or (2) an association between that event and intergenerational trauma, meaning a child of an individual who experienced childhood trauma may be more likely to be susceptible to that event. Interobserver agreement was calculated, revealing total percent agreement of 86.36%, and Cohen's kappa was 0.73, indicating substantial agreement (Cohen, 1988). After independently coding items, research assistants met and discussed disagreements, arriving at a consensus. Across the 22 items, 10 items were determined by the research assistants to be trauma-related; these items included: (1) parents were separated; (2) parents were divorced; (3) parent died; (4) loss of job by parent; (5) parent spent less time at home; (6) parents fought more; (7) parent had to go to jail; (8) parents worried more about money; (9) substance abuse by family member; and (10) parent switched or has had multiple partners.

*Parent adverse childhood experiences.* The Adverse Childhood Experiences Questionnaire (ACE-Q; Felitti et al., 1998) is a survey of an individual's ACEs experienced in childhood and adolescence (prior to age 18). Raters read a one to two sentence question and choose "Yes" or "No" depending on whether or not that event was experienced by the individual. The assessment takes approximately 10-minutes to complete. The variable is single, quantitative (though will also be examined through qualitative categorizations), collected with independent observations, and not manipulated. When analyzing this variable, the variable will have two levels: high ACEs (i.e., mother experienced a higher number of ACEs and/or types of ACEs than the

general population) and low ACEs. In addition, ACEs will be categorized based on factor analysis and previous literature, and then examined separately regarding effects on other variables in the model. Reliability of the ACE-Q ranges from .52 to .72 across abuse/neglect categories and from .46 to .86 across categories of household dysfunction, and the measure has a kappa of .64 for the total ACE score (Dube et al., 2004). In this study, Cronbach's alpha for the ACE-Q was 0.753, indicating good internal consistency.

**SEL skills measures.**

*Child SEL skills.* The Devereux Early Childhood Assessment Preschool Program, 2nd Edition (DECA-P2; LeBuffe & Naglieri, 2012) assesses child SEL skills, reported on by a parent. This variable is single, quantitative, and collected with independent observations. The DECA-P2 is designed to measure SEL skills in children from ages 3 to 5 using reports on paper by caregivers or teachers on 38-items. Raters read a one-sentence statement for each item, and then choose on a Likert scale from 0 ("Never") to 4 ("Very Frequently") how often the child has engaged in a specific behavior over the past month. The assessment takes approximately 15 minutes to complete. To measure SEL skills, the Total Protective Factors score is used, which consists of the following subscales: Initiative, Self-regulation, and Attachment/relationships. Higher scores indicate higher SEL skills. Raw scores are converted into *t*-scores. The DECA-P2 is an appropriate measure for assessing SEL skills in preschool students, given the high reliability and validity of the measure. The DECA-P2 has a high reliability of .80 to .92 across subscales, with a test-retest reliability of .78 for parents. The normative sample consisted of 3,553 U.S. children aged 3 to 5, with distributions similar to the U.S. population. *T*-scores at or above 60 on the Total Protective Factors or each of the

subscales is considered a strength, 41-59 is typical, and at or below 40 is considered to be an area of need, as the child is at least one standard deviation from what is considered typical. In this study, Cronbach's alpha was 0.662 across all Total Protective Factors, indicating acceptable internal consistency; subscales had internal consistency of 0.763 for Initiative, 0.869 for Self-Regulation, 0.710 for Attachment, and 0.784 for Behavioral Concerns, each indicating good internal consistency.

   ***Mother-child SEL behaviors.*** Mother and child SEL behaviors were measured using the Parent Child Interaction System (PARCHISY; Deater-Deckard et al., 1997), which is a video coding system that assesses parent and child behaviors on the lab-based tasks, including those related to SEL skills, such as responsiveness and positive affect. The coding system was applied to the three behavior tasks, including "free play," "clean up," and "denied request" as described in the procedures section. Two research assistants coded videos using the PARCHISY coding system. The six items used from the PARCHISY for this study were child responsiveness to mother, mother responsiveness to child, child positive affect, mother positive affect, child negative affect, and mother negative affect. Child responsiveness was measured on a 7-point scale: 0 "Never responds; ignores mother's comments, questions, and behaviors" to 6 "Always responds immediately to mother; expands on some comments made by mother;" mother responsiveness was measured on a 7-point scale from 0 "Never responds; ignores child's comments, questions, and behaviors" to 6 "Always responds immediately to child; expands on comments made by child." Child positive affect was measured on a 7-point scale from 0 "No positive affect displayed" to 6 "Constant positive affect—smiling and laughing throughout task;" mother positive affect was measured on a 7-point scale from 0

"No positive affect displayed" to 6 "Constant positive affect—smiling and laughing throughout task." (See Appendix C for specific items with codes for this study from the PARCHISY.) Interrater reliability for the two coders was 85.20% for overall total percent agreement, and Cohen's kappa was .43, indicating moderate agreement (Cohen, 1988).

**Demographics survey**. Mothers completed a demographics survey independently on the computer. The project-developed demographics survey asked mothers to report on many variables about the child and themselves. For themselves, mothers reported race, ethnicity, annual family income, and age. For their children, mothers reported race, ethnicity, gender, and age.

**Analysis Plan**

**Power analysis.** To determine that sufficient participant numbers were recruited for each statistical test in this study, three power tests were completed post-hoc using G*Power (Faul et al., 2007). First, a post-hoc correlation power analysis was conducted; for two tails, with a correlation $p$ H1 of 0.3, alpha error probability of 0.05, a total sample size of 88, and a correlation $p$ H0 of 0, power is at .82, which is sufficient for detecting a medium effect. Second, a post-hoc $t$-test power analysis was conducted for examining differences between two independent means; for two tails, with an effect size $d$ of 0.50, alpha error probability of 0.05, and sample sizes of 64 (low or no ACE exposure) and 24 (high ACE exposure), the power is 0.54, which is not sufficient to detect a medium effect. Third, a post-hoc $F$-test power analysis was conducted; for an effect size of 0.25, alpha error probability of 0.05, a total sample size of 88, and with 6 set as the number of predictors (as this is the most predictors in any regression in the analysis), the power is 0.94, which is sufficient to detect a medium effect.

**Data management.** Data were de-identified using participant codes and participant identifying information was not included in the data. Data were stored in password-protected files and locked file cabinets at the University of Oregon. Data will be stored until completion of data analysis.

**Analytic Procedure**

The first step in the analysis plan was to use descriptive statistics to examine the data, including examining histograms of SEL skills, and specifically SEL relationship skills. During this process, assumptions for linear regressions, correlations, and *t*-tests were examined and noted as being met. Only complete cases were analyzed, as recommended as one approach that is allowed according to WWC standards (2017). Cases were excluded, for example, if only DECA scores were obtained but not mother ACEs scores. Variables were transformed depending on distribution (e.g., negative or positive skew).

To answer the first research question, I conducted a correlation analysis of ACEs and child SEL skills. Then I conducted linear regressions to see if mothers' total and specific types of ACEs (abuse, neglect, household dysfunction) predicted child SEL skills, while controlling for annual income, child age, and child sex.

To answer the second research question, I examined correlations of mothers' ACEs, child NLEs, and trauma-related NLEs (including NLEs and trauma-related NLEs in the past year and more than one year ago). Using independent *t*-tests, I tested separately whether mothers with maltreatment history, abuse history, neglect history, household dysfunction experiences, and high levels of ACEs had children with higher NLEs overall and higher trauma-related NLEs overall than mothers not in these

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categories. Then I conducted regressions predicting child SEL skills from NLEs (past year, more than one year ago) and trauma-related NLEs (past year, more than one year ago); in each of these regressions, I controlled for mothers' ACEs, annual income, child sex, and child age. I also conducted an ANOVA to test whether high levels of ACEs (4 or more) resulted in mothers having children with more NLEs (past year, more than one year ago) and trauma-related NLEs (past year, more than one year ago), compared to mothers with no or low ACE exposure (3 or less ACEs), in separate ANOVA tests.

To answer the third research question, I examined correlations between child SEL skills, mothers' ACEs, and child and mother SEL behaviors: child positive affect, mother positive affect, child negative affect, mother negative affect, child responsiveness to mother, and mother responsiveness to child. I then conducted one regression predicting child SEL skills from child SEL behaviors (all 3 entered into the same regression) and another regression predicting child SEL skills from mother SEL behaviors (all 3 entered into the same regression). I then planned to create a composite of child and mother SEL behaviors to test if this composite was associated with child SEL skills and whether the composite moderated the relationship of mothers' ACEs and child SEL skills.

CHAPTER III

RESULTS

**Preliminary Analysis**

Prior to analysis for research questions, preliminary analysis was completed to test whether the data met assumptions for correlations, independent $t$-tests, and linear regressions. (See Table 2 for full descriptive statistics of study variables.)

**Descriptive statistics.** Descriptive statistics revealed the following for each study variable. Mothers ($N = 88$) on average had 2.4 ($SD = 2.3$) ACEs, with a range from 0 to 9. Across these mothers, the following rates of each type of ACE are reported: 15.7% physical abuse, 23.6% sexual abuse, 30.3% emotional abuse, 6.7% physical neglect, 31.5% emotional neglect, 51.7% parents divorced or separated, 28.1% household member with substance abuse, 29.2% household member with depression, mental illness, and or attempted suicide, 12.4% household member went to prison, and 11.2% witnessed intimate partner violence. Overall, 50.6% of mothers experienced maltreatment (i.e., at least one type of abuse and/or neglect). High ACE exposure (i.e., four or more ACEs) represented 28.1% of mothers, low ACE exposure (i.e., one to three ACEs) represented 48.3% of mothers, and no ACE exposure (i.e., zero ACEs) represented 23.6% of mothers.

For child SEL skills, DECA-P2 scores were winsorized prior to analysis to reduce the effect of outliers on the analysis. Children ($N = 87$) on average had scores for Total Protective Factors of 109.76 ($SD = 8.47$), which ranged from 81.93 to 128.00. For the DECA-P2 subscales, children on average had scores of 34.90 ($SD = 4.08$) on Initiative, which ranged from 22.47 to 44.00, 33.58 ($SD = 4.50$) on Self-regulation, which ranged from 19.86 to 45.00, and 41.22 ($SD = 2.66$) on Attachment/relationships, which ranged

from 31.89 to 45.00. Cronbach's alpha was .76 for the 9-item Initiative subscale, .87 for the 9-item Self-regulation subscale, and .71 for the 9-item Attachment/relationships subscale.

For child NLEs, children ($N = 87$) on average experienced 4.82 NLEs ($SD = 3.62$) in their lives, which ranged from 0 to 18; 2.31 NLEs ($SD = 2.24$) in the past year only, which ranged from 0 to 10; and 2.51 NLEs ($SD = 1.93$) more than one year ago only, which ranged from 0 to 10. A subset of these NLEs was coded as being trauma-related. On average, across children's lives, they experienced 0.94 trauma-related NLEs ($SD = 1.20$), which ranged from 0 to 5; in the past year, they experienced 0.68 trauma-related NLEs ($SD = 1.03$); and more than one year ago, they experienced 0.62 trauma-related NLEs ($SD = 0.88$). Across children, the following rates of trauma-related NLEs were reported across the child's life: 13.8% of children's parents separated (4.6% in past year), 4.6% of children's parents divorced (2.3% in past year), 21.8% had a parent lose their job (14.9% in past year), 23% parents fought more (18.4% in past year), 1.1% had a parent go to jail (0% in past year), 42.5% parents worried more about money (35.6% in past year), 5.7% had a family member with substance abuse (4.6% in past year), and 3.4% had a parent switch partners or have multiple partners (2.3% in past year).

There were 83 usable videos of mother and child SEL behaviors from the original set of 88 dyads, due to technical problems. Across the 83 videos, double coding occurred for 12 (14.46%) of the videos. For PARCHISY scores, children ($N = 83$) on average received scores of 6.00 ($SD = 0.83$) on responsiveness, which ranged from 4.0 to 7.0, and 5.31 ($SD = 1.23$) on positive affect, which ranged from 2.0 to 7.0. Mothers ($N = 83$) on average received scores of 6.68 ($SD = 0.54$) on responsiveness, which ranged from 5.04

to 7.0, and 5.17 (*SD* = 1.37) on positive affect, which ranged from 2.0 to 7.0. Child responsiveness, child positive affect, and mother positive affect were approximately normally distributed. However, mother responsiveness was negatively skewed, so the variable was transformed into a binary variable where 0 = low responsiveness and 1 = high responsiveness, where values below 7 were coded as low responsiveness and values at 7 were coded as high responsiveness. The new mother responsiveness variable included 28.9% of the sample in the low responsiveness category and 71.1% of the sample in the high responsiveness category.

Assumptions for linear regression analyses were examined. First, normality was tested for ACEs, NLEs, trauma-related NLEs, and DECA total protective factor scores. For the DECA, data appeared to be approximately normally distributed. Skew was observed for ACEs, NLEs, and trauma-related NLEs, and it was found that each of these variables was positively skewed. Given the severity of the skew, each of these variables underwent a square root transformation. The square root transformation then was used for ACEs, NLEs, and trauma-related NLEs across all further analyses. The relationship between mother ACEs total and child DECA scores was examined for linearity, and it was found that there was a slight linearity showing DECA scores decreasing as ACEs increased.

Given that SEL skills may be higher for children from higher SES families (Kuo et al., 2020), for older children (Downs et al., 2007), and for girls (Romer et al., 2011), these differences were examined in this dataset. Correlations were completed for DECA, SES, and child age, as these variables are continuous. DECA scores were not correlated with child age, $r$ (85) = -0.16, $p$ = 0.14; or family income, $r$ (83) = 0.12, $p$ = 0.27. An

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independent *t*-test revealed that there were no significant differences in DECA scores for girls ($M$ = 110.5, $SD$ = 7.19) compared to boys ($M$ = 108.71, $SD$ = 10.78), $t$ (77.14) = -0.92, $p$ = 0.36. Since ACE scores have also been associated with lower SES (Steele et al., 2016), and as these are both continuous variables, a correlation was conducted. ACE scores were negatively correlated with annual family income, $r$ (83) = -0.32, $p$ < .01. However, family income, child age, and child biological sex will be controlled for in regression analyses, entered as covariates.

**Research Question 1**

The first research question asks if there is an association between mothers' ACEs and mother-reported child SEL skills.

**Research question 1a.** Research Question 1a asks if higher numbers of mothers' ACEs are associated with lower SEL skills. To answer this question, a correlation tested whether mothers' ACEs and child SEL skills were associated. Mothers' ACEs were negatively correlated with child SEL skills, meaning that as ACEs increase, child SEL skills decrease, $r$ (84) = -.31, $p$ = .004. (See Table 3 for all correlation analyses.) When controlling for annual income, child biological sex, and child age, mothers' total ACEs predicted child SEL skills as measured by the DECA, $b_1$ = -3.07, $t$ (81) = -2.86, $p$ = 0.005), 95% CI [-5.21, -0.93]. In this model, mothers' ACEs and income together accounted for 15.3% of the variance in child SEL skills, with mothers' ACEs specifically accounting for 8.7%, so the effect size is small. (See Table 6.)

**Research question 1b.** Research Question 1b asks if specific types of mothers' ACEs are associated with lower scores of child SEL skills. To answer this question, mothers' ACEs were categorized depending on type of trauma: abuse (i.e., physical,

sexual, and/or emotional), neglect (i.e., physical and/or emotional), and household dysfunction (i.e., at least one household dysfunction items is endorsed). Each category of ACEs was examined separately; each regression analysis controlled for annual income, child biological sex, and child age. Mothers' experience of at least one abuse type predicted child SEL skills as measured by the DECA, $b_1$ = -4.95, $t$ (81) = -2.61, $p$ = 0.01, 95% CI [-8.72, -1.18]. This model accounted for 14.0% of the variance in child SEL skills, with mothers' ACEs specifically accounting for 7.4%, so the effect size is small. Mothers' experience of at least one type of neglect predicted child SEL skills as measured by the DECA, $b_1$ = -6.51, $t$ (81) = -3.41, $p$ = 0.001, 95% CI [-10.31, -2.71]. This model accounted for 18.5% of the variance in child SEL skills, with mothers' ACEs specifically accounting for 11.9%, so the effect size is small. Mothers' experience of at least one type of household dysfunction did not predict child SEL skills as measured by the DECA, $b_1$ = -2.05, $t$ (81) = -1.03, $p$ = 0.31, 95% CI [-6.00, 1.91].

**Research Question 2**

The second research question asks if child NLEs moderate the relationship between mothers' ACEs and child SEL skills.

**Research question 2a.** Research Question 2a asks if higher numbers of NLEs moderate the relationship of mothers' ACEs and child SEL skills. To test this question, mothers with high versus low ACE exposure were examined for the number of NLEs their child experienced. Compared to mothers with low or no ACE exposure ($N$ = 62), mothers with high ACE exposure ($N$ = 24) had children with more NLEs ever experienced, $t$(36.11) = -4.85, $p$ < .001, in the past year, $t$(39.87) = -4.13, $p$ < .001, and more than one year ago, $t$(44.91) = -4.82, $p$ < .001. (See Table 4 for $t$-test results.)

Regression analyses were conducted. The first regression predicted child SEL skills from NLEs in the past year, while controlling for mother ACEs, annual family income, child biological sex, and child age; an interaction between ACEs and NLEs in the past year was included. Results indicated that total NLEs in the past year did not predict child SEL skills, $b_1 = -1.72$, $t(77) = -1.53$, $p = 0.13$), 95% CI [-3.96, 0.52], though mothers' ACEs still significantly predicted SEL skills in this model, $b_1 = -2.35$, $t(77) = -2.11$, $p = .04$), 95% CI [-4.57, -0.14]. However, the interaction between ACEs and NLEs in the past year was not significant, $b_1 = -1.85$, $t(77) = -1.52$, $p = 0.13$), 95% CI [-4.28, 0.58]. This model accounted for 19.8% of the variance in child SEL skills. The second regression predicted child SEL skills from NLEs more than one year ago, while controlling for mother ACEs, annual family income, child biological sex, and child age; an interaction between ACEs and NLEs more than one year ago was included. Results indicated that total NLEs more than one year ago did not predict child SEL skills, $b_1 = -0.31$, $t(77) = -0.24$, $p = 0.81$), 95% CI [-2.85, 2.24], though mothers' ACEs still significantly predicted SEL skills in this model, $b_1 = -2.73$, $t(77) = -2.45$, $p = .02$), 95% CI [-4.96, -0.51]. However, the interaction between ACEs and NLEs more than one year ago was not significant, $b_1 = -2.35$, $t(77) = -1.48$, $p = .14$), 95% CI [-5.22, 0.78]. This model accounted for 17.8% of the variance in child SEL skills. (See Table 6.)

To understand how level of mothers' ACEs (e.g., "high level" means experiencing 4 or more ACEs) on NLEs, ANOVA were conducted. There was a significant effect of ACE level on child NLEs more than one year ago, $F(2, 83) = 11.02$, $p < .001$, and in the past year, $F(2, 83) = 9.48$, $p < .001$. Tukey HSD was used for pairwise comparisons between ACE levels of high, low, and none; these comparisons

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revealed that child NLEs in the past year and more than one year ago were higher for mothers in the high level compared to either the low or none levels.

**Research question 2b.** Research Question 2b asks if specific NLEs as determined to be associated with mothers' ACEs moderate the relationship of mothers' ACEs and child SEL skills; each regression controlled for annual income, child biological sex, and child age. We used coded trauma-related NLEs in the past year and more than one year ago. Independent $t$-tests revealed that compared to mothers with low or no ACE exposure ($N = 62$), mothers with high ACE exposure ($N = 24$) had children with more trauma-related NLEs in the past year, $t$ (36.42) = -4.25, $p < .001$, and more than one year ago, $t(43.48) = -5.44, p < .001$. (See Table 5.)

Regression analyses were conducted. The first regression predicted child SEL skills from trauma-related NLEs in the past year, while controlling for mother ACEs, annual family income, child biological sex, and child age; an interaction between ACEs and trauma-related NLEs in the past year was included. Results indicated that total trauma-related NLEs in the past year did not predict child SEL skills, $b_1 = -2.34, t$ (77) = -1.71, $p = 0.09$), 95% CI [-5.07, 0.38], though mothers' ACEs still neared significance in predicting SEL skills in this model, $b_1 = -2.20, t$ (77) = -1.99, $p = .05$), 95% CI [-4.40, 0.001]. However, the interaction between ACEs and trauma-related NLEs in the past year was not significant, $b_1 = -2.75, t$ (77) = -1.73, $p = 0.09$), 95% CI [-5.92, 0.41]. This model accounted for 21.8% of the variance in child SEL skills. The second regression predicted child SEL skills from trauma-related NLEs more than one year ago, while controlling for mother ACEs, annual family income, child biological sex, and child age; an interaction between ACEs and trauma-related NLEs more than one year ago was included. Results

indicated that total trauma-related NLEs more than one year ago did not predict child

SEL skills, $b_1$ = -0.80, $t$ (77) = -0.56, $p$ = 0.58), 95% CI [-3.61, 2.02], though mothers'

ACEs still significantly predicted SEL skills in this model, $b_1$ = -2.76, $t$ (77) = -2.45, $p$ =

.02), 95% CI [-5.00, -0.51]. However, the interaction between ACEs and trauma-related

NLEs more than one year ago was not significant, $b_1$ = -2.45, $t$ (77) = -1.68, $p$ = .10),

95% CI [-5.34, 0.45]. This model accounted for 18.7% of the variance in child SEL

skills. (See Table 6.)

To understand how level of mothers' ACEs (e.g., "high level" means

experiencing 4 or more ACEs) on trauma-related NLEs, ANOVA were conducted. There

was a significant effect of ACE level on trauma-related NLEs more than one year ago, $F$

(2, 83) = 14.22, $p$ < .001, and in the past year, $F$ (2, 83) = 10.98, $p$ < .001. Tukey HSD

was used for pairwise comparisons between ACE levels of high, low, and none; these

comparisons revealed that trauma-related NLEs in the past year and more than one year

ago were higher for mothers in the high level compared to either the low or none levels.

**Research Question 3**

Research Question 3 asks whether the expression of SEL behaviors between

mothers and children moderate the relationship of mothers' ACEs and child SEL skills.

Mother and child responsiveness, positive affect, and negative affect were each tested

separately. See Table 3 for correlations of main study variables and SEL behavior

variables. Child SEL skills were not correlated with mother or child responsiveness,

positive affect, or negative affect. Mothers' ACEs were significantly positively correlated

with child negative affect, $r$ (80) = .28, $p$ = .01, and with mother negative affect, $r$ (80) =

.38, $p$ = <.001. Mothers' ACEs were significantly negatively correlated with mother

positive affect, $r$ (80) = -.22, $p$ = .048. Mothers' ACEs were not correlated with child

positive affect, child responsiveness to mother, or mother responsiveness to child.

Child positive affect was significantly negatively correlated with child NLEs in

the past year, $r$ (80) = -.25, $p$ = .02, trauma-related NLEs in the past year, $r$ (80) = -.30, $p$

= .01, and trauma-related NLEs more than one year ago, $r$ (80) = -.23, $p$ = .04. Child

negative affect was significantly positively correlated with NLEs in the past year, $r$ (80) =

.31, $p$ = .01, and trauma-related NLEs in the past year, $r$ (80) = .37, $p$ = .001. NLEs and

trauma-related NLEs at either time point were not correlated with mother or child

responsiveness.

**Research question 3a.** Research Question 3a specifically asks if more SEL

behaviors by the mothers towards the child moderates the relationship of mothers' ACEs

and child SEL skills. Mother responsiveness, positive affect, and negative affect were

tested in one regression, controlling for annual family income, child biological sex, child

age, and mother total ACEs. The regression revealed that mother responsiveness, positive

affect, and negative affect did not predict child SEL skills; interactions between ACEs

and each mother SEL behavior also did not predict child SEL skills. (See Table 7.)

**Research question 3b.** Research Question 3b asks if more SEL behaviors by the

child towards the mother moderates the relationship of mothers' ACEs and child SEL

skills. Child responsiveness, positive affect, and negative affect were tested in one

regression, controlling for annual family income, child biological sex, child age, and

mother total ACEs. The regression revealed that child responsiveness, positive affect, and

negative affect were not significant predictors of child SEL skills; interactions between

ACEs and each child SEL behavior also did not predict child SEL skills. (See Table 7.)

**Research questions 3c and 3d.** Research Questions 3c and 3d focus on a composite of SEL behaviors, first testing if a composite is associated with child SEL skills, and then whether that composite moderates the relationship of mothers' ACEs and child SEL skills. However, since correlation and regression analysis in Research Questions 3a and 3b does not show associations with mother or child responsiveness, positive affect, or negative affect and child SEL skills, the analysis for Research Questions 3c and 3d was not conducted.

**Summary of Results**

Prevalence of trauma in the sample consisted of mothers on average experiencing 2.4 ACEs, with 50.6% of mothers having experienced maltreatment; over a quarter (28.1%) had high ACE exposure (4+ ACEs) and almost half (48.3%) had low ACE exposure (1-3 ACEs). Children typically experienced a couple NLEs in the past year and more than one year ago, with fewer than one trauma-related NLE on average.

In examining relationships between ACEs and child SEL skills, results revealed a significant negative correlation that as mothers' total ACEs increase, their children's SEL skills decrease; when controlling for annual income, child biological sex, and child age, and when tested separately, total ACEs, mothers' experience of abuse, and mothers' experience of neglect also predicted lower SEL skills, though this result was not significant for mothers' experience of household dysfunction.

Analyses examined relationships between ACEs, NLEs, and SEL skills and behaviors. Children were at risk for having more NLEs and trauma-related NLEs (in the past year and more than one year ago), if their mother had high exposure to ACEs. However, NLEs and trauma-related NLEs did not predict child SEL skills. Yet, when

controlling for NLEs and trauma-related NLEs, mothers' ACEs continued to remain a significant predictor of child SEL skills. Examining SEL behaviors of mothers and children revealed that mothers' ACEs were positively correlated with child negative affect and mother negative affect but negatively correlated with mother positive affect, though other correlations between mother and child SEL behaviors in relation to ACEs or SEL skills did not exist.

These results indicate that relationships exist between early trauma of mothers and their children's negative early experiences, and that there are some connections between early trauma of mothers and specific negative early experiences of their children. In addition, ACEs and SEL skills are also related in that when mothers experience early trauma, their children may be put at risk for poorer SEL skills; however, more research is needed to understand whether SEL behaviors between mother and child are salient for examining the relationship between ACEs and SEL skills.

CHAPTER IV

DISCUSSION

**Overview of Findings**

This study examined the relationship between mothers' ACEs and their preschool children's SEL skills. In addition, this study tested whether children's early adversity (i.e., NLEs and trauma-related NLEs) and mother-child SEL behaviors separately moderated the relationship between mothers' ACEs and child SEL skills. Results indicated that there was a significant negative association between mothers' ACEs and children's SEL skills; as mothers' ACEs increased, children's SEL skills significantly decreased. Children were at risk for having more NLEs and trauma-related NLEs (in the past year and more than one year ago), if their mother had high exposure to ACEs or abuse history; neglect history and household dysfunction experiences of mothers also were risks for children specifically having more trauma-related NLEs.

However, NLEs and trauma-related NLEs did not predict child SEL skills. Yet, when controlling for NLEs and trauma-related NLEs, mothers' ACEs continued to remain a significant predictor of child SEL skills. Specific trauma-related NLEs were also associated with mothers' ACEs and children's SEL skills. Mothers' ACEs were significantly positively correlated with child negative affect and with mother negative affect, and they were significantly negatively correlated with mother positive affect. Child SEL skills were not correlated with mother or child responsiveness, positive affect, or negative affect. Mothers' ACEs were not correlated with child positive affect, child responsiveness to mother, or mother responsiveness to child.

This study provides further knowledge regarding the effects of ACEs across

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generations and specifically how they may be associated with SEL skills and early
contexts of subsequent generations. The following discussion provides specific results by
research questions framed within the existing literature, and a discussion of limitations
and future directions.

**Research Question 1**

The first research question addressed whether there was an association between
mothers' ACEs and their preschool children's SEL skills, as reported on by mothers.
Results of this study show that more experiences of ACEs by biological mothers is
negatively associated with lower child SEL skills, even when controlling for SES. Abuse
and neglect types of trauma experienced by mothers were examined separately. If
mothers experienced at least one type of abuse or at least one type of neglect, their
children also had lower SEL skills. These results are relevant to past research that has
found links between childhood trauma and poor SEL development (e.g., Bethell et al.,
2017; Pears et al., 2012), though this study expands this research, connecting ACE
exposure of mothers with SEL development across generations.

Prevalence of trauma in this sample was high, with 28.1% of mothers reporting
high ACE exposure, 50.6% of mothers specifically reporting at least one type of
maltreatment, and children on average across their lives experienced 4.82 NLEs generally
and 0.94 trauma-related NLEs. Other studies have also reported high trauma rates in the
population, including that 676,000 children were maltreated in 2016 (DHS, 2018), many
children experience traumas besides maltreatment (Sacks et al., 2014), and adults report
that many have experienced different types of maltreatment in childhood (Merrick et al.,
2018). It is important then to consider implications of trauma across the lifespan and in

parenting.

SEL behavior in subsequent generations may be influenced by the mother and child relationship and by maternal stress, considering that responsive parenting leads to better social skills in kindergarten (Rispoli et al., 2013). When children are exposed to interpersonal trauma, often they have poorer attachment to their caregivers (Freyd, 1994), so it is not surprising that they also may experience deficits in SEL skills, given that SEL skills are linked with more secure attachment to caregivers (Pickreign Stronach et al., 2011). Perhaps poor SEL skills in the next generation are influenced by attachment issues that could form between the parent who was exposed to childhood trauma and their child.

**Research Question 2**

The second research question focused on whether NLEs generally or trauma-related NLEs moderated the relationship between mothers' total ACEs and child SEL skills. While relationships existed between mothers' ACEs and child NLEs, and between trauma-related NLEs and SEL skills, none of the NLEs variables moderated the relationship between mother ACEs and child SEL skills. Considering that only trauma-related NLEs in the past year was associated with SEL skills, so that as these types of NLEs increased, SEL skills decreased, this may reveal how early contexts may be associated with SEL skills. Potentially, trauma-related NLEs, which are likely to have a connection with intergenerational trauma, occurring more recently in a child's life may have more salience for a child's SEL skills than these types of adversities occurring in infancy. More research would be needed to confirm this finding.

However, mother ACEs continued to be a significant predictor even when controlling for NLEs. This means that as mother ACEs increased, child SEL skills

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decreased significantly. These findings are complemented by prior research which has found that when parents have early trauma exposure, this is linked with their children having difficulties with internalizing and externalizing behaviors (Babcock Fenerci et al., 2018), which could be related to poorer SEL skills. Experiencing childhood maltreatment puts mothers at risk for stress in adulthood, including parenting stress (Lange et al., 2018), life event stress (Enlow et al., 2016), and distress (Murphy et al., 2014). Perhaps mothers with early trauma have stress after their own child is born, this may lead then to a more stressful early environment for that child. While exact conclusions cannot be drawn with the current research, it may be possible that this early stressful environment may influence SEL development.

Related then to this discussion is prior work that has examined links between mothers' early trauma experiences and later stress experienced in adulthood. Prior research has documented that when mothers experience childhood trauma, they are more likely to have certain traumas in adulthood, including divorce or separation (e.g., Font & Maguire-Jack, 2016), later mental health disorders (e.g., Ballard et al., 2015), poorer education and employment (Font et al., 2016; Jones et al., 2015), less social support (Horan & Widom, 2015), more involvement with criminal activity (Jones et al., 2015), and substance abuse (Andersen, 2019), among others. When adults experience these events and are parents, then their children also are likely growing up in a more stressful environment. Findings in this study supported this as it was found that children of mothers with high ACE exposure had children with more trauma-related NLEs. While NLEs generally were not related to SEL skills, this is not surprising given the range of different NLEs experienced, some of which would be more likely to be expected to be

tied to SEL skills and others that would not. NLEs in the past year also showed to be more relevant to SEL skills possibly because of the immediacy of these experiences, happening when the child was the oldest possible and thus may have more effects on their SEL development as they enter school.

**Research Question 3**

The third research question was related to SEL behaviors of child and mother responsiveness, positive affect, and negative affect. Mother ACEs were found to positively correlate with child negative affect and mother negative affect, and mother ACEs were negatively correlated with mother positive affect. Child positive affect was also negatively correlated with NLEs in the past year and trauma-related NLEs both in the past year and more than one year ago. Child negative affect was positively correlated with NLEs and trauma-related NLEs in the past year only.

When mothers had higher ACE exposure, this was then related to mother and child both showing more negative affect and mothers specifically showing less positive affect in the interactions between mother and child. Considering that prior research has shown how early trauma in mothers and their children may put SEL development at risk (Font & Berger, 2015), perhaps this association is due in part to SEL behaviors of mothers and children, especially related to increased negative affect and decreased positive affect, considering that emotionally responsive parenting is associated with better early social skills (Rispoli et al., 2013). Prior studies have found links between parents engaging in SEL behaviors in play with their preschool children and also observing more cooperative behaviors in their children (Kochanska et al., 2013); while more research is needed to explore this connection, it could be that mothers are more

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likely to rate their children as having poor SEL skills when they perceive poorer SEL behaviors in play with their children.

**Implications for Clinical Practice**

Understanding early childhood trauma and its effects across the lifespan, including within parenting, is important for clinical practice. When clinicians are aware of mothers' childhood traumas and how these may be impacting their children, they can then provide better intervention support for mothers and prevention and intervention support for their children. When clinicians are also aware of the early environmental risks that may impact children of mothers with high trauma or maltreatment exposure, then these factors can be examined and prevention and intervention support can be integrated into work with families.

**Limitations**

There were a few limitations in this study. First, ACEs, NLEs, and SEL skills were all mother-report, which means there could have been some bias by the mothers in regards to reporting; in addition, given the negative connotation of what was to be reported, mothers may have decided not to reveal past traumas for many reasons. Another limitation is that all data were collected at one time point; while NLEs and ACEs were referred to as events happening prior to mothers filling out the SEL survey or interacting with the child in the video observations, all data were still collected at the same time, which may present difficulties in interpreting across time. Another limitation is that SEL behaviors between mother and child only used three variables, capturing each construct separately for mother and child, for one short interaction in a laboratory setting, meaning that it is unclear how well this reflects the real world and common SEL interactions

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between mother and child on a daily basis. In addition, there was poor alignment between the DECA, which measured mother-reported child SEL skills, and the PARCHISY video-coding system that measured mother and child SEL behaviors; this may have partially explained the lack of moderation of the SEL behaviors on the relationship between ACEs and DECA scores, given this poor alignment between the SEL behaviors and skills measures.

**Future Directions**

Future studies should continue to examine how mothers' early traumas are associated with their children's SEL skills, including prior to preschool and across childhood and adolescence. In addition, it is important for future studies to consider what specific aspects of SEL skills are most affected by mothers' traumas and whether certain types of NLEs, especially those tied to trauma, affect which aspects of SEL skills. In addition, future studies should use measures of SEL behaviors and SEL skills that are better aligned than in the current study, which would be more likely to show a moderation of SEL behaviors on ACEs and SEL skills, if the SEL behaviors and skills measures were examining similar constructs. The impact of mothers' ACEs on their parenting practices also should be considered as these relate to SEL skills. In addition, future work should parse apart ACEs to understand more about how duration, frequency, and developmental timing specifically impact parenting practices and their children's SEL skills. By understanding these relationships more carefully, more targeted prevention and intervention programs may be created. Intergenerational trauma is a complex phenomenon that can incorporate multiple contextual factors. Future studies that examine more of these factors, especially related to aspects of SEL development of both

mothers and their children, will also provide more understanding of how SEL development occurs. Therefore, longitudinal studies that focus on mothers and children, including prenatal studies, may reveal further information for how trauma affects SEL early on; longitudinal studies that also provide more accurate accounts of mothers' and children's traumas may also give more information about the relationship of trauma and SEL, which could further be useful for intervention.

**Conclusion**

This study is important for informing research and practice on the associations of early trauma experienced by mothers and the SEL development of their preschool children, including how children's own early adversity and mother-child behaviors inform this relationship. While children's early adversity did not moderate the relationship between mothers' trauma and children's SEL skills, there were some clear links between mothers' early trauma and children being more at risk for experiencing trauma-related early adversity. Some links also existed between mother and child positive and negative affect and mothers' and children's experiences of adversity. Future studies should be conducted to explore these relationships further so that understanding of these topics may inform prevention and intervention work.
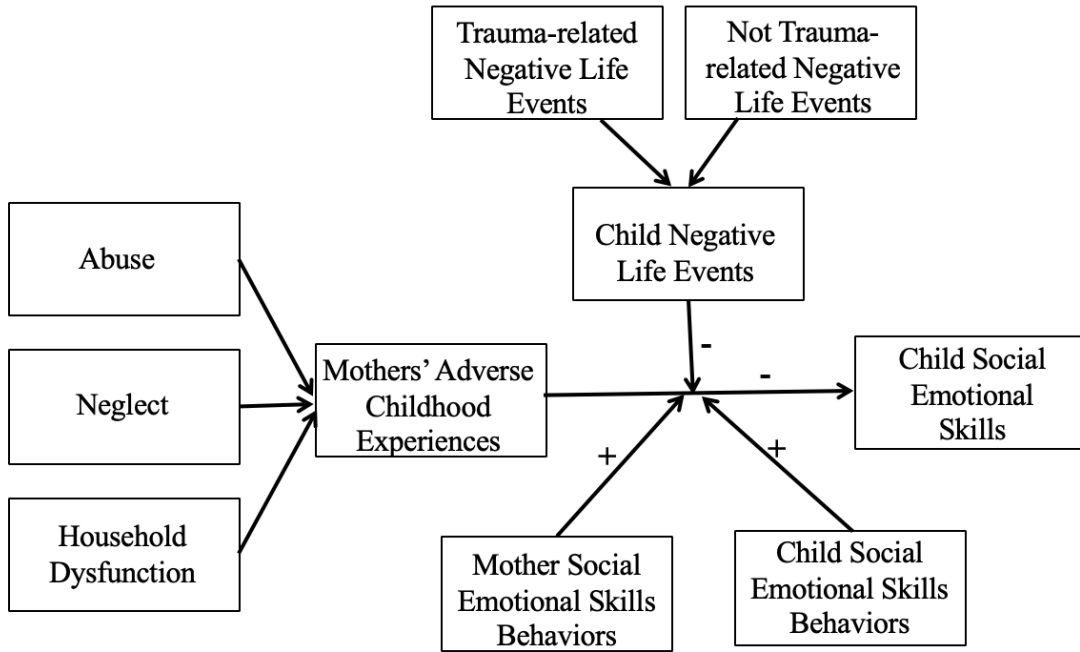
CONCEPTUAL MODEL



*Figure 1.* Conceptual model.

APPENDIX B

TABLES AND FIGURES

Table 1

*Demographics of Mother and Child Participants*

|  | *Mean (SD)* | *n* (%) |
|---|---|---|
| **Child demographics** | | |
| Sex (female) | | 42 (47.70) |
| Race (white) | | 75 (85.20) |
| Ethnicity (Hispanic/Latino) | | 4 (4.6%) |
| Mean age in years | 4.05 (0.76) | |
| **Mother demographics** | | |
| Race (white) | | 78 (90.70) |
| Ethnicity (Hispanic/Latino) | | 0 (0) |
| Mean age in years | 33.07 (5.14) | |
| Household income/year in USD | 68593.96 (46184.31) | |
| Years of education | 15.15 (2.47) | |

Table 2

*Descriptive Statistics of Study Variables*

|  | *Mean (SD)* | *n (%)* |
|---|---|---|
| **Child** | | |
| NLEs in past year | 2.31 (2.24) | |
| NLEs 1+ year | 1.41 (0.73) | |
| Trauma-related NLEs in past year | 0.68 (1.03) | |
| Trauma-related NLEs 1+ year | 0.50 (0.61) | |
| DECA total protective factors score | 109.76 (8.47) | |
| Responsiveness to mother | 6.00 (0.83) | |
| **Mother** | | |
| ACEs total score | 2.40 (2.30) | |
| ACEs experienced abuse | | 36 (40.40) |
| ACEs experienced neglect | | 29 (32.60) |
| ACEs experienced household dysfunction | | 58 (65.20) |
| High ACE exposure (4+ ACEs) | | 25 (28.10) |
| Responsiveness to child | 6.68 (0.54) | |

Table 3

*Correlations Among Study Variables*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. DECA | -- | | | | | | | | | | |
| 2. ACEs | -.31*** | -- | | | | | | | | | |
| 3. NLEs 1+ year | -.13 | .29** | -- | | | | | | | | |
| 4. NLEs past year | -.19 | .32** | .45*** | -- | | | | | | | |
| 5. Trauma NLEs 1+ year | -.20 | .40*** | .72*** | .48*** | -- | | | | | | |
| 6. Trauma NLEs past year | -.24* | .36** | .44*** | .87*** | .55*** | -- | | | | | |
| 7. Child responsiveness | .02 | -.15 | -.03 | -.12 | -.01 | -.17 | -- | | | | |
| 8. Mother responsiveness | -.03 | -.19 | -.03 | .08 | .09 | .03 | .23* | -- | | | |
| 9. Child positive affect | .12 | -.13 | -.22 | -.25* | -.23* | -.30** | .52*** | .16 | -- | | |
| 10. Mother positive affect | .10 | -.22* | -.04 | -.09 | -.04 | -.16 | .21 | .61*** | .45*** | -- | |
| 11. Child negative affect | -.08 | .21 | .10 | .31** | .20 | .40** | -.14 | .09 | -.19 | .06 | -- |
| 12. Mother negative affect | -.11 | .38*** | -.06 | .19 | .08 | .23* | -.32** | -.17 | -.10 | -.40** | .15 |

*Note.* *p* < .05. ***p* < .01. ****p* < .001. Due to positive skew, mothers' ACEs, NLEs, and trauma-related NLEs transformed using square roots.

Table 4

*T-test Results Comparing Children's NLEs by Mothers' ACEs*

| Pair | Mothers' Maltreatment History | $n$ | Mean | SD | $t$ | df | $p$ |
|------|-------------------------------|-----|------|-----|------|-------|----------|
| Pair 1 | Maltreatment | 42 | 2.22 | 1.03 | -2.23 | 69.85 | .03* |
| | No maltreatment | 44 | 1.80 | 0.67 | | | |
| Pair 2 | Physical, sexual, and/or emotional abuse | 35 | 2.35 | 0.96 | -3.02 | 61.57 | .004** |
| | No physical, sexual, and/or emotional abuse | 51 | 1.77 | 0.76 | | | |
| Pair 3 | Physical and/or emotional neglect | 27 | 2.24 | 1.14 | -1.43 | 36.26 | .16 |
| | No physical and/or emotional neglect | 59 | 1.90 | 0.73 | | | |
| Pair 4 | Household dysfunction | 56 | 2.07 | 0.97 | -1.03 | 76.06 | .31 |
| | No household dysfunction | 30 | 1.88 | 0.71 | | | |
| Pair 5 | High ACE exposure | 24 | 8.08 | 4.25 | -4.95 | 28.82 | < .001*** |
| | Low or no ACE exposure | 62 | 3.53 | 2.39 | | | |

*Note.* Household dysfunction is defined as parent separation or divorce, witnessing intimate partner violence, living with a household member with substance abuse, depression, a mental illness, or who attempted suicide, or who went to prison. NLEs were transformed to their square roots due to positive skew. *$p < .05$, **$p < .01$, *** $p < .001$.

Table 5

*T-test Results Comparing Children's Trauma-related NLEs by Mothers' ACEs*

| Pair | Mothers' Maltreatment History | *n* | Mean | *SD* | *t* | *df* | *p* |
|------|-------------------------------|-----|------|------|-----|------|-----|
| Pair 1 | Maltreatment | 42 | 1.34 | 0.72 | -3.82 | 81.34 | <.001*** |
|  | No maltreatment | 44 | 0.78 | 0.63 |  |  |  |
| Pair 2 | Physical, sexual, and/or emotional abuse | 35 | 1.43 | 0.70 | -4.21 | 68.47 | <.001*** |
|  | No physical, sexual, and/or emotional abuse | 51 | 0.80 | 0.64 |  |  |  |
| Pair 3 | Physical and/or emotional neglect | 27 | 1.39 | 0.78 | -2.82 | 43.57 | .01** |
|  | No physical and/or emotional neglect | 59 | 0.90 | 0.66 |  |  |  |
| Pair 4 | Household dysfunction | 56 | 1.16 | 0.75 | -2.01 | 67.24 | .049* |
|  | No household dysfunction | 30 | 0.85 | 0.65 |  |  |  |
| Pair 5 | High ACE exposure | 24 | 1.70 | 0.58 | -6.25 | 44.78 | < .001*** |
|  | Low or no ACE exposure | 62 | 0.80 | 0.63 |  |  |  |

*Note.* Household dysfunction is defined as parent separation or divorce, witnessing intimate partner violence, living with a household member with substance abuse, depression, a mental illness, or who attempted suicide, or who went to prison. NLEs were transformed to their square roots due to positive skew. *p<.05 **p<.01.

Table 6

*Multiple Regression Results for Predicting Child SEL from Mothers' ACEs*

| Model | Variable | Estimate | SE | $t$ | 95% Confidence Interval | | Semi-partial $R^2$ |
|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | |
| 1 | Intercept, $b_0$ | 120.00 | 5.10 | 23.55 | 109.85 | 130.14 | |
| | Family income, $b_1$ | < .001 | < .001 | 0.77 | < .001 | < .001 | 0.08 |
| | Child age, $b_2$ | -2.10 | 1.21 | -1.74 | -4.50 | 0.31 | -0.18 |
| | Child sex, $b_3$ | 1.82 | 1.78 | 1.03 | -1.72 | 5.36 | 0.11 |
| | ACEs, $b_4$ | -3.07 | 1.07 | -2.86** | -5.21 | -0.93 | -0.30 |
| 2 | Intercept, $b_0$ | 117.08 | 4.93 | 23.7 | 107.27 | 126.89 | |
| | Family income, $b_1$ | < .001 | 1.80 | 1.25 | -1.33 | 5.82 | 0.10 |
| | Child age, $b_2$ | -1.96 | 1.22 | -1.61 | -4.39 | 0.47 | -0.17 |
| | Child sex, $b_3$ | 2.25 | 1.80 | 1.25 | -1.33 | 5.82 | 0.13 |
| | Mother was abused, $b_4$ | -4.95 | 1.90 | -2.61* | -8.72 | -1.18 | -0.27 |
| 3 | Intercept, $b_0$ | 118.99 | 4.87 | 24.44 | 109.30 | 128.68 | |
| | Family income, $b_1$ | < .001 | < .001 | 1.25 | < .001 | < .001 | 0.13 |
| | Child age, $b_2$ | -2.48 | 1.18 | -2.10* | -4.84 | -0.12 | -0.21 |
| | Child sex, $b_3$ | 2.11 | 1.74 | 1.21 | -1.36 | 5.58 | 0.12 |
| | Mother was neglected, $b_4$ | -6.51 | 1.91 | -3.41** | -10.31 | -2.71 | -0.35 |

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Table 6 (continued).

| Model | Variable | Estimate | SE | $t$ | 95% Confidence Interval | | Semi-partial $R^2$ |
|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | |
| 4 | Intercept, $b_0$ | 116.85 | 5.21 | 22.41 | 106.47 | 127.23 | |
| | Family income, $b_1$ | $< .001$ | $< .001$ | 1.41 | $< .001$ | $< .001$ | 0.15 |
| | Child age, $b_2$ | -2.19 | 1.26 | -1.73 | -4.70 | 0.33 | -0.19 |
| | Child sex, $b_3$ | 1.86 | 1.86 | 1.00 | -1.83 | 5.55 | 0.11 |
| | Mother experienced household dysfunction $b_4$ | -2.05 | 1.99 | -1.03 | -6.00 | 1.91 | -0.11 |

*Note.* $*p < .05.$ $**p < .01.$ For Model 1, $R^2 = 0.15$. For Model 2, $R^2 = 0.14$. For Model 3, $R^2 = 0.19$. For Model 4, $R^2 = 0.08$.

Table 7

*Multiple Regression Results for Predicting Child SEL from Children's NLEs*

| Model | Variable | Estimate | SE | t | 95% Confidence Interval | | Semi-partial R$^2$ |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | | | | | Lower Bound | Upper Bound | |
| 1 | Intercept, $b_1$ | 120.52 | 5.17 | 23.30 | 110.22 | 130.82 | |
| | Family income, $b_2$ | < .001 | < .001 | 0.43 | < .001 | < .001 | 0.04 |
| | Child age, $b_3$ | -1.72 | 1.21 | -1.42 | -4.57 | 0.69 | -0.15 |
| | Child sex, $b_4$ | 1.95 | 1.78 | 1.10 | -1.59 | 5.49 | 0.11 |
| | ACEs, $b_5$ | -2.35 | 1.12 | -2.11* | -4.57 | -0.14 | -0.22 |
| | NLEs past year, $b_6$ | -1.72 | 1.13 | -1.53 | -3.96 | 0.52 | -0.16 |
| | ACEs x NLEs past year, $b_7$ | -1.85 | 1.22 | -1.52 | -4.28 | 0.58 | -0.16 |
| 2 | Intercept, $b_1$ | 120.00 | 5.16 | 23.27 | 109.73 | 130.27 | |
| | Family income, $b_2$ | < .001 | < .001 | 0.63 | < .001 | < .001 | 0.07 |
| | Child age, $b_3$ | -1.96 | 1.22 | -1.61 | -4.38 | 0.47 | -0.17 |
| | Child sex, $b_4$ | 1.86 | 1.78 | 1.04 | -1.69 | 5.41 | 0.11 |
| | ACEs, $b_5$ | -2.75 | 1.12 | -2.45* | -4.96 | -0.51 | -0.25 |
| | NLEs 1+ years ago, $b_6$ | -0.31 | 1.28 | -0.24 | -2.85 | 2.24 | -0.03 |
| | ACEs x NLEs 1+ years ago, $b_7$ | -2.22 | 1.51 | -1.48 | -5.22 | 0.78 | -0.15 |

Table 7 (continued).

| Model | Variable | Estimate | SE | $t$ | 95% Confidence Interval Lower Bound | Upper Bound | Semi-partial $R^2$ |
|---|---|---|---|---|---|---|---|
| 3 | Intercept, $b_1$ | 121.68 | 5.11 | 23.83 | 111.51 | 131.85 | |
| | Family income, $b_2$ | < .001 | < .001 | 0.29 | < .001 | < .001 | 0.03 |
| | Child age, $b_3$ | -1.92 | 1.19 | -1.61 | -4.29 | 0.45 | -0.16 |
| | Child sex, $b_4$ | 1.37 | 1.75 | 0.78 | -2.12 | 4.87 | 0.08 |
| | ACEs, $b_5$ | -2.20 | 1.10 | -1.99 | -4.40 | 0.01 | -0.20 |
| | Trauma NLEs past year, $b_6$ | -2.34 | 1.37 | -1.71 | -5.07 | 0.38 | -0.17 |
| | ACEs x Trauma NLEs past year, $b_7$ | -2.75 | 1.59 | -1.73 | -5.92 | 0.41 | -0.18 |
| 4 | Intercept, $b_1$ | 120.19 | 5.06 | 23.75 | 110.11 | 130.26 | |
| | Family income, $b_2$ | < .001 | < .001 | 0.37 | < .001 | < .001 | 0.04 |
| | Child age, $b_3$ | -1.81 | 1.22 | -1.49 | -4.23 | 0.61 | -0.15 |
| | Child sex, $b_4$ | 1.78 | 1.78 | 0.99 | -1.78 | 5.29 | 0.10 |
| | ACEs, $b_5$ | -2.76 | 1.13 | -2.45* | -5.00 | -0.51 | -0.25 |
| | Trauma NLEs 1+ years ago, $b_6$ | -0.80 | 1.41 | -0.56 | -3.61 | 2.02 | -0.06 |
| | ACEs x Trauma NLEs 1+ years ago, $b_7$ | -2.45 | 1.45 | -1.68 | -5.34 | 0.45 | -0.17 |

*Note.* *$p$ < .05. **$p$ < .01. For Model 1, $R^2$ = 0.20. For Model 2, $R^2$ = 0.18. For Model 3, $R^2$ = 0.22. For Model 4, $R^2$ = 0.19.

Table 8

*Multiple Regression Results for Predicting Child SEL from SEL Behaviors*

| Model | Variable | Estimate | SE | $t$ | 95% Confidence Interval Lower | 95% Confidence Interval Upper Bound | Semi-partial $R^2$ |
|---|---|---|---|---|---|---|---|
| 1 | Intercept, $b_1$ | 116.25 | 6.38 | 18.23 | 103.54 | 128.96 | |
| | Family income, $b_2$ | < .001 | < .001 | 1.15 | < .001 | < .001 | 0.12 |
| | Child age, $b_3$ | -2.28 | 1.32 | -1.72 | -4.91 | 0.36 | -0.19 |
| | Child sex, $b_4$ | 2.35 | 1.89 | 1.24 | -1.43 | 6.11 | 0.13 |
| | ACEs, $b_5$ | -2.85 | 1.13 | -2.52* | -5.11 | -0.60 | -0.27 |
| | Child positive affect, $b_6$ | 0.59 | 0.77 | 0.78 | -0.96 | 2.13 | 0.08 |
| | ACEs x Child positive affect, $b_7$ | -0.35 | 0.84 | -0.41 | -2.01 | 1.32 | -0.04 |
| 2 | Intercept, $b_1$ | 119.72 | 5.61 | 21.34 | 108.53 | 130.90 | |
| | Family income, $b_2$ | < .001 | < .001 | 1.13 | < .001 | < .001 | 0.12 |
| | Child age, $b_3$ | -2.33 | 1.35 | -1.72 | -5.02 | 0.36 | -0.19 |
| | Child sex, $b_4$ | 2.50 | 1.94 | 1.29 | -1.37 | 6.37 | 0.14 |
| | ACEs, $b_5$ | -2.83 | 1.15 | -2.46* | -5.11 | -0.54 | -0.27 |
| | Child negative affect, $b_7$ | -1.22 | 2.49 | -0.49 | -6.18 | 3.74 | -0.05 |
| | ACEs x Child negative affect, $b_8$ | 0.68 | 2.67 | 0.25 | -4.65 | 5.99 | 0.03 |

Table 8 (continued).

| Model | Variable | Estimate | SE | $t$ | 95% Confidence Interval | | Semi-partial $R^2$ |
| | | | | | Lower | Upper Bound | |
|---|---|---|---|---|---|---|---|
| 3 | Intercept, $b_1$ | 116.55 | 8.62 | 13.52 | 99.37 | 133.73 | |
| | Family income, $b_2$ | < .001 | < .001 | 1.11 | < .001 | < .001 | 0.12 |
| | Child age, $b_3$ | -2.14 | 1.31 | -1.64 | -4.74 | 0.47 | -0.18 |
| | Child sex, $b_4$ | 2.42 | 1.89 | 1.28 | -1.35 | 6.19 | 0.14 |
| | ACEs, $b_5$ | -2.93 | 1.12 | -2.61* | -5.16 | -0.69 | -0.28 |
| | Child responsiveness, $b_8$ | 0.38 | 1.18 | 0.33 | -1.97 | 2.74 | 0.04 |
| | ACEs x Child responsiveness, $b_8$ | -1.36 | 1.20 | -1.14 | -3.75 | 1.03 | -0.12 |
| 4 | Intercept, $b_1$ | 116.51 | 6.23 | 18.71 | 104.10 | 128.93 | |
| | Family income, $b_2$ | < .001 | < .001 | 1.15 | < .001 | < .001 | 0.12 |
| | Child age, $b_3$ | -2.36 | 1.32 | -1.79 | -4.98 | 0.27 | -0.19 |
| | Child sex, $b_4$ | 2.37 | 1.88 | 1.26 | -1.39 | 6.12 | 0.14 |
| | ACEs, $b_5$ | -2.77 | 1.14 | -2.43* | -5.04 | -0.50 | -0.26 |
| | Mother positive affect, $b_6$ | 0.58 | 0.71 | 0.82 | -0.84 | 2.00 | 0.09 |
| | ACEs x Mother positive affect, $b_7$ | -0.37 | 0.83 | -0.44 | -2.03 | 1.29 | -0.05 |

Table 8 (continued).

| Model | Variable | Estimate | SE | $t$ | 95% Confidence Interval | | Semi-partial $R^2$ |
|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | |
| 5 | Intercept, $b_1$ | 118.56 | 5.82 | 20.37 | 106.96 | 130.16 | |
| | Family income, $b_2$ | < .001 | < .001 | 1.18 | < .001 | < .001 | 0.13 |
| | Child age, $b_3$ | -2.16 | 1.33 | -1.63 | -4.81 | 0.49 | -0.18 |
| | Child sex, $b_4$ | 2.38 | 1.90 | 1.25 | -1.41 | 6.17 | 0.14 |
| | ACEs, $b_5$ | -2.56 | 1.43 | -1.79 | -5.41 | 0.29 | -0.19 |
| | Mother negative affect, $b_7$ | -2.77 | 6.69 | -0.41 | -16.10 | 10.56 | -0.05 |
| | ACEs x Mother negative affect, $b_7$ | 2.29 | 7.52 | 0.31 | -12.70 | 17.29 | 0.03 |
| 6 | Intercept, $b_1$ | 120.15 | 6.14 | 19.58 | 107.92 | 132.38 | |
| | Family income, $b_2$ | < .001 | < .001 | 1.02 | < .001 | < .001 | 0.11 |
| | Child age, $b_3$ | -2.27 | 1.33 | -1.71 | -4.92 | 0.38 | -0.18 |
| | Child sex, $b_4$ | 2.21 | 1.89 | 1.17 | -1.55 | 5.98 | 0.13 |
| | ACEs, $b_5$ | -2.82 | 1.14 | -2.47* | -5.10 | -0.55 | -0.27 |
| | Mother responsiveness, $b_7$ | -0.41 | 2.15 | -0.19 | -4.70 | 3.88 | -0.02 |
| | ACEs x Mother responsiveness, $b_6$ | -2.81 | 2.63 | -1.07 | -8.05 | 2.43 | -0.12 |

*Note.* \*$p$ < .05. \*\*$p$ < .01. For Model 1, $R^2 = 0.17$. For Model 2, $R^2 = 0.16$. For Model 3, $R^2 = 0.17$. For Model 4, $R^2 = 0.17$.

For Model 5, $R^2 = 0.16$. For Model 6, $R^2 = 0.17$.

APPENDIX C

DEMOGRAPHICS QUESTIONNAIRE [Subset of Items]

*Please answer the following questions to the best of your ability. If you have any questions at all whatsoever, please ask the researcher. We are also happy to talk you through this questionnaire as well.*

*These questions are about the child you brought with you today:*
1.  Age: _____(yrs)          Date of birth (mm/dd/yy) _____
    Race: _____ (e.g., Caucasian, mixed race)   Hispanic or Latino/a?   Y      N
    Sex:   M      F

*These next questions are about you:*
2.  Age: _____   DOB: _____   Race: _____   Hispanic/Latinx?   Y   N

3.  What is the last grade or year of *regular school* you completed? _____

4.  What is the highest degree or certification you have earned, in any program? (one)
    __ High school diploma or equivalency (GED)        __ Doctorate
    __ Associate degree (junior college)               __ Professional (MD, JD,
                                                          DDS, etc.)

    __ Bachelor's degree                               __ Other (please specify)
    __ Master's degree                                 __ None of the above (less

5.  What is your family's gross income (before taxes)? _____

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