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ORIGINAL ARTICLE

Intergenerational Trauma: Assessment in Biological Mothers and Preschool Children

Emily D. Walden[1] · Jillian C. Hamilton[1] · Ellie Harrington[1] · Sheila Lopez[1] · Antonella Onofrietti-Magrassi[1] · Michelle Mauricci[1] · Shaina Trevino[1] · Nicole Giuliani[1] · Laura Lee McIntyre[1]

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Abstract
Childhood trauma can lead to lifelong detrimental outcomes. Intergenerational trauma should be considered when supporting healthy parent–child relationships. Research is needed on intergenerational trauma in relation to children's negative life event exposure, which could compound intergenerational trauma. We examined the prevalence of and relations between mother and child traumas in a sample of 88 biological mothers and their preschool-aged children. We coded child negative life events to examine those related to intergenerational trauma. Results showed that mother traumas and child negative life events were positively associated; subtypes of mothers' traumas (abuse, neglect) and high trauma levels were associated with higher numbers of child negative life events, including those tied to parent trauma. It is necessary to consider how childhood trauma in adults and children is measured, and what analyses can reveal about the intergenerational context, especially considering compounding current, stressful world events.

Keywords Trauma · Intergenerational · Preschool · Mothers

Childhood traumas include those within parent–child relationships, such as abuse and neglect, experiences within households, such as parent divorce or substance abuse, and those within the community context, including violence and bullying (The National Child Traumatic Stress Network, 2018). Many children experience trauma, with annually over 676,000 U.S. children reported to be maltreated (U.S. Department of Health and Human Services [DHS], 2018). By five-years-old, 25% of U.S. children have experienced financial hardships; 10% have had a parent divorce or separate from a partner; 4% have witnessed intimate partner violence; and many have lived with someone who has a mental illness (6%), a substance abuse issue (6%), and/or been incarcerated (5%) (Sacks et al., 2014). These findings indicate that young children experience a variety of traumas before they begin elementary school. These traumas, in turn, are associated with both short- and long-term risk factors within relationships. Early trauma experiences have especially been associated with poor attachment to parents (Pickreign Stronach et al., 2011) as well as relationship skill deficits in kindergarten (Pears et al., 2012).

Theoretical Framework of Intergenerational Trauma

Intergenerational trauma is the impact that traumatic events have on the health, adjustment, and well-being of subsequent generations (Sangalang & Vang, 2017; Van Ee et al., 2012). The theoretical framework of intergenerational trauma relies on understanding trauma's effects transmitted at biological and environmental levels. For example, stress on mothers (i.e., biology) impacts a child prenatally (Bowers & Yehuda, 2016), while a combination of maternal depression and infant sleep disturbance (i.e., environment) has been found to affect early attachment (Hairston et al., 2011). Past research on intergenerational trauma has especially focused on the effects of historical traumas impacting subsequent generations by understanding epigenetic changes in DNA, stress, and interplay of family dynamics (Yehuda & Lehrner, 2018). At a biological level, DNA methylation (or changes) have been found in the children of those who survived trauma

✉ Emily D. Walden
ewalden@uoregon.edu

[1] College of Education, University of Oregon, Eugene, OR 97403, USA

(e.g., Holocaust, intimate partner violence), even though the children themselves did not experience the traumatic events (Yehuda et al., 2016; Radtke et al., 2011).

While understanding the biological impacts of intergenerational trauma is important in the context of examining the effects of this trauma, the other mechanism by which a parent's trauma history is passed down to their children is via parenting behaviors. Lang and Gartstein (2018) report on the theory of Intergenerational Transmission of Traumatization (ITT) by focusing on key aspects of how parent–child interactions can lead to trauma being transmitted, such as through social learning, behavior of caregivers towards children, and maternal negative cognitions about their children. Mothers specifically may have unique effects on their children's experiences of trauma. This process can occur through in utero exposure to stress as well as epigenetic factors that may add to transmission of intergenerational trauma impacts (Chan et al., 2018). Specifically, maternal childhood trauma is linked with negative parenting behaviors (Yoon et al., 2019), including less sensitivity, more negative affect, decreased parenting confidence, and increased harsh discipline (Folger et al., 2017; Plant et al., 2018), which in turn can perpetuate trauma via environmental experiences. Mothers who survived childhood trauma may seek social contexts similar to those in which they experienced early trauma, thus exposing their children to similar risk factors (Thakar et al., 2013). Mothers' experiences of abuse across generations puts subsequent generations of female children and grandchildren at risk for abuse exposure in childhood and in adolescent and adult partnerships (McCloskey, 2013). Therefore, examining mothers specifically is important when considering gender-based effects of intergenerational trauma.

Extensive documentation of the effects of maternal trauma on children exists. Effects of intergenerational trauma can include predisposition to post-traumatic stress disorder (PTSD), anxiety, substance abuse, and family dysfunction (Van Ee et al., 2012). In addition, mothers' maltreatment history is linked with child externalizing problems and psychopathology (Plant et al., 2018), developmental issues related to attachment (Zalewski et al., 2013), and increased child stress (Thakar et al., 2013). Heightened parental emotional stress dysregulation and altered parent–child interactions may potentially alter the child's stress responses (Yehuda & Lehrner, 2018). When children with trauma exposure grow up, they may be at risk for exhibiting posttraumatic symptoms in their parenting (e.g., emotional stress dysregulation), which results in their children struggling with this trauma as well through the parent–child interaction (Van Ee et al., 2012; Yehuda & Lehrner, 2018). While intergenerational trauma has been studied extensively within high-risk samples, few studies have examined community samples or focused on traumas other than maltreatment.

Assessment of Intergenerational Trauma

Assessing intergenerational trauma is important to understand effects of parent trauma on their children's experiences. Often trauma is measured separately in adults and children via self-report. For example, adult trauma instruments tend to ask about past experiences of childhood trauma and examine trauma broadly or narrowly. Examples of trauma assessments include the Adverse Childhood Experience Questionnaire (ACEs), the Life Event Checklist (LEC), the Life Stressor Checklist (LSC-R), and the Trauma History Questionnaire (THC) (Norris & Hamblen, 2004; Steel et al., 2011). These measures attempt to capture extensive trauma history, including frequency and type, or ask broad questions about a few trauma types, for clinical and research samples. Child measures of trauma may be incorporated within larger measures, such as those on anxiety (Lee et al., 2018), although few instruments assess trauma broadly in young children, capturing multiple types of traumas. However, other measures that have been developed (e.g., Coddington Live Events Questionnaire (CLEQ); Coddington, 1972) have begun to examine children's negative life events (NLEs) more broadly, although these have not always been focused on intergenerational trauma. Often many measures focus on specific traumatic events and/or maltreatment. In addition to the CLEQ, measures of trauma in young children include the Young Child PTSD Checklist (YCPC; Scheeringa, 2014), the Violence Exposure Scale for Children- Revised (Fox & Leavitt, 1995), and the Preschool Age Psychiatric Assessment: Life Events/PTSD section (Egger & Angold, 2004). Other measures assess internalizing and externalizing symptoms that may be related to childhood trauma without assessing trauma specifically (Choi & Graham-Bermann, 2018).

The Present Study

Considering how early trauma can impact parenting and be a risk factor for future generations growing up in more traumatic environments, it is critical to better understand the connections between parent and child traumas to support prevention and intervention efforts. Further, to better understand trauma in young children, it is important to examine various traumas, including but not exclusive to child maltreatment. Current measures do not fully capture the extent of intergenerational trauma on children broadly while also assessing mothers' traumas. The aim of this study was to better understand the effects of mothers' ACEs on their children's NLEs, first by understanding the prevalence of these constructs, and then by examining

how mother ACEs may put children at risk for experiencing NLEs. First, we wanted to examine prevalence of mothers' ACEs, including specifically prevalence by ACEs in total, level (e.g., 4 + ACEs is high), and subtype (i.e., abuse, neglect, and household dysfunction); we also wanted to examine prevalence of NLEs in total by time (i.e., in past year or more than one year ago) and type (i.e., NLEs related to intergenerational trauma compared to those not related). For the second research question, we hypothesized that child NLEs would be positively associated with mother ACEs. Specifically, we hypothesized that more child NLEs would be associated with more mother ACEs and that mothers who experienced specific types of ACEs, specifically abuse or neglect separately, would have children with more child NLEs; however, this would not be true for household dysfunction. For the third research question, we hypothesized that more child trauma-related NLEs would be associated with more mother ACEs and that mothers who experienced specific types of ACEs, specifically abuse or neglect separately, would have children with more child trauma-related NLEs, although this would not be true for household dysfunction.

Method

Participants

The full sample consisted of 88 dyads of biological mothers (*M* age = 33.07 years, *SD* = 5.14) and preschool children (*M* age = 4.05 years, *SD* = 0.76). Mothers were mostly white (90.7%) with all reporting non-Hispanic/Latino, and their children were mostly white (85.2%), 4.6% were Hispanic/Latino, and 47.7% were female. See Table 1 for full demographic data. Mothers on average had 15.15 years of education (*SD* = 2.47) and a household income of 68,593.96 USD (*SD* = 46,184.31 USD).

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)	

Procedure

As part of a larger study investigating parent–child self-regulation (PI: Author), mothers completed online surveys in the lab or at home, depending on their preference. Surveys included the ACEs Questionnaire (ACE-Q; Felitti et al., 1998), where mothers reported on their own childhood traumas, and a modified version of the Coddington Life Events Questionnaire (Coddington, 1972), where mothers reported on their children's experiences of child NLEs in the past year and separately over one year ago. The study received ethical approval from the Institutional Review Board at the [Institution Name] (protocol [protocol number]). Research staff involved in data collection had previous training on mandatory reporting and were prepared to follow a protocol to report on any suspected child maltreatment that may be disclosed during the course of the study.

Measures

***The ACE-Q* (Felitti et al., 1998)** The ACE-Q is a survey of an individual's adverse childhood experiences (ACEs); ACEs include 10 items consisting of abuse (3-items; emotional physical, and sexual), neglect (2-items; emotional, physical), and household dysfunction (5-items; parent divorce/separation, witnessing intimate partner violence towards their mother or step-mother, having a household member engage in substance abuse, having a household member with a mental illness or who attempted suicide, having a household member be incarcerated). Respondents read a one to two sentence question and chose "Yes" or "No" depending on whether or not that event was experienced by the individual before age 18. The ACE-Q takes approximately 3- to 5-min to complete.

***MCLEQ* (Coddington, 1972)** The MCLEQ is a modified Coddington Life Events Questionnaire designed for caregivers to report on their preschool-aged child's NLEs. This version is shorter than the original and includes negative items only, 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 a family member"), and mothers indicated "Yes" or "No" responses 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 administered 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. An additional subscale was developed for this study that consisted of child trauma-related NLEs. Two independent raters reviewed each item of the MCLEQ and determined which child NLEs, based on literature searches, had a relation to intergenerational trauma. Specifically, if the event was found in the literature to have a link with a parent's childhood trauma, that item was included in the subscale of child trauma-related NLEs. Interrater reliability total percent agreement was 86.36% with Cohen's kappa of 0.73. When there were discrepancies in coding, raters met and arrived at a consensus for items not in agreement. Table 2 shows the items included in the child trauma-related NLE subscale as well as the references to prior research findings that support the connection between the item and intergenerational trauma.

Table 2 Trauma-related NLEs Coding

Trauma-related NLE	Citation	Relevance of Citation to Item
Parents were separated	Font and Maguire-Jack (2016)	Having at least one ACE is associated with being divorced or widowed in adulthood
	Felitti et al. (1998)	According to the original ACE-Q, parent separation is an ACE
Parents were divorced	Font and Maguire-Jack (2016)	Having at least one ACE is associated with being divorced or widowed in adulthood
	Felitti et al. (1998)	According to the original ACE-Q, parent divorce is an ACE
Loss of job by parent	Currie and Spatz Widom (2010)	Having childhood maltreatment increases risk in adulthood of having lower levels of employment and earnings
	Zielinski (2009)	Adults with ACEs are more likely to have unemployment
Parents fought more	Gómez (2011)	Childhood abuse history is associated with experiencing intimate partner violence in adulthood
	Dube et al. (2005)	Parents with child sexual abuse exposure are more likely to have marital problems in adulthood
Parent had to go to jail	Roos et al. (2016)	Childhood maltreatment increases risk for incarceration in adulthood
	Felitti et al. (1998)	According to the original ACE-Q, a household member going to prison is an ACE
Parents worried more about money	Zielinski (2009)	Adults with ACEs are more likely to be in poverty
	Font and Maguire-Jack (2016)	When adults report having had 2 or more ACEs, they report lower income
Substance abuse by family member	Font and Maguire-Jack (2016)	For adults with ACE exposure, there are some increases in binge drinking and tobacco use in adulthood
	Dube et al. (2005)	Childhood exposure to sexual abuse predicted 40% increase risk of marrying alcoholic
	Felitti et al. (1998)	According to the original ACE-Q, substance abuse by a household member is an ACE
	Roos et al. (2016)	Maltreatment increased substance use risk in adulthood
Parent switched or has had multiple partners	Anderson (2017)	ACE exposure predicts more sexual risk-taking behaviors in adulthood including taking an HIV test, not using a condom, using drugs, having an STD, and ACE exposure predicted being part of an unmarried couple
	Ramiro (2010)	ACE exposure associated with multiple sex partners in adulthood in Manila
	El-Bassel et al. (2010)	Women with PTSD more likely to report childhood sex abuse. Women with PTSD more likely to have multiple sex partners
Parent died	Brown et al. (2009)	Increasing numbers of ACEs are associated with an increasing early mortality rate in adults
	Holman et al. (2016)	Increasing risk of cancer in adulthood as ACE total scores increase
Parent spent less time at home	Dube et al. (2009)	Adults have increased hospitalization for autoimmune disease (and thus less time at home) when they have increasing ACEs
	Heinrich (2014)	Poorer education and employment outcomes are associated with ACEs (Jones et al., 2015); low income jobs for parents (which would typically be associated with poorer education and employment) are linked with inflexible, late night hours, meaning less time spent with children

Analysis

Descriptive analyses were completed first to check for skew of ACEs, child NLEs, and child trauma-related NLEs. Due to positive skew of ACEs, child NLEs (in the past year, more than one year ago), and child trauma-related NLEs (in the past year, more than one year ago), these variables were transformed by their square roots to make them more normally distributed and used in analyses assuming a normal distribution. For the first research question on prevalence, raw scores of ACEs and child NLEs were used; for the second and third research questions, only transformed versions of ACEs and child NLEs were used. See Table 3 for descriptive analyses.

In our analyses, ACEs (including total, level, and subtype) was always the independent variable and child NLEs (trauma- and not trauma-related, and NLEs in the past year and more than one year ago) was always the dependent variable. To answer the first research question on prevalence of trauma in this sample, we examined total and subtypes of ACEs and child NLEs separately. To answer the second research question on whether child NLEs and mother ACEs are associated, correlations were first conducted. Specifically, total child NLEs and total mother ACEs were examined to see if they were correlated. Then a series of ANOVAs were conducted to examine whether child NLEs differed depending on mother ACEs. Each ANOVA was conducted twice, examining first child NLEs that occurred more than one year ago, and then child NLEs that occurred in the past year. In the first ANOVA, mothers with high ACE exposure (4 or more ACEs) were compared to the combined group of mothers with low (1–3 ACEs) and no ACE exposure with regard to the number of total child NLEs their children had; then only high versus low ACE exposure groups were compared. Next independent *t*-tests were completed to examine whether mothers in one of the two groups had children with higher numbers of child NLEs. Groups were compared in the following order: whether or not mothers had at least one abuse ACE (i.e., physical, sexual, or emotional abuse); whether or not mothers had at least one neglect ACE (i.e., physical or emotional neglect); and whether or not mothers had at least one household dysfunction ACE (i.e., parent separation or divorce; household member with mental illness, with substance abuse, or who went to prison; witnessed intimate partner violence). To answer the third research question, identical analyses were completed from the first research question, except that instead of child NLEs being used, child trauma-related and non-trauma related NLEs were used as the dependent variables in separate analyses. All other variables and procedures remained the same.

Table 3 Descriptive Statistics of Study Variables

	Mean (SD)	*n* (%)
Child		
NLEs in past year	2.31 (2.24)	
NLEs 1+ year	2.51 (1.93)	
Trauma-related NLEs in past year	1.26 (1.35)	
Trauma-related NLEs 1+ year	0.99 (1.17)	
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)

Results

Descriptive Statistics

To answer the first research question, trauma prevalence was examined for mothers and children. Mothers experienced on average 2.40 total ACEs ($SD = 2.30$), with 40.4% of mothers reporting at least one type of abuse, 32.6% reporting at least one type of neglect, and 65.2% reporting at least one type of household dysfunction. Examination of levels of ACEs indicated that 28.1% of mothers experienced a high level of ACEs (i.e., 4 or more ACEs), 48.3% experienced a low level of ACEs (i.e., 1–3 ACEs), and 23.6% experienced no ACEs. Children experienced on average 2.31 total NLEs ($SD = 2.24$) in the past year, 2.51 total NLEs ($SD = 1.93$) more than one year ago, 1.26 trauma-related NLEs ($SD = 1.35$) in the past year, and 0.99 trauma-related NLEs ($SD = 1.17$) more than one year ago.

Associations of Mothers' ACEs and Children's NLEs

The second research question asked whether there are associations between child NLEs and mother ACEs. First, correlations were analyzed to determine if relations existed between ACEs and NLEs using transformed variables. Total mother ACEs were positively correlated with total child NLEs in the past year, $r = 0.32$, $p < 0.01$, and child NLEs more than one year ago, $r = 0.29$, $p < 0.01$.

Next, a series of one-way, between-subjects ANOVAs were conducted to test whether the number of child NLEs differed depending on mother ACE levels (high, low, and none). This analysis consisted of two separate ANOVAs where child NLEs in the past year were used for the first ANOVA, and child NLEs more than one year ago were used for the second ANOVA. There was a significant effect of ACE level on child NLEs more than one year ago, $F(2, 83) = 11.02$, $p < 0.001$, as well as in the past year, $F(2, 83) = 9.48$, $p < 0.001$. Tukey HSD was used for pairwise

comparisons between ACE levels of high, low, and none; these comparisons revealed that NLEs more than one year ago and in the past year were higher for children with mothers in the high level compared to either the low or none levels, though results between low and none levels were not significantly different. See Table 4 for full ANOVA results.

Finally, independent *t*-test analyses were conducted to test whether mothers with specific types of ACEs differed in the number of NLEs their children had, both in the past year and more than one year ago. Mothers who experienced at least one type of abuse reported significantly more child NLEs in the past year, $t(73.67) = -3.14$, $p = 0.002$, and more child NLEs more than one year ago, $t(65.10) = -2.47$, $p = 0.016$, compared to mothers who did not experience any abuse. Mothers who experienced at least one type of neglect had children with significantly more child NLEs in the past year, $t(39.20) = -2.19$, $p = 0.035$, but not more than one year ago, $t(40.05) = -0.84$, $p = 0.41$, compared to mothers who did not experience any neglect. Mothers who experienced at least one type of household dysfunction did not differ significantly in number of child NLEs in the past year, $t(60.22) = -0.88$, $p = 0.39$, or more than one year ago, $t(64.23) = -1.45$, $p = 0.15$, than mothers who did not experience any household dysfunction.

Separate independent *t*-test analyses compared child NLEs by mothers who experienced specific types of ACEs. In the first test, mothers who experienced at least one type of abuse ($n = 35$) were compared to mothers who experienced at least one ACE that did not include abuse ($n = 30$), excluding mothers who did not experience any ACEs. Mothers who experienced at least one type of abuse had children with significantly more child NLEs in the past year, $t(62.56) = -3.41$, $p = 0.001$, and more than one year ago, $t(62.99) = -2.34$, $p = 0.023$ compared to mothers who experienced at least one ACE but no abuse. In the second test, mothers who experienced at least one type of neglect ($n = 27$) were compared to mothers who experienced at least one ACE that did not include neglect ($n = 38$), excluding mothers who did not experience any ACEs. Mothers who experienced at least one type of neglect did not have children with more child NLEs in the past year, $t(45.12) = -1.93$, $p = 0.06$, or more than one year ago, $t(46.39) = -0.58$, $p = 0.564$ compared to mothers who experienced at least one ACE but no neglect.

Associations of Mothers' ACEs and Children's Trauma-Related NLEs

The third research question asked whether there are associations between child trauma-related NLEs and mother ACEs. First, correlations on transformed variables were run to determine if relations between total ACEs and trauma-related NLEs existed. Total ACEs were positively correlated with total child trauma-related NLEs in the past year, $r = 0.36$, $p < 0.01$, and child trauma-related NLEs more than one year ago, $r = 0.40$, $p < 0.001$.

Next, a series of one-way, between-subjects ANOVAs were conducted to test whether the number of child trauma-related NLEs (in the past year, more than one year

Table 4 ANOVA Comparisons of Child NLEs by Mother ACEs

					Tukey's HSD Comparisons	
Type	Group	*n*	Mean	*SD*	High	Low
All NLEs (More Than One Year Ago)	High	24	1.94	0.62		
	Low	41	1.16	0.68	< 0.001	
	None	21	1.28	0.65	< 0.01	0.78
All NLEs (In Past Year)	High	24	1.83	0.81		
	Low	41	0.96	0.69	< 0.001	
	None	21	1.17	0.90	< 0.05	0.57
Trauma-related NLEs (More Than One Year Ago)	High	24	1.09	0.60		
	Low	41	0.35	0.53	< 0.001	
	None	21	0.34	0.57	< 0.001	1.00
Trauma-related NLEs (In Past Year)	High	24	1.03	0.79		
	Low	41	0.35	0.53	< 0.001	
	None	21	0.58	0.59	0.05	0.34
Non-trauma-related NLEs (More Than One Year Ago)	High	24	1.51	0.56		
	Low	41	0.99	0.67	< 0.01	
	None	21	1.15	0.55	0.13	0.58
Non-trauma-related NLEs (In Past Year)	High	24	1.37	0.66		
	Low	41	0.73	0.69	< 0.01	
	None	21	0.87	.87	0.06	0.75

ago) differed depending on mother ACE levels (high, low, and none). There was a significant effect of ACE level on child trauma-related NLEs more than one year ago, $F(2, 83) = 14.22$, $p < 0.001$, as well as in the past year, $F(2, 83) = 10.98$, $p < 0.001$. Tukey HSD was used for pairwise comparisons between ACE levels of high, low, and none. These comparisons revealed that child trauma-related NLEs more than one year ago and in the past year were higher for mothers in the high level compared to either the low or none levels, although results between low and none levels were not significantly different.

Finally, independent *t*-test analyses were conducted to test whether mothers with specific types of ACEs differed in the number of trauma-related NLEs their children experienced, both in the past year and more than one year ago. Mothers who experienced at least one type of abuse reported significantly more child trauma-related NLEs in the past year, $t(66.09) = –3.06$, $p = 0.003$, and more child trauma-related NLEs more than one year ago, $t(65.29) = –3.56$, $p = 0.001$, than mothers who did not experience any abuse. Mothers who experienced at least one type of neglect reported significantly higher numbers of child trauma-related NLEs in the past year, $t(39.20) = –2.19$, $p < 0.035$, but not more than one year ago, $t(46.89) = -1.92$, $p = 0.062$, compared to mothers who did not experience any neglect. Mothers who experienced at least one type of household dysfunction did not differ significantly in number of child trauma-related NLEs in the past year, $t(69.00) = –1.31$, $p = 0.20$, but did differ significantly with regard to child trauma-related NLEs more than one year ago, $t(63.53) = –2.37$, $p = 0.021$, compared to mothers who did not experience any household dysfunction.

Separate independent *t*-test analyses compared child NLEs by mothers who experienced specific types of ACEs. In the first test, mothers who experienced at least one type of abuse ($n = 35$) were compared to mothers who experienced at least one ACE that did not include abuse ($n = 30$), excluding mothers who did not experience any ACEs. Mothers who experienced at least one type of abuse had children with significantly more child trauma-related NLEs in the past year, $t(59.67) = –3.15$, $p = 0.003$, and more than one year ago, $t(60.20) = –4.17$, $p < 0.001$ compared to mothers who experienced at least one ACE but no abuse. In the second test, mothers who experienced at least one type of neglect ($n = 27$) were compared to mothers who experienced at least one ACE that did not include neglect ($n = 38$), excluding mothers who did not experience any ACEs ($n = 21$). Mothers who experienced at least one type of neglect had children with significantly more child trauma-related NLEs in the past year, $t(40.22) = –2.75$, $p = 0.009$, but not more than one year ago, $t(52.25) = –1.36$, $p = 0.18$ compared to mothers who experienced at least one ACE but no neglect.

Associations of Mothers' ACEs and Children's Non Trauma-Related NLEs

Child NLEs that were not related to trauma were also examined to see if there were associations with mother ACEs. Total ACEs were positively correlated with total child non-trauma-related NLEs in the past year, $r = 0.23$, $p = 0.03$, but not with child non trauma-related NLEs more than one year ago, $r = 0.14$, $p = 0.20$. There was a significant effect of ACE level on child non trauma-related NLEs more than one year ago, $F(2, 83) = 5.85$, $p = 0.004$, as well as in the past year, $F(2, 83) = 4.67$, $p = 0.01$. For both time periods, child non trauma-related NLEs were significantly higher in the high ACE group compared to the low ACE group, but there was no difference for the high compared to the no ACE groups, and there was no difference between the no and low ACE groups.

Mothers who experienced at least one type of abuse reported significantly more child non trauma-related NLEs in the past year, $t(76.08) = –2.31$, $p = 0.02$, but not more child non trauma-related NLEs more than one year ago, $t(70.61) = –1.09$, $p = 0.28$, compared to mothers who did not experience any abuse. Specific for mothers who experienced at least one ACE, mothers who experienced at least one type of abuse reported significantly more child non trauma-related NLEs in the past year, $t(62.07) = –2.33$, $p = 0.023$, but not more than one year ago $t(61.49) = –0.99$, $p = 0.326$, compared to mothers who experienced at least one type of ACE that was not abuse. Mothers who experienced at least one type of neglect did not report significantly higher numbers of child non trauma-related NLEs in the past year, $t(48.10) = –1.10$, $p = 0.28$, or more than one year ago, $t(42.32) = –0.11$, $p = 0.91$, compared to mothers who did not experience any neglect. Specific for mothers who experienced at least one ACE, mothers who experienced at least one type of neglect did not report significantly more child non trauma-related NLEs in the past year, $t(51.56) = –0.85$, $p = 0.397$, or more than one year ago $t(52.29) = –0.41$, $p = 0.685$, compared to mothers who experienced at least one type of ACE that was not neglect. Mothers who experienced at least one type of household dysfunction did not differ significantly in number of child non trauma-related NLEs in the past year, $t(51.30) = –0.50$, $p = 0.62$, or more than one year ago, $t(66.14) = –0.29$, $p = 0.77$, compared to mothers who did not experience any household dysfunction.

Discussion

The purpose of this study was to examine the prevalence of childhood trauma in a community sample of biological mothers and their preschool-aged children and explore the relations between the frequency of experienced traumas

between mothers and their children. Consistent with our hypotheses, there were associations between mother and child traumas, indicating that mothers who experienced specific types of traumas (i.e., abuse and neglect) and high levels of overall trauma were more likely to have children who also experienced traumatic events.

Prevalence of traumas have been documented in previous studies, showing that children often experience many types of trauma even by preschool, with about a third of children experiencing 1 or 2 ACEs and 11% experiencing 3 or more (e.g., Sacks et al., 2014). Mothers in the current community sample experienced on average 2.4 ACEs out of a possible 10 ACEs. Of these experiences, 40.4% of mothers had at least one abuse ACE, 32.6% had at least one neglect ACE, and 65.2% had at least one household dysfunction ACE. On average, across the 22 child NLEs possible, children in this sample had 2.31 NLEs in the past year, 2.51 NLEs more than a year ago, 1.26 trauma-related NLEs in the past year out of a possible 10 trauma-related NLEs, and 0.99 trauma-related NLEs more than one year ago out of a possible 10 trauma-related NLEs. These findings indicate that even in non-clinical community samples, children and parents have experienced trauma. Researchers and clinicians should be aware of these potential experiences in their work with community samples.

Relationships between mother and child traumas were also found in this study. Specifically, positive correlations existed between mother ACEs and child NLEs, including trauma-related NLEs, both in the past year and more than one year ago. In addition, mothers with a high level of ACEs (i.e., 4 +) had children with higher total and trauma-related child NLEs compared to mothers who experienced 0–3 ACEs. This indicates that the more traumas mothers experienced in childhood, the more likely it is that their children will experience more NLEs, including those specifically tied to trauma. Previous research has found that adults with childhood traumas are at risk for criminality, poor employment and low education (Jones et al., 2015), as well as divorce or separation (Font & Maguire-Jack, 2016). Specifically, parents with childhood traumas also are at risk for poorer parenting behaviors (e.g., harsh discipline, less sensitive parenting) (Plant et al., 2018; Folger et al., 2017). This indicates that children with parents who had early trauma may be growing up in stressful early environments with parents who may not always be responsive to their needs, thus further perpetuating trauma across generations. Mothers were a specific focus of this study given unique effects of gender on intergenerational trauma exposure (Chan et al., 2018; McCloskey, 2013).

Types of childhood traumas experienced by mothers was also relevant. Abuse and neglect ACEs, but not household dysfunction ACEs, were related to mothers having children with more total child NLEs more than one year ago and in the past year and child trauma-related NLEs more than one year ago. These results suggest that specific associations exist between types of mothers' early traumas and their children's traumas. This is aligned with prior research findings that mothers with histories of abuse and neglect had risks for poorer mental health outcomes in adulthood; abuse specifically was related to feeling more distress and having social or professional lives impaired by physical or mental health (Sweeting et al., 2020). This suggests that children of these mothers may be especially vulnerable to stress in their early environments, which could result in more child NLEs and trauma-related NLEs.

This study contributes deeper understanding to the literature on childhood trauma and its effects, especially given that this is a non-clinical community sample and therefore does not have greater risks associated with it. Considering the detrimental impacts of trauma on development and its transmission across generations, assessing trauma is necessary to fully understand the extent.

Limitations

Some limitations exist that could be improved upon in future studies. First, cross-sectional data were used, and although commonly used, this limits the ability to draw causal conclusions regarding the association between maternal trauma and child experiences of negative life events. This area of research would be strengthened by including longitudinal data examining the prevalence of intergenerational trauma. Another limitation is that data were collected by mothers reporting on their own and their child's trauma. Although self-report is a common and convenient data collection procedure, the results should be interpreted with the understanding that the data come from a limited perspective. Due to the effects of social desirability, it is plausible that mothers may not feel comfortable fully disclosing their child's experience of NLEs. The inclusion of father or other caregiver report would further corroborate the mothers' perceptions. In addition, other factors beyond mothers' traumas may have impacted children's experiences of NLEs and are not discussed in this study. For example, income inequality was not considered in this paper, nor the relationship between income inequality and child protection concerns, which may have contributed to specific types of more immediate NLEs besides mothers' early experiences of trauma. The sample of 88 mothers and children also limits some interpretation given sample size, as it is not comparable to larger population studies on childhood trauma (e.g., Felitti et al., 1998) or studies assessing psychometric properties of trauma assessments (e.g., Lee et al., 2018), and about half the size as other studies looking at parenting constructs related to trauma (e.g., Pears et al., 2012). Therefore, it is

difficult to generalize results to the general population given sample size and methodology. Additionally, the homogeneity of the sample is a limitation of the current study. Our sample had limited racial and ethnic diversity due to limitations within the geographical region in which data were collected. This is representative of the local area; however, results may not be generalizable to other populations. Our sample did show variability in terms of socioeconomic status, maternal ACES, and child NLEs. Another limitation is that parents may be reluctant to share their child's NLEs during a structured interview and bias is always present with parent report. Finally, a key limitation and consideration for future research is the difficulty in assessing mothers' ACES and their children's NLEs. Measures of ACES and NLEs frequently rely on accurate self-report. However, the ACES measure requires mothers to report on the occurrence of events in their first 18 years of life. As most individuals complete this measure as adults, they may not accurately remember or be able to recall early experiences with trauma or maltreatment. This may be particularly true for individuals who experienced trauma in early childhood. It is also problematic to expect parents to accurately self-report on their child's experience of NLEs. In this study researchers did not ask parents whether their children experienced maltreatment given mandatory reporting requirements. While this is a common challenge associated with conducting research on the intergenerational transmission of trauma, it must be addressed if we are to accurately assess and understand the cyclical nature of trauma in families.

Future Directions

Future research in the area of the intergenerational transmission of trauma should investigate the relation between mother's and father's experiences of trauma and their children's subsequent experiences of child NLEs. The majority of early childhood research relies on maternal self-report. However, by excluding fathers and other primary caregivers, we are missing a crucial aspect of understanding the transmission of trauma in families. Including the perspective of both parents allows for a more comprehensive understanding of parent factors that influence children's experiences of child NLEs. Researchers must also begin to navigate asking parents to report on their child's experience of abuse if we are to fully understand the coherence of parent–child trauma experiences. In addition, we must investigate the potential mediating and moderating factors in the relation between parent–child trauma experiences. Exploring contributions to and buffers against the transmission of trauma is an important step in preventative efforts. In addition, this paper focuses on the negative effects of intergenerational trauma. Further research should examine the protective factors that promote resiliency when children experience NLEs and/or have mothers with early trauma exposure; for example, the impact of early therapy for mothers who have trauma exposure or parenting skills training could be examined to see how interventions promote positive outcomes for children.

Conclusions

Overall, this paper provides information important for considering parent and child ACEs and the links between them. The links between parent and child ACEs may be an important considering when designing parent–child interventions for trauma. Limitations exist when examining trauma in community samples, including ethical issues in assessing child maltreatment, analyzing mother and child trauma as indirect and direct effects, and considering perspectives of trauma survivors when understanding impacts of ACEs. These results suggest that past trauma experienced by mothers and current negative events experienced by their preschoolers is positively associated, wherein mothers who experienced more childhood trauma were found to report more NLEs for their children. Understanding the prevalence of trauma and associations of intergenerational trauma informs practice for supporting families, especially those that have experienced past trauma. These results suggest that past trauma experienced by mothers and current negative environments experienced by their preschoolers is positively associated, with mothers who experienced higher childhood trauma reporting more NLEs for their children. Understanding the prevalence of trauma and associations of intergenerational trauma informs practice in supporting families, especially those that have experienced past trauma.

Trauma assessments may be conducted to understand the type of trauma and the extent, including duration, frequency, and comorbidity of traumas. These measures are tailored to varying developmental levels, and questions may ask about past traumas or those that are more immediate. Having an appropriate way to assess trauma is also important, though there are many factors to consider. When using a community sample, it may not always be appropriate to ask about maltreatment history of children, but it can be important to know what contexts children are experiencing. Considering that families today are experiencing high rates of stress given national and global traumas, understanding how parent trauma may be related to a range of children's traumas is necessary for providing appropriate supports for families during difficult, stressful times. Therefore, this paper further adds to how trauma may be better assessed across an intergenerational context in order to provide additional information about the context in which children experience NLEs and how the cyclical nature of trauma may be impacting families.

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Declarations

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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