A DEVELOPMENTAL LOOK AT THE IMPACT OF CHILDHOOD TRAUMA IN TREATMENT-SEEKING SAMPLES

by

Caitlin A. Williams
A Dissertation
Submitted to the
Graduate Faculty
of
George Mason University
in Partial Fulfillment of
The Requirements for the Degree
of
Doctor of Philosophy
Psychology

Committee:

_____ Director

_____

_____

_____ Department Chairperson

_____ Program Director

_____ Dean, College of Humanities and Social Sciences

Date: _____ Summer Semester 2020
George Mason University
Fairfax, VA

A Developmental Look at the Impact of Childhood Trauma in Treatment-seeking Samples

A Dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at George Mason University

by

Caitlin A. Williams
Master of Arts
George Mason University, 2016
Bachelor of Arts
University of North Carolina at Chapel Hill, 2012

Director: Christianne Esposito-Smythers, Professor
Department of Psychology

Summer Semester 2020
George Mason University
Fairfax, VA

DEDICATION

I dedicate this dissertation to my grandparents. Throughout every phase of my graduate school career, you were with me. You inspired this journey and continuously, gently propelled me onward. At every turn, I remain steadfast in my dedication to this calling to honor you and your memories. I love and miss you all so much.

To Billy – you piqued my interest in psychology long before I knew that what I was passionate about had a name and a field in which I could immerse myself. I am called to listen and to serve and to learn – tenants you held dear, especially later in your life. I know you would be so proud of me and all that I have accomplished. Thank you.

To Betty – you were the most confident and most excited supporter of my higher education journey. I am always inspired by your lifelong dedication to healing. You taught me early on that no one would champion my own cause like I could. Your pride in me always fanned the flames of my pride in myself. I owe you as well my passion for baking, which kept me and my program-mates going on this arduous journey. Thank you.

To Aubrey – you embody perseverance and commitment. Your voice is whose I would hear first whenever I wanted to quit – cheering me on and reminding me that I can survive anything. You taught me the value of observing, listening, and understanding before intervening. Your quiet certainty and unwavering confidence in me pushed me past this finish line, more times than you will ever know. I am so happy and proud to tell you that I am finally Dr. Williams! Thank you.

To Pat – you knew that this program did not define me – that this degree was not the be all, end all – and still you encouraged me every step of the way. I wanted nothing more than to be Dr. Williams before you passed, but I know that you knew all along that this story had a happy ending. My successes were always, “well, of course!” and my missteps were usually, “you’ll find a way” – or, “how rude!” when it was someone else’s misstep. Your moxy, wisdom, individuality, and kindness inspire me always. Thank you.

ACKNOWLEDGEMENTS

First and foremost, I would like to sincerely thank my advisor, Dr. Christianne Esposito-Smythers, for shaping and supporting my graduate education and this dissertation every step of the way. Your perseverance, flexibility, support, and experience throughout these long years have made this entire journey possible. Furthermore, I am grateful for your keen eye for paring down my over-writing and your willingness to see this dissertation through no matter what. Thank you for believing in me and always helping me find the way forward. I am truly grateful for your incredible investment in me and my success. We did it!

Also, thank you to my committee members, Dr. Leah Adams and Dr. Sarah Fischer, for agreeing to serve on my committee, for asking well-timed questions, for giving valuable suggestions, and for providing generous consultation. I am so appreciative of your unwavering patience during this arduous process and your encouragement that the finish line was there all along.

Thank you to all the folks at UAMS who believed in me, shared their data and their expertise with me, and rooted for me at every turn. Specifically, thank you to Dr. Sufna John for serving as my research mentor, primary supervisor, and number one problem-solver during internship. And, to Dr. Jennifer Gess, I am not sure if "thank you" will ever fully capture the depths of my gratitude, but it will have to suffice for now.

Thank you to my clients over the years who have truly changed my life. The resilience and openness you have shown in the face of adversity inspire me in numerous ways. My excitement to work alongside you and witness your healing, even on the days when *everything* was hard, has kept me going. Furthermore, you all informed and motivated my research program and this dissertation. I would not be the clinician or researcher I am without the unique contributions from each and every one of you.

Next, I want to extend my sincerest gratitude to my cohort-mates, both at GMU and UAMS, as well as my lab-mates and program-mates who have carried me through this program – sometimes literally. You all have inspired me, made me laugh, cheered me on, and loved me unconditionally. Thank you for taste-testing my bakes, understanding my pop culture references, and always encouraging me to make my own path. The bonds that come from enduring this Sisyphean feat of completing a doctoral program are lifelong, and I am so grateful for each and every one of you.

I could not more effusively thank my friends and my family. You all have nurtured my dreams and passions, supported me as I faced obstacles I never anticipated, and reminded me who I have in my corner at all times. Specifically, to my friends: I love you all dearly and am continuously inspired by the incredible lives you all lead. You have watched me discover the power of following my wise mind, affirmed me when my confidence was shaken, grounded me with "real life" recommendations and activities, and stayed on the rollercoaster with me. And, to my family: I have never been prouder to make people proud. You all have shaped, supported, taught, challenged, and loved me in countless ways – both known and unknown – and I would not be celebrating this success if not for you all. I am grateful to be on my bodhisattva journey with my Favorite Family – and I am so excited to see what comes next! I love you to the tip top.

To Alex and Lea – my anchors, my lights, my loves, thank you so very much. Lea, you were with me before this journey even started and I owe much of my success in crossing this finish line to you – I will always love you, stop by for snuggles, and post your sweet face on social media. Alex, you joined me partway through this journey (though I knew you were special from the beginning) and committed to sharing it *all* with me. For that, and for you, I am forever grateful. Your patience, humor, loyalty, kindness, curiosity, encouragement, and love keep me grounded and whole. Thank you for always finding rocks for my shells.

"You had the power all along, my dear."

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

Arkansas Building Effective Services for Trauma ..... ARBEST
Child Advocacy Center ..... CAC
Child-Led Play ..... CLP
Clean-Up ..... CU
Dyadic Parent-Child Interaction Coding System ..... DPICS
Parent-Child Interaction Therapy ..... PCIT
Parent-Led Play ..... PLP
Post-Traumatic Stress Disorder ..... PTSD
Post-Traumatic Stress Symptoms ..... PTSS
University of Arkansas for Medical Sciences ..... UAMS

ABSTRACT

A DEVELOPMENTAL LOOK AT THE IMPACT OF CHILDHOOD TRAUMA IN TREATMENT-SEEKING SAMPLES

Caitlin A. Williams, Ph.D.

George Mason University, 2020

Dissertation Director: Dr. Christianne Esposito-Smythers

Child maltreatment is a serious problem in the United States. The vast majority of the perpetrators of maltreatment for young children (ages 2-6) are parents/caregivers. If left untreated, early childhood maltreatment is a strong predictor of later maltreatment exposure throughout childhood and into adolescence (i.e., chronic trauma). Moreover, youth who experience chronic trauma are at heightened risk for an array of negative outcomes, including developing post-traumatic stress disorder (PTSD) (Kilpatrick et al., 2003). Thus, it is critical to study maltreatment exposure and related symptoms across the developmental spectrum. The proposed papers will examine unique risk and protective factors among treatment seeking samples of maltreatment-exposed young children and adolescents in Arkansas. Specifically, in the first paper, we will examine the associations between caregiver-reported stress and therapist-observed positive and negative caregiving behaviors in a treatment-seeking sample of young children and their caregiver. We will

also examine whether child- and caregiver-factors associated with the trauma impact the nature of these associations. In the second paper, we will examine the link between lifetime and current trauma exposure and post-traumatic stress symptoms (PTSS) in a treatment-seeking sample of children presenting to child advocacy centers across Arkansas. First, we examine caregiver-child concordance of trauma exposures and PTSS; next, we explore how social factors enhance or attenuate the relation between trauma exposure and PTSS. Research with these vulnerable populations is sorely needed and holds the potential to inform and enhance clinical practice with these at-risk children and youth.

A DEVELOPMENTAL LOOK AT THE IMPACT OF CHILDHOOD TRAUMA IN TREATMENT-SEEKING SAMPLES

Definitions of child maltreatment vary by state but are based on federal standards. The majority of states recognize four major types of maltreatment: neglect, physical abuse, psychological maltreatment and sexual abuse (Administration for Children and Families, 2020). *Neglect* is defined as the "failure…to provide needed food, clothing, shelter, medical care, or supervision to the degree that the child's health, safety, and well-being are threatened with harm" (Child Welfare Information Gateway, 2020, p. 2). *Physical abuse* definitions can vary by state, particularly for corporal punishment; however, most states agree that physical abuse occurs "when a parent or caregiver commits an act that results in physical injury to a child, even if the injury was unintentional" (The National Child Traumatic Stress Network [NCTSN], 2009a, p. 1). The term *psychological maltreatment* captures both emotional abuse and emotional neglect and is defined as "a pattern of behaviors, including excessive punishment, threats, or demands, that conveys to children that they are unloved, unwanted, isolated, or endangered" (NCTSN, 2015, p. 2). *Sexual abuse* is defined as "any interaction between a child and an adult (or another child) in which the child is used for the sexual stimulation of the perpetrator or an observer. Sexual abuse can include both touching and non-touching behaviors" (NCTSN, 2009b, p. 1). These papers use "*child maltreatment*" as an umbrella term to capture these four types of abuse and neglect.

Child maltreatment is a serious problem in the United States. In 2018, there were 9.2 victims of child maltreatment per 1,000 children in the U.S.; this number is 2.7% higher than it was in 2013 (Children's Bureau, 2020). Across the age range, most children are poly-victims, meaning they are exposed to more than one type of maltreatment. Neglect (60.8%) is the most common maltreatment type, followed by physical (10.7%) and sexual abuse (7.0%) (Children's Bureau, 2020). Young children are at greater risk compared to their older peers because the vast majority of the perpetrators of maltreatment for children are parents/caregivers, and young children spend much of their time with these caregivers. These data point to the critical need for additional examination of the significant role caregivers play in child maltreatment, particularly related to caregiver stress and caregiving practices, in an effort to prevent the short- and long-term deleterious effects of maltreatment (NCTSN, 2010).

If left untreated, early childhood maltreatment is a strong predictor of later maltreatment exposure throughout childhood and into adolescence, known as chronic trauma exposure. Moreover, youth who experience chronic trauma are at heightened risk for the development of post-traumatic stress disorder (PTSD) and associated symptoms (PTSS) (Kilpatrick et al., 2003). These youths are also at greater risk for other deleterious consequences, such as social difficulties, perhaps as a result of impairment from their PTSS. There is a dearth of literature on how different types of lifetime trauma events impact PTSS among youth, and how social factors may influence this association, among treatment-seeking youth.

Clearly, it is critical to study maltreatment exposure and related symptoms across the developmental spectrum. The proposed papers will examine unique risk and protective factors among treatment seeking samples of maltreatment-exposed young children and adolescents in Arkansas, a state that struggles mightily with child maltreatment and its harmful effects. Specifically, the first paper will examine the associations between caregiver-reported stress and therapist-observed positive and negative caregiving behaviors in a treatment-seeking sample of young children and their caregiver. It will also examine whether factors associated with childhood trauma impact the nature of these associations. The second paper will examine the link between lifetime and current trauma exposure and PTSD symptoms (PTSS) in youth, as well social moderators that may enhance or attenuate this association in a treatment-seeking sample presenting to a Child Advocacy Center (CAC) for a recent trauma exposure. This paper will also examine concordance rates between caregiver and child report of trauma exposures, PTSS, and prosocial behaviors and peer difficulties, to address potential differences in reporting tendencies. Research with these vulnerable populations is sorely needed and holds the potential to inform and enhance clinical practice with these at-risk children and youth.

Data for these papers were obtained from two parent studies conducted through the Arkansas Building Effective Services for Trauma (ARBEST) program at the University of Arkansas for Medical Sciences (UAMS). ARBEST was established in 2009 as a statewide initiative to fund and enhance access to evidence-based services for children who have experienced maltreatment. Arkansas is a state that experiences higher

than average rates of child maltreatment. During 2018, there were 12.1 victims of child maltreatment per 1,000 children (Children's Bureau, 2020). Sex differences and breakdowns across maltreatment types are similar to the rest of the U.S. For single maltreatment type cases, the majority were neglect (including medical neglect – 49.6%), followed by physical abuse (18.7%), sexual abuse (17.3%), multiple maltreatment types (i.e., poly-victimization; 13.8%), and psychological maltreatment (0.6%) (Children's Bureau, 2020). Furthermore, young children in Arkansas are at greater risk compared to their peers in other states. Indeed, children ages 2-6 in Arkansas experience higher rates of maltreatment than the national average (11.88 per 1,000 children; 1.68% higher) (Children's Bureau, 2020). Multiracial children had the highest rate of maltreatment (24.3%), followed by White children (12.9%) and Black children (11.9%) in Arkansas (Children's Bureau, 2020). Relatively higher rates of maltreatment reporting for children of color largely stems from longstanding social inequities that lead to significant health inequities.

Research has shown that observed health inequities (e.g., disparities across maltreatment reporting) are rooted in social inequities (e.g., classism and racism) that are structural in nature and have compounding deleterious impacts over generations (Gee & Ford, 2011). For example, researchers and policy makers concur that maltreatment, particularly neglect, is deeply rooted in issues related to living in poverty (e.g., lack of financial resources to support needs related to food, shelter, and medical care; lack of resources to support education and enrichment; lack of youth supervision due to caregivers working multiple jobs to cover costs associated with child-rearing, etc.) (Dale,

2014; Drake & Pandey, 1996). Furthermore, research shows that children living in counties with lower socioeconomic status, higher poverty, and greater income inequality are more likely to be maltreated (Eckenrode et al., 2014). Arkansas is ranked 6th in the U.S. for families living in poverty, 49th for median household income, and 18th for income inequality (World Population Review, 2020), suggesting that children in Arkansas are indeed exposed to strong systemic risk factors for maltreatment. Other health inequities rooted in structural racism and classism that play a significant role in disparities in maltreatment reporting include the well-documented differences in mental health treatment-seeking, the availability of mental health services, and the lower quality of received services among families of color relative to white families (see McGuire & Miranda, 2008 for a review). These social and health inequities can lead to a range of deleterious mental health outcomes as well as non-representative research samples, which is a concern in the present papers that will be discussed in the study limitations.

Impact of Child Trauma on Caregiver Stress and Behaviors in a Treatment-Involved Sample

Child maltreatment is a grave problem in United States. According to the Children's Bureau (2020), there were 9.2 victims of child maltreatment per 1,000 children in the U.S., with approximately 85% experiencing a single type of maltreatment type and 15.5% who were poly-victims (i.e., experienced two or more types of maltreatment). The vast majority (91.7%) of child maltreatment reports identify the perpetrator as a parent/caregiver(s) (Children's Bureau, 2020). Numerous risk factors have shown to increase risk for maltreatment perpetration among caregivers, including alcohol/other drug use, financial difficulties, housing insecurity, and caregiver domestic violence (Children's Bureau, 2020). These risk factors can contribute to, or stem from, high levels of caregiving stress, also referred to as parenting stress, one of the strongest risk factors for caregiver-perpetrated child maltreatment. Indeed, results from a meta-analysis of 155 studies conducted between 1969-2003 found moderate to large effect sizes for the link between caregiver stress and child physical abuse and child neglect (Stith et al., 2009). Given this strong association, efforts are needed to improve understanding of the link between caregiver stress and behavior to best intervene in this cycle. The purpose of the present study is to examine the association between caregiving stress and different forms of caregiving behavior, as well as potential moderators of this relation in a high-need, treatment-seeking sample.

Caregiving stress is defined as "the aversive psychological reaction to the demands of being a [caregiver]" (Deater-Deckard, 1998, p. 315). It is multifaceted and includes perceived stress related to the demands of caregiving, the caregiver's psychological wellbeing and adjustment, qualities of the caregiver-child relationship, and the child's psychological adjustment (Deater-Deckard, 1998). Caregiving stress is experienced as negative feelings toward the self, the child, or the relationship, and is usually felt more intensely for caregivers who have less knowledge, less perceived competence, fewer emotional and instrumental supports, and stronger views of the child as behaviorally challenging (Mash & Johnston, 1990; Deater-Deckard, 1998).

Caregiving behaviors in this paper are defined as the skills and the strategies caregivers use to reach caregiving goals (O'Connell et al., 2015). Although there is no agreement in the literature on the exact behaviors that comprise positive caregiving, these behaviors are broadly defined as behaviors that enhance the caregiver-child relationship and build attachment (Dyches et al., 2012). Furthermore, these positive caregiving behaviors have three main features: a) *caregiver support or connection*, characterized by positive, warm, sensitive, supportive, and predictable interactions between caregivers and children; b) *behavioral regulation*, related to how caregivers set limits, reason, and apply consequences; and, c) *caregivers' respect for individuality*, including avoiding intrusive, exploitive, and manipulative caregiving behaviors (Baumrind, 1966; Dyches et al., 2012). Ample literature suggests that these types of caregiving behaviors are related to numerous positive outcomes for children across multiple domains of functioning, including enhanced prosocial behaviors, empathy, receptive language, and self-regulation skills at

home and at school (Dyches et al., 2012). In addition, positive caregiving behaviors are predictive of greater compliance with adults' commands and lower externalizing behaviors (Dyches et al., 2012).

The vast majority of the literature on negative caregiving behaviors focuses on two main components of negative caregiving: hostility and psychological control (Morris et al., 2002). "Hostility" is defined as *overt* verbal and physical aggression toward the child, whereas "psychological control" is *covert* aggression and intrusive control in which caregivers attempt to manipulate the child's behavior or identity through the use coercive strategies (Morris et al., 2002). These strategies can include excessive criticism, contingent affection, guilt induction, restrictive communication, and invalidation of feelings (Barber, 2002). These two facets of negative caregiving are linked with numerous deleterious outcomes for children (Barber, 2002; Morris et al., 2002), including behavior problems, aggression, and internalizing problems in childhood (Morris et al., 2002), as well as later diagnoses of depression and anxiety in adolescence (Olsen et al., 2002). Notably, for one form of negative caregiving in particular, corporal punishment, results have been found to vary as a function of cultural background. For example, spanking, a form of overt physical aggression, a commonly used method of physical discipline among African-American and Mexican-American families, is linked to poor behavioral and emotional outcomes for children in White American families but not African-American (Lansford et al., 2004; see Dodge et al., 2005, for a review) or Mexican-American families (Berlin et al., 2009; Slade & Wissow, 2004) families.

According to the stress and coping model of child maltreatment (Hillson & Kuiper, 1994), the manner in which caregiver stress impacts caregiving behaviors is a dynamic process. Caregivers continuously monitor their stress levels across several domains, including caregiving, and these perceptions directly impact how they behave with their children. Greater stress can cause more negative and less positive parenting behaviors. This relation may be further enhanced in the presence of greater caregiving challenges, such as managing children who exhibit significant mental health difficulties. Consistent with the stress and coping model of child maltreatment (Hillson & Kuiper, 1994), a fair amount of research suggests that caregiving stress predicts caregiving behaviors (Crnic et al., 2005; Crnic & Ross, 2017). Results from a recent daily-diary study showed that high caregiving stress was linked to low positive (e.g., close/affectionate, open/attentive, tender) and high negative (e.g., irritable, rude) caregiving behaviors on the same day (Malinen et al., 2017). Another study showed that high levels of caregiving stress predicted low levels of affectionate and bonding (i.e., positive) caregiving behaviors for both mothers and fathers (Hu et al., 2019). High levels of caregiving stress were also predictive of higher levels of negative caregiving behaviors, including less involvement and engagement with the child (McBride & Mills, 1994) and more harshness and negativity (Belsky et al., 1996; Deater-Deckard & Scarr, 1996; Rodgers, 1993). By contrast, lower levels of caregiving stress have been linked with higher warmth (Hu et al., 2019), more responsiveness to the child (McBride & Mills, 1994), and less harshness and criticism (Belsky et al., 1996; Rodgers, 1993). Thus, there is a strong theoretical and empirical link between *high* levels of caregiving stress

with low positive and high negative caregiving behaviors. Though the association between *low* caregiver stress and caregiving behaviors has received less attention in the literature, it is an equally important area of study. In the present study, both high and low levels of caregiver stress and caregiving behaviors will be examined.

Though the link between caregiving stress and behaviors has been relatively well established, it is important to note that most of this literature has employed caregiver self-report of caregiving behaviors. Research suggests that caregivers may over-report their positive behaviors and under-report their negative behaviors (Bögels & van Melick, 2004). Caregivers also tend to report a more favorable impression about their own caregiving practices than their children report and researchers observe (Bögels & van Melick, 2004; Schwarz et al., 1985). Results of two recent meta-analyses suggest that caregivers' own psychological adjustment difficulties and social desirability bias could serve as two potential sources of caregivers' reporting bias on self-report measures (Williamson et al., 2017; Shah et al., 2016). Consequently, observational assessments of caregiving behaviors are considered to be the gold standard in the wider caregiving literature. One of these methods is analogue observations, in which caregivers and children engage in activities in a lab or clinical setting that are designed to simulate real-life situations during which targeted behaviors arise (e.g., child compliance, parent praise, parent commands/directions; Whitcomb & Merrell, 2012). The present study will address this methodological weakness by utilizing an analogue observational method of caregiving behaviors in a clinical setting.

Effect of Child Maltreatment on Caregiving Stress and Behaviors

Consistent with the stress and coping model of caregiving (Hillson & Kuiper, 1994), child-related factors, such as personality characteristics, physical illnesses, and mental health symptoms, can strongly impact caregiving stress (see Deater-Deckard, 1998 for a review). Caregiving stress has been found to be higher for caregivers who have children showing early signs of psychopathology (Deater-Deckard, 1998), particularly for externalizing behavioral problems (e.g., conduct disorder and attention-deficit/hyperactivity disorder) (Anastopoulos et al., 1992; Campbell, 1994; Donenberg & Baker, 1993). Children who have experienced maltreatment have higher rates of these disorders than their non-maltreated peers; they also exhibit higher rates of physical aggression, noncompliance, negative affect, and poorer emotion regulation, than their non-maltreated peers (see Cicchetti & Toth, 2000; Kolko, 1992 for reviews), all of which may impact caregiving stress.

Qualitative studies that have examined the direct association between child maltreatment and caregiving stress have focused almost exclusively on victims of child sexual abuse but did find a positive association between child sexual abuse and increased caregiving stress (see Williamson et al., 2017 for a review). The few quantitative studies that have examined the association between child post-traumatic stress symptoms (PTSS) and caregiving stress yielded mixed findings. Some studies show that child PTSS predicted higher levels of caregiving stress (Hickman et al., 2013; Salloum et al., 2015), whereas others failed to find this association after controlling for child depression symptoms (Song et al., 2012). However, Hickman et al. (2013) found that caregiving

stress was higher for caregivers of children exposed to multiple maltreatment types. These findings suggest that child poly-victimization, sometimes called chronic trauma exposure, may be more stressful for caregivers than single incidents of maltreatment. Additional research is needed to clarify this link.

Relative to caregiving stress, less research has examined the impact of child maltreatment on caregiving behaviors. Clinically, children who have experienced maltreatment can be more difficult to care for (O'Connell et al., 2015). However, in a recent meta-analysis, Williamson and colleagues (2017) conclude that the specific aspects of child maltreatment that affect caregiving behavior remains unclear and recommend exploration of the manner in which particular types of trauma influence the caregiving-child PTSS relationship (Williamson et al., 2017). Consistent with this recommendation, the present study examines the degree to which various factors related to the child maltreatment affects the association between caregiving stress and behavior.

Present Study

As is evident, there is a well-established positive association between caregiving stress and negative caregiving behaviors. Less research has examined the link between caregiving stress and positive caregiving behaviors. Further, only a handful of studies have examined whether child-related factors associated with trauma, such as child PTSS, impact caregiving stress or behavior and findings are mixed. To our knowledge, no studies have examined such factors as moderators of the link between caregiving stress and behavior. Moreover, methodological weaknesses such as reliance on caregiver report of caregiving behavior, limit conclusions that can be drawn. The present study will

address the aforementioned gaps by: examining the link between caregiving stress and negative as well as positive caregiving behaviors; exploring child PTSS and cumulative trauma exposure as potential moderators of the caregiving stress and behavior relationship; and employing a standardized observational measure of caregiving behaviors. Additionally, these questions will be explored in a treatment seeking sample of youth (ages 2-6) and their caregivers, a subsample shown to have relatively higher levels of caregiving stress (Theule et al., 2012; Vaughan et al., 2012) and child internalizing and externalizing behaviors (Costa et al., 2006). More specifically, children and their caregivers in the present study were receiving services in the context of a widely used and culturally-sensitive evidence-based parenting intervention, Parent-Child Interaction Therapy (PCIT) (see Eyberg et al., 2008 for a review).

PCIT is a manualized caregiver-training therapy that is appropriate for children ages 2-7 who have a history of maltreatment and their caregivers (Eyberg et al., 2008). It was developed to reduce child disruptive behavior problems, improve the quality of the caregiver-child relationship, and decrease caregiving stress levels (Eyberg et al., 2001; Schuhmann et al., 1998; Cooley et al., 2014), and is appropriate for use with children who have a history of maltreatment and their caregivers (Eyberg et al., 2008), including offending caregivers (i.e., caregivers who perpetrated maltreatment; Borrego et al., 2004), with the exception of caregivers who perpetrated "sexual or sadistic physical abuse" (Child Welfare Information Gateway, 2013, p. 5). PCIT has been shown to be effective across multiple racial groups and languages, including Spanish-speaking, Puerto Rican families (Matos et al., 2006), Mexican American families (McCabe & Yeh, 2009), and

Chinese families (Leung et al., 2009), as well as Native American and Alaskan Native families (Bigfoot & Funderburk, 2011) with some modifications. Treatment equivalence has also been demonstrated across Black and White families in the U.S. (Capage et al., 2001; Fernandez et al., 2011). PCIT has been associated with reductions in child PTSS, child maltreatment recurrence, caregiving stress, and child behavior problems (Timmer et al., 2005; for a review, see Batzer et al., 2018; for a meta-analysis, see Kennedy et al., 2016). Positive and negative caregiving behaviors are live-coded by the therapist in the context of the first PCIT session, which is an observational session of caregiver-child interactions in the context of standardized situations. Specifically, the present study will focus on positive [i.e., (Labeled) Praise, Reflections, Imitation, (Behavior) Descriptions, and Enjoyment] and negative [i.e., commands (direct and indirect), questions, and negative/critical talk] caregiving behaviors in the context of Child-Led Play (i.e., caregivers are instructed to allow their child to play with whatever they want and to follow their child's lead) and Caregiver-Led Clean-Up (i.e., caregivers are instructed to have their child to clean up the toys without assistance) situations.

Based on extant literature, the following study hypotheses are offered: ***1)*** Greater caregiving stress will be associated with higher levels of negative caregiving and lower levels of positive caregiving behaviors during the caregiver-led "clean-up" situation. ***2)*** Greater caregiving stress will be associated with lower levels of positive caregiving and higher levels of negative caregiving behaviors during the "child-led play" situation. ***3)*** The hypothesized positive relation between caregiving stress and negative caregiving behaviors (during "clean-up" and "child-led play") will be greater for children presenting

with greater (versus fewer) PTSS and more cumulative maltreatment exposure. ***4)*** The hypothesized negative relation between caregiving stress and positive caregiving behaviors (during "child-led play" and "clean-up") will be greater for children presenting with greater (versus fewer) PTSS and more cumulative maltreatment exposure. Moreover, as research suggests that caregiver involvement in youth trauma may impact the severity of youth PTSS and influence treatment outcomes (see Yasinski et al., 2016), and because offending caregivers can participate in PCIT treatment (with the exception of those who engage in sexual or sadistic physical abuse), the impact of "offending caregiver status" on these hypothesized associations will also be explored. An offending caregiver is broadly defined as someone who participated in their child's maltreatment in some way – either as perpetrator (e.g., physically abused the child), bystander (e.g., witnessed abuse of the child), or shared recipient (e.g., domestic violence from one caregiver to another caregiver and the child). As there is little available literature to guide a hypothesis in this area, this is an exploratory aim in the present study.

Method

Participants

Participants included maltreated children (M_{age} = 4.12 years, *SD* = 0.83 years, range = 3-6 years) and their caregiver (*N* = 86) receiving PCIT at one of three community mental health centers across Arkansas from a larger study (see Mesman et al., in preparation, for more information about demographics of the full sample). Children were primarily male (68.6%), White (79.1%), and non-Hispanic/Latinx (81.4%). The majority of caregivers involved were biological mothers (54.7%), followed by "other" caregivers

(14.0%), including adoptive parents and step-parents. *Inclusion criteria* included: 1) child between 2-6 years old; 2) child Externalizing Behavior score above the clinically significant level, and/or the caregiver states that the primary concern is child behavior problems; 3) caregiver/legal guardian consent; and 4) child living with caregiver or at least three weekly visits between caregiver and child. *Exclusion criteria* included: 1) substantially limited cognitive capacity (i.e., cannot understand consenting process or assessments) of either caregiver or child; 2) child language development competency below age 2; and 3) child not living with a caregiver.

Recruitment, Screening, and Assessment

Families were referred for the parent study by child welfare professionals, early childhood educators, military partners, primary care physicians, and/or child advocates at Child Advocacy Centers (CACs). Subsequent to referral, a phone screener was administered by a research assistant to ensure inclusion/exclusion criteria were met, and the family was then scheduled for an intake appointment with a clinician. On the same day, or shortly after the intake appointment, a research assistant conducted in-person interviews with each client/caregiver and administered paper-and-pencil questionnaires, which represented baseline information for the family. Information gathered from the referral source, intake clinician, and research assistant was used to determine appropriateness of treatment. Caregivers completed a baseline assessment that included self- and caregiver-report measures for which they received gift cards as compensation. They also participated in a therapist live-coded baseline assessment of caregiving behaviors (i.e., the DPICS) within the context of the first PCIT session.

Measures

Parenting Stress Index, Fourth Edition, Short Form (PSI-4-SF; Abidin, 2012).

The PSI-4-SF was used to assess for problem areas in the caregiver-child relationship and caregiving stress levels. It contains 36 items capturing 3 domains (12 items each): parental distress, parent-child dysfunctional interaction, and difficult child; these items can be summed to create a Total Stress score. The Parental Distress subscale assesses factors that may affect an individual's caregiving practices, such as limited social support, depression, or conflict with a partner (Abidin, 2012). The Parent–Child Dysfunctional Interaction subscale measures the perception that the child does not meet the caregiver's expectations (Abidin, 2012). The Difficult Child subscale is designed to capture caregiving challenges related to a child's self-regulation or behavioral difficulties (Abidin, 2012). Higher raw scores indicate greater caregiving stress. The PSI-SF has been well-validated and used in numerous studies of caregiving stress and practices (see Haskett et al., 2006).

Dyadic Parent-Child Interaction Coding System (DPICS; Eyberg et al., 2014).

The DPICS is an analogue behavioral coding system that measures the quality of caregiver-child interactions across three, 5-minute situations: child-led free play, caregiver-led free play, and caregiver-led clean-up. During the first situation, Child-Led Play (CLP), caregivers are instructed to allow their child to play with whatever they want and to follow their child's lead. During the second situation, Parent-Led Play (PLP), caregivers are directed to choose an activity and to have their child follow the caregiver's rules. During the final situation, Clean-Up (CU), caregivers are instructed to have their

child to clean up the toys without assistance from the caregiver. Therapists are trained to code for the CDI "DO" and "DON'T" skills. Therapists also ask caregivers how typical each of the situations were to how they would normally go at home. The present study focuses on the CLP and CU situations because these are the two situations that create the opportunity for the highest frequency of positive and negative caregiving behaviors, respectively.

The DPICS observation is an effective system for assessing caregiver-child interactions for families referred for disruptive behaviors and maltreatment histories (see Eyberg et al., 2014 for review of these studies). It discriminates between treatment-referred and non-referred families for both caregiving and child behaviors (Bessmer, 1996; Foote, 1999). The DPICS is treatment-sensitive, meaning that outcomes (e.g., child compliance, caregiver affection, positive attending, and negative physical/verbal behaviors) have been shown to change in expected directions after completing PCIT (Schuhmann et al., 1998; Bagner & Eyberg, 2007; Eisenstadt et al., 1993; Eyberg et al., 2014).

Traumatic Events Screening Inventory-Parent Report Revised (TESI-PRR; Ghosh-Ippen et al., 2002).

The TESI-PRR is a 24-item Yes/No inventory of maltreatment exposure for children ages 0-7. Follow-up questions assess the child's age at exposure, threat to their physical/emotional integrity, and their posttraumatic stress reactions. It was used at baseline to assess child maltreatment exposure history for all children in the sample. The

TESI-PRR has reasonable test-retest reliability and demonstrates good validity (Strand et al., 2005).

Trauma Symptom Checklist for Young Children (TSCYC; Briere, 1996).

The 90-item TSCYC assesses the frequency of acute and chronic posttraumatic stress symptoms in children ages 3-12 on a 4-point Likert scale. It includes 8 clinical scales (Anxiety, Depression, Anger/Aggression, Posttraumatic Stress-Intrusion, Posttraumatic Stress-Avoidance, Posttraumatic Stress-Arousal, Dissociation, and Sexual Concerns) and a PTSS summary scale. This measure was used to assess PTSS related to the most upsetting maltreatment event (assessed by the TESI-PRR and chosen by the caregiver) for children. A T-score between 65-69 represents borderline-clinical PTSS, and a T-score 70 or above indicates clinically significant PTSS. The TSCYC has good psychometric characteristics and correlates as expected with multiple types of maltreatment exposure with minimal demographic differences noted (Briere et al., 2005).

Eyberg Child Behavior Inventory (ECBI; Eyeberg & Pincus, 1999).

The 36-item ECBI assesses for frequency and caregiver-perceived difficulty of child disruptive behaviors for children ages 2-16. The ECBI lists behaviors commonly associated with disruptive behavior disorders (e.g., dawdling, arguing or fighting with siblings, sassiness). Caregivers rate the frequency of these behaviors along a 7-point Likert scale (1 = never to 7 = all the time) and whether they perceive the behavior as a problem (Yes/No). Resulting scales reflect the Intensity and Number of Problems. Greater scores indicate greater intensity of externalizing difficulties, and greater problems related to them; raw scores of 131 or above are considered clinically significant

Externalizing Intensity. The reliability and validity of the ECBI is well established across numerous studies (Boggs et al., 1990; see Eyberg & Pincus, 1999, for a description of the validation studies).

Data Analytic Plan

Preliminary Analyses

All analyses were conducted in SPSS version 19 (IBM Corp., 2010). Data were spot-checked for data entry errors prior to cleaning data. Data were examined for missingness and distributional characteristics. Missing data analyses are discussed below. Study variables showed skew and kurtosis levels within acceptable ranges, so no log transformations were conducted. Next, data were examined for outliers, influential cases, and fulfillment of model assumptions. No transformations of variables or adjustments of cases were needed. Model assumptions for regression analyses were met across all models.

Data were then summarized using frequencies and descriptive statistics, including examining relevant clinical information for the dyads. To address the fact that PCIT allows for the inclusion of offending caregivers, except in the case of sexual or sadistic physical abuse, analyses were run to examine how many offending caregivers were included in the present sample. For each trauma assessment item, the caregiver would also indicate who offended or was involved in the event. For example, for the TESI item, "*Has someone ever directly threatened your child with serious physical harm,*" respondents indicate the relationship to the child of the person who threatened the child with physical harm. For each dyad and for each traumatic event, the relationship to the

child of the caregiver involved in treatment was compared to the relationship to the child of the person who offended. If the child had at least one traumatic event for which the caregiver attending treatment was involved, that caregiver was designated as an offending caregiver; otherwise, that caregiver was designated as a non-offending caregiver. Next, chi-square analyses and independent samples t-tests were run to examine for differences across the offending and non-offending caregiver groups on study variables.

Bivariate correlations were used to examine the associations among all study variables. Only variables that were significantly correlated with outcome variables were controlled for in the moderation analyses. Age was controlled for when CLP DO and DON'T skills were the outcomes. Gender was controlled for when CLP DO and CU DON'T skills were the outcomes. Child externalizing behaviors were controlled for when CU DON'T skills were the outcome. No variables were controlled for when CU DO skills was the outcome as there were no significant correlations with other variables.

Results

Missing Data Analyses

The original dataset included 153 children and their caregivers. However, only 145 of those dyads completed the baseline assessment, which included completing parent-report measures and participating in an interview about their child's trauma history. Of those 145 dyads, only 86 had complete data across all 4 outcome variables (i.e., DO and DON'T skills for CLP and CU). These outcome data were gathered during the first therapy session, which is the DPICS assessment session in PCIT. Thus, only 86 dyads completed all the measures/interview at the baseline assessment, as well as

participated in the DPICS assessment from which data for the outcome variables were pulled. In order to assess for significant differences across groups of dyads who completed only the baseline assessment and those who completed the baseline assessment and the DPICS assessment, chi-square analyses and independent samples t-tests were run to compare means of relevant variables. No significant differences in mean scores of the predictor (i.e., caregiving stress), moderators (i.e., cumulative trauma exposure, total PTSD symptoms), or demographic (i.e., gender, age) variables emerged between groups who did (N = 86) and did not (N = 145) complete the DPICS assessment. Thus, only dyads who had complete data across all four outcome variables were retained for bi- and multivariate analyses.

Clinical History

Children experienced, on average, 4.29 (SD = 2.70) separate categories of traumatic events according to caregiver report. The top five most frequently experienced traumatic events included separation from a loved one (68.6%), serious illness (38.8%), witnessing family violence (38.4%), family member jailed (33.7%) and "other" maltreatment (34.1%). Examples of "other" stressful events included multiple foster home placements, living with a severely mentally ill family member, and being born drug-dependent. On the TSCYC, the mean T-scores of the sample were 71.34 (SD = 20.65) for Posttraumatic-Total, 64.30 (SD = 23.85) for Posttraumatic Stress-Intrusion, 66.20 (SD = 22.19) for Posttraumatic Stress-Avoidance scales, and 71.53 (SD = 18.35) for Posttraumatic Stress-Arousal. Half of the sample met criteria for clinically significant total PTSD symptoms. Participants also had a mean raw score of 166.62 (SD = 30.27) for

intensity of Externalizing Behaviors. Thus, 84.9% of participants met criteria for clinically significant externalizing behaviors. Caregivers had a mean raw score of 96.69 (*SD* = 23.07) for Caregiving Stress. Table 1 includes more information about the demographic and clinical makeup of the sample.

Table 1 Participant demographic characteristics and clinical history

Characteristic	**Children (*N* = 86)**
Male, *N* (%)	59 (68.6)
Age, *N* (%)	
3	23 (26.7)
4	32 (37.2)
5	29 (33.7)
6	2 (2.3)
Race, *N* (%)	
White, *N* (%)	68 (79.1)
Black	26 (30.2)
Native Hawaiian	1 (1.16)
Ethnicity, *N* (%)	
Non-Hispanic/Latinx	70 (81.4)
Hispanic/Latinx	16 (18.6)
Caregiver Identity, *N* (%)	
Biological mother	47 (54.7)
Grandmother	12 (14.0)
Other	12 (14.0)
Foster mother	10 (11.6)
Foster father	3 (3.5)
Biological father	2 (2.3)
Child Trauma Exposure, *N* (%)	
Separated from a loved one	59 (68.6)
Had a serious illness	33 (38.8)
Witnessed family violence	33 (38.4)
Family member jailed	28 (33.7)
Other	28 (34.1)
Neglect	22 (26.2)
Someone close injured or sick	22 (25.9)
Someone close died	20 (23.3)
Seen family member threatened	20 (23.3)
Physically assaulted	19 (22.4)
Emotional maltreatment	17 (20.2)
In a serious accident	12 (14.0)

Witnessed a serious accident	10 (11.8)
Threatened with physical violence	9 (10.7)
Someone close died by suicide	7 (8.1)
Forced sexual activity	7 (8.3)
Seen non-family fighting	6 (7.1)
Witnessed forced sexual activity	4 (4.8)
Natural disaster	4 (4.7)
Seen war/terrorism on television	4 (4.8)
Been kidnapped	3 (3.5)
Attacked by animal	2 (2.4)
Offending Caregiver Trauma, *N* (%)	
Family physical violence	13 (72.2)
Threats of physical violence between caregivers	4 (22.2)
Arrest	3 (16.7)
Psychological maltreatment	3 (16.7)
Physical abuse	2 (11.1)
Child threatened with physical violence	2 (11.1)

Offending Caregiver Analyses

Results indicated that 18 of the 86 dyads had an offending caregiver involved in treatment. Table 1 includes more information about the types of traumas in which these caregivers were involved. The type of trauma most frequently represented was "witnessed physical violence in the family" (n = 13), followed by "witnessed threats of harm between caregivers" (n = 1), "witnessed arrest of family member" (n = 1), "psychological maltreatment" (n = 1), "physical abuse" (n = 1), and the "child being threatened with physical harm" (n = 1). Of the 13 dyads in which the child had witnessed physical violence, all of them indicated (via write-in response) that the witnessed violence was domestic violence between the caregiver and another caregiving figure at the time (e.g., biological mother and father, biological mother and boy/girlfriend). Though some responses indicated that the violence was perpetrated *against* the caregiver who was participating in treatment (e.g., biological mother was the victim of domestic

violence from her partner), these caregivers were included as offending caregivers given that witnessed violence between adults, regardless of the initiator, can have a traumatizing effect on children (Stiles, 2002). It also allowed for the most conservative test of the impact of offender involvement on outcomes. Unfortunately, unlike the rest of the items on the TESI, the item asking about neglect (i.e., "lacked appropriate care") does *not* ask about the relationship of the offending person to the child. Of the 86 dyads, 22 caregivers reported the presence of neglect. Thus, offender status in the present study primarily focuses on offending behavior associated with participation in, or perpetration of, acts of emotional or physical violence.

Results of chi-square analyses and independent samples t-tests examining differences across groups on study variables revealed that offending relative to non-offending caregivers reported significantly more caregiver stress (M = 108.00, SD = 15.84 vs. M = 93.69, SD = 23.84, $t(84) = -2.83$, $p = .01$), child externalizing behavior (M = 179.11, SD = 27.48 vs. M = 163.31, SD = 30.29), $t(84) = -2.004$, $p = .05$), and child cumulative trauma exposure (M = 5.83, SD = 2.98 vs. M = 3.88, SD = 2.50, $t(39.86) = -3.03$, $p = .004$), respectively. For the latter analysis, Levene's test indicated unequal variances across groups ($F = 5.48$, $p = .02$), so degrees of freedom were adjusted from 84 to 39.86. Given the aforementioned differences, offending caregiver status was examined as a moderator of the hypothesized relationships in the present study.

Bivariate Analyses

As can be seen in Table 2, caregiving stress was significantly positively correlated with child cumulative trauma exposure, PTSS, externalizing behaviors, and placement in

the offending caregiver group. Caregiving stress was also significantly correlated with child gender, such that being a caregiver of a male child (relative to female child) was associated with higher levels of caregiving stress. DO skills during CLP were significant positively correlated with DO skills during CU, as well as significantly negatively correlated with child age. Gender and CLP DO skills were also significantly correlated, such that caregivers using more DO skills during CLP was associated with having a female child rather than a male child. The CLP DON'T skills were significantly positively correlated with the CU DON'T skills, as well as significantly negatively correlated with child age. The CU DON'T skills were significantly negatively correlated with age and significantly positively correlated with child externalizing behaviors. Child cumulative trauma exposure was significantly positively correlated with child PTSS and significantly correlated with offending caregiver status, such that placement in the offending caregiver group was associated with higher levels of child trauma. Child PTSS were significantly positively correlated with child externalizing behaviors. Child externalizing behaviors were also significantly correlated with offending caregiver status, such that placement in the offending caregiver group was associated with greater child externalizing behaviors.

Table 2 Bivariate correlations and descriptive statistics for all model variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Caregiving Stress	--	.10	.06	.15	.14	.28**	.32**	-.24*	.09	.34**	.25*
2. CLP DO Skills		--	.04	.38**	.01	-.08	-.03	.24*	-.28*	-.18	.01
3. CLP DON'T Skills			--	.21	.43**	-.14	-.07	.012	-.23*	.15	-.17
4. CU DO Skills				--	.02	.02	.001	-.01	-.19	-.17	.16
5. CU DON'T Skills					--	-.05	.03	-.18	-.33**	.29**	-.08
6. Cumulative Trauma						--	.45**	-.06	.13	.11	.30**
7. PTSS							--	.17	.05	.45**	.14
8. Gender								--	.08	-.10	-.10
9. Age									--	.002	.03
10. Externalizing Behaviors^^										--	.21*
11. Offending Caregiver Status											--
M	96.69	3.29	22.05	1.64	29.19	4.29	71.34	+	4.12	166.62	++
SD	23.07	4.07	12.44	2.24	15.65	2.70	20.65	--	.83	30.27	--

Note. *N* = 86; CLP means Child-Led Play and refers to that standardized assessment situation; CU means Clean-Up and refers to that parent-led standardized assessment situation.
^Refers to T-scores of the child's PTSS, 50.0% of the sample met criteria for clinically significant PTSS; ^^Refers to the raw scores of the intensity of the child's externalizing behaviors, 84.9% of the sample met criteria for clinically significant externalizing symptoms.
+59 males, 27 females; ++18 offending caregivers, 68 non-offending caregivers.
***p < .05, **p < .01.**

Moderation Analyses

Child cumulative trauma exposure and PTSS were examined as moderators of the relation between caregiving stress and the DO and DON'T skills during CLP and CU (see Tables 3 and 4, Models 3-8). Caregiving stress significantly predicted increases in the DO skills during CLP in the multivariate model with PTSD (see Table 3, Model 1) as well as cumulative trauma (see Table 3, Model 2). However, neither PTSD symptoms nor cumulative trauma exposure moderated the association between caregiving stress and any caregiving behavior (DO or DON'T skills) or scenario (CLP or CU) (see Tables 3-4, Models 1-8).

Table 3 Two-way regression analyses for Child-Led Play

Variable	*B* (*SE*)	95% CI	*t*	R^2	MSE	F	Interaction $R^2\Delta$
			DO Skills				
Model 1				0.20	13.87	4.00**	0.01
Constant	5.56 (2.28)	[2.93, 16.21]	2.87**				
Caregiving Stress	0.05 (0.02)	[0.01, 0.09]	2.64**				
PTSS	-0.03 (0.02)	[-0.08, 0.01]	-1.63				
Stress x PTSS	-0.001 (0.001)	[-0.003, 0.001]	-0.93				
Model 2				0.14	14.48	2.70*	0.01
Constant	3.77 (2.06)	[-.34, 7.87]	1.83$_t$				
Caregiving Stress	0.04 (0.02)	[0.003, 0.08]	2.15*				
Cumulative Trauma	-0.07 (0.16)	[-0.38, 0.24]	-0.47				
Stress x Cumulative Trauma	-0.06 (0.01)	[-0.02, 0.01]	-0.09				
			DON'T Skills				
Model 3							
Constant	37.24 (6.80)	[23.72, 50.77]	5.48**	0.06	153.39	1.41	0.01
Caregiving Stress	0.05 (0.06)	[-0.08, 0.18]	0.79				
PTSS	-0.03 (0.07)	[-0.16, 0.10]	-0.38				
Stress x PTSS	-0.002 (0.003)	[-0.01, 0.004]	-0.68				
Model 4							
Constant	32.72 (5.79)	[21.21, 44.24]	5.65**	0.07	144.68	1.68	0.01
Caregiving Stress	0.07 (0.06)	[-0.04, 0.18]	1.23				
Cumulative Trauma	-0.54 (0.49)	[-1.52, -0.45]	-1.08				
Stress x Cumulative Trauma	-0.01 (0.02)	[-0.05, 0.02]	-0.80				

Note. *N* = 86; CI = Confidence interval.
$_t p \leq .10$, * $p \leq .05$, ** $p \leq .01$.

Table 4 Two-way regression analyses for Clean-Up

Variable	*B* (*SE*)	95% CI	*t*	R^2	MSE	F	Interaction $R^2 \Delta$
		DO Skills					
Model 5				0.02	5.30	0.42	0.00
Constant	1.69 (0.26)	[1.18, 2.20]	6.57**				
Caregiving Stress	0.01 (0.01)	[-0.02, 0.04]	1.00				
PTSS	-0.03 (0.07)	[-0.16, 0.10]	-0.38				
Stress x PTSS	0.00 (0.001)	[-0.001, 0.001]	0.001				
Model 6				0.02	5.49	0.80	0.01
Constant	1.55 (0.23)	[1.10, 1.99]	6.88**				
Caregiving Stress	0.002 (0.01)	[-0.02, 0.02]	0.18				
Cumulative Trauma	0.12 (0.08)	[-0.05, 0.27]	1.31				
Stress x Cumulative Trauma	-0.002 (0.003)	[-0.01, 0.003]	-0.82				
		DON'T Skills					
Model 7							
Constant	25.58 (12.91)	[-0.10, 51.26]	1.98*	0.22	201.12	4.50**	0.01
Caregiving Stress	0.04 (0.08)	[-0.11, 0.20]	0.54				
PTSS	-0.10 (0.08)	[-0.26, 0.07]	-1.17				
Stress x PTSS	0.003 (0.003)	[-0.004, 0.01]	0.87				
Model 8							
Constant	32.23 (11.99)	[8.34, 56.07]	2.69**	0.24	215.60	5.30**	0.00
Caregiving Stress	0.03 (0.07)	[-0.11, 0.18]	0.42				
Cumulative Trauma	-0.19 (0.60)	[-1.39, 1.01]	-0.32				
Stress x Cumulative Trauma	0.001 (0.02)	[-0.04, 0.04]	0.02				

Note. *N* = 86; CI = Confidence interval.
***p*≤.05, ***p*≤.01.**

Next, we explored whether including an offending caregiver in treatment moderated the association between caregiving stress and child PTSS, and between caregiving stress and child cumulative trauma, for the DO and DON'T skills during CLP and CU. A significant three-way interaction was only present for the DON'T skills during CLP; no other significant three-way interaction effects were found (i.e., for the DO skills during CLP or CU and for the DON'T skills during CU). During CLP, there was a significant positive main effect for caregiving stress on the DON'T skills, such that increases in caregiving stress predicted increases in the number of DON'T skills the caregiver used (see Table 5, Model 9). The significant three-way interaction between caregiving stress, child PTSS, and offending caregiver status (see Table 5, Model 9) showed that the association between caregiving stress and child PTSS, for predicting the DON'T skills during CLP, was significant for offending caregivers, $F(1, 77) = 4.44$, $p = .04$, but not significant for non-offending caregivers, $F(1, 77) = .52$, $p = .47$. Simple slope analyses for the association between caregiving stress and child PTSS, for non-offending and offending caregivers, were used to probe this interaction (see Figure 1). For non-offending caregivers, the relation between caregiving stress and child PTSS did not significantly impact the caregivers' use of the DON'T skills during CLP. However, for offending caregivers, the relation between caregiving stress and child PTSS on DON'T skills during CLP was significant at low ($B = -1.04$, $p = .01$) and average ($B = -.52$, $p = .02$) levels of child PTSS, but not at high levels ($B = -.002$, $p = .99$) .

Table 5 Three-way regression analyses for DON'T skills during Child-Led Play

Variable	*B* (*SE*)	95% CI	*t*	R_2	MSE	F	Interaction $R_2 \Delta$
Model 9				0.20	136.69	2.41*	.05*
Constant	40.96 (6.57)	[27.88, 54.04]	6.23**				
Caregiving Stress	0.14 (0.07)	[.01, .27]	2.06*				
PTSS	-0.04 (0.07)	[-0.19, 0.12]	-0.57				
Stress x PTSS	-0.002 (0.003)	[-0.01, 0.004]	-0.72				
Offending Caregiver	-2.05 (3.74)	[-9.51, 5.40]	-0.55				
Stress x Offending	-0.66 (0.23)	[-1.12, -0.19]	-2.81**				
PTSS x Offending	-0.28 (0.21)	[-0.69, 0.13]	-1.38				
Stress x PTSS x Offending	0.03 (0.01)	[0.003, 0.05]	2.22*				
Model 10				0.19	137.73	2.32*	0.05*
Constant	40.28 (6.65)	[27.04, 53.53]	6.05**				
Caregiving Stress	0.12(0.06)	[-0.001, 0.25]	1.98*				
Cumulative Trauma	-0.23 (0.60)	[-1.43, 0.97]	-0.38				
Stress x Cumulative Trauma	-0.01 (0.02)	[-0.05, 0.03]	-0.71				
Offending Caregiver	-0.31 (3.85)	[-7.97, 7.36]	-0.08				
Stress x Offending	-0.73 (0.30)	[-1.31, -0.15]	-2.52**				
Trauma x Offending	-1.84 (1.52)	[-4.87, 1.19]	-1.21				
Stress x Trauma x Offending	0.13 (0.06)	[0.01, 0.26]	2.11*				

Note. *N* = 86; CI = Confidence interval.
***p*≤.05, ***p*≤.01.**

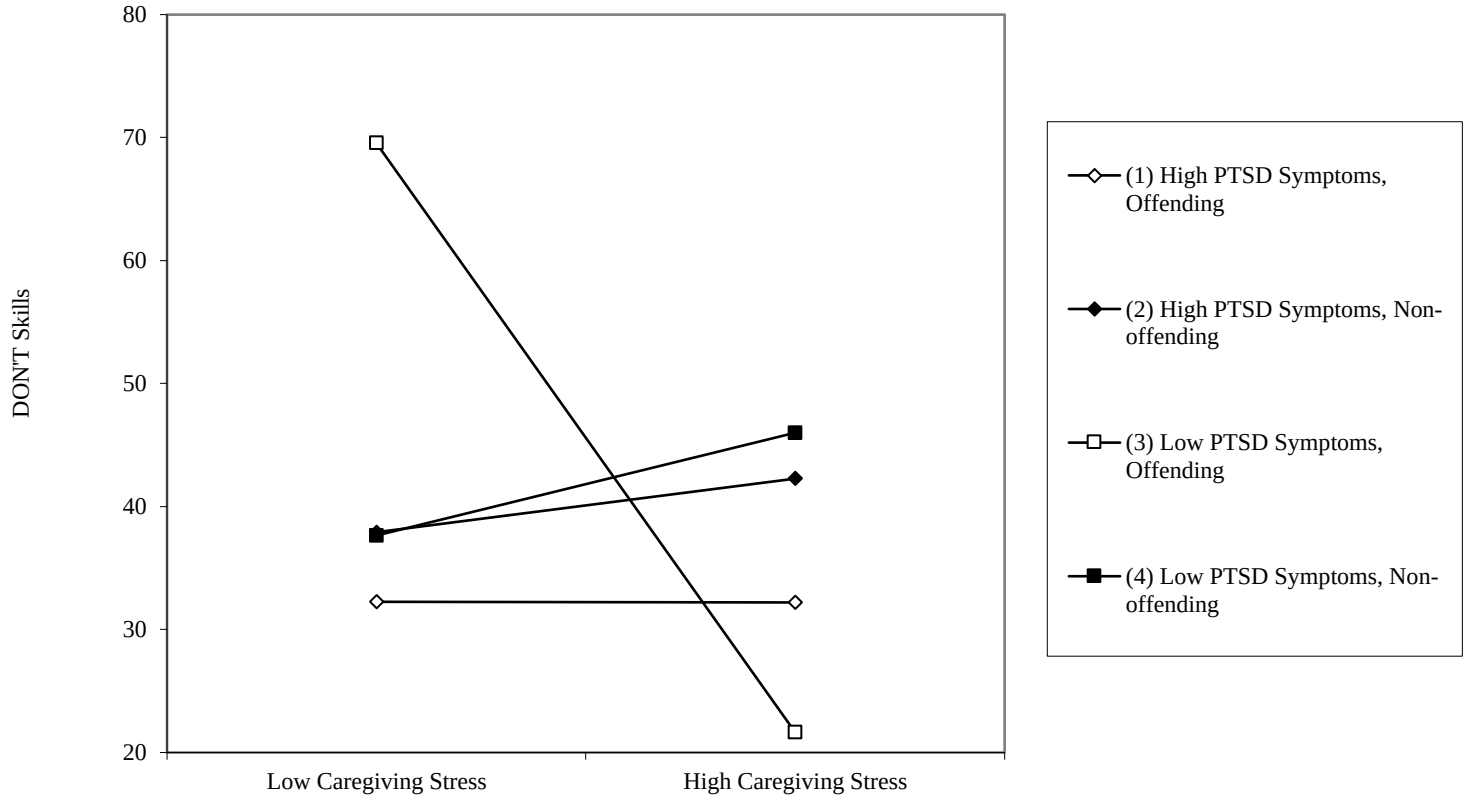

Figure 1 Offending caregiver status moderates the relation between child PTSS and caregiving stress for predicting caregivers use of DON'T skills during Child-Led Play.
Note. ***N*** **= 86.**

Within the next model, also during CLP, there was a significant positive main effect for caregiving stress on the DON'T skills, such that increases in caregiving stress predicted increases in the number of DON'T skills the caregiver used (see Table 5, Model 10). There were no significant main effects for either child cumulative trauma or offending caregiver status. There was also a significant three-way interaction between caregiving stress, child cumulative trauma, and offending caregiver status (see Table 5, Model 10), such that the association between caregiving stress and child cumulative trauma, for predicting the DON'T skills during CLP, was significant for offending caregivers, $F(1, 77) = 3.93$, $p = .05$), but not significant for non-offending caregivers, $F(1, 77) = .51$, $p = .47$). Simple slope analyses for the association between caregiving stress and child cumulative trauma, for non-offending and offending caregivers, were used to probe this interaction (see Figure 2). For non-offending caregivers, the relation between caregiving stress and child cumulative trauma did not significantly impact the caregivers' use of the DON'T skills during CLP. However, for offending caregivers, the relation between caregiving stress and child cumulative trauma on DON'T skills during CLP was significant at low ($B = -.93$, $p = .03$) and average ($B = -.61$, $p = .04$) levels of child cumulative trauma, but not at high levels ($B = -.29$, $p = .19$).

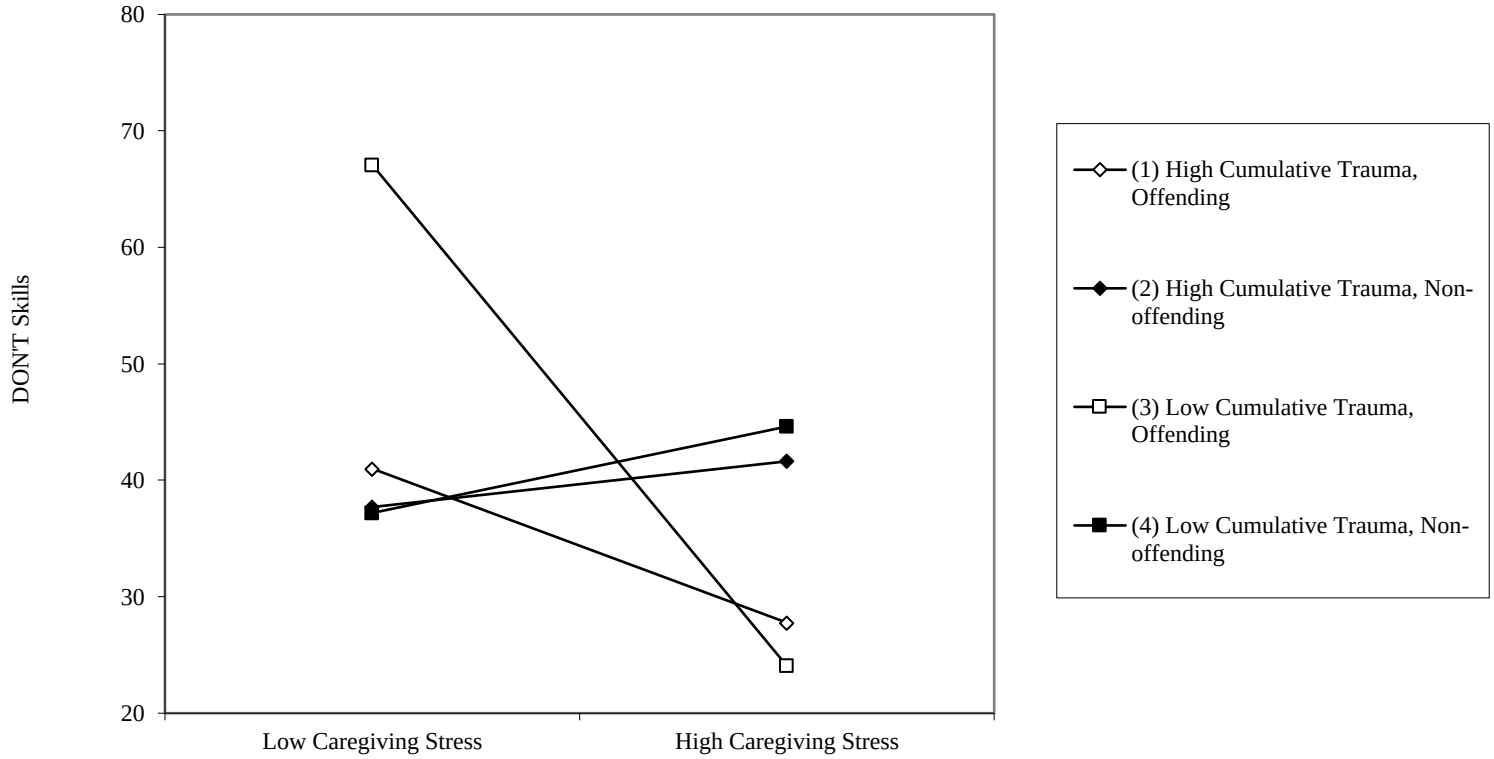

Figure 2 Offending caregiver status moderates the relation between child cumulative trauma and caregiving stress for predicting caregivers use of DON'T skills during Child-Led Play.
Note. N = 86.

Discussion

The present study examined the link between caregiving stress and both positive and negative caregiving behaviors in a PCIT-involved sample of traumatized children and their caregivers. To improve upon methodological limitations of prior research, we employed a gold standard live-coded observational assessment of caregiving behaviors. We also examined whether child maltreatment factors (i.e., cumulative maltreatment exposure and PTSS) moderated these associations. This study was the first to our knowledge to examine child PTSS and cumulative maltreatment exposure as moderators of the relation between caregiving stress and both positive and negative caregiving behaviors. Further, as PCIT allows for the involvement of offending caregivers in treatment (except in the case of sexual or sadistic physical abuse), we examined whether offending caregiver status impacted these associations. We explored these questions in a maltreated and treatment-involved sample of children and their caregivers, a group known to have relatively higher levels of caregiving stress (Theule et al., 2012; Vaughan et al., 2012) and child internalizing and externalizing behaviors (Costa et al., 2006). Generally, results suggest that child maltreatment factors moderated the associations between caregiving stress and negative caregiving behaviors, but only among offending caregivers, relative to non-offending caregivers.

Consistent with prior research (Belsky et al., 1996; Deater-Deckard & Scarr, 1996; Malinen et al., 2017; Rodgers, 1993), there was a significant positive main effect of caregiving stress on caregiving behavior in multivariate models, but only for negative caregiving behavior (not positive caregiving behavior) during the child-led play situation

(not the caregiver-led clean-up situation). In the context of this PCIT-involved sample, negative caregiving behaviors were defined as negative or critical talk, questions, and commands. This finding may suggest that caregiving stress has a negative impact on caregiving behavior during times of attachment-oriented interactions that elicit warm and positive interactions (child-led play) as opposed to "typical" caregiving tasks (clean up) that are not focused on relationship building. It may also be harder for highly-stressed caregivers to regulate built-up negative emotionality toward their child during these times, which may result in more negative caregiving practices, an effect demonstrated in prior literature (Maliken & Katz, 2013; Zahn-Waxler et al., 2002).

Contrary to what was hypothesized, child maltreatment factors (PTSS and cumulative maltreatment exposure) did not moderate the association between caregiving stress and behaviors in the sample as a whole. Rather, this association was only present for negative behaviors among offending caregivers, relative to non-offending caregivers, during child-led play. The impact of caregiver offending status on hypothesized relationships was examined as an exploratory aim. It is possible that caregiver offending status may have suppressed the hypothesized effects in the two-way model. Interestingly, results suggested that caregiving stress levels were only significantly predictive of negative caregiving behaviors for *offending* caregivers (relative to non-offending) of children with *average* and *lower* PTSS and cumulative maltreatment exposure (relative to higher levels). Thus, caregiving stress was not predictive of negative caregiving behavior among offending caregivers for children with *greater* PTSS and cumulative maltreatment exposure. It is possible that these caregivers who were involved in the trauma that caused

harm to their child and have children who are experiencing significant difficulties related to that shared trauma (i.e., greater PTSS and cumulative trauma exposure), experience significant guilt for their involvement in that maltreatment. As a result of this guilt, these caregivers, even when stressed, may try to refrain from engaging in negative caregiving behaviors with their highly symptomatic children. Indeed, this effect was demonstrated in a prior study of caregivers who were involved in their child's domestic violence exposure (Peled & Edleson, 1992), the trauma in which the majority of the offending caregivers in the present sample were involved.

In contrast, for children of offending caregivers who exhibited average and lower PTSS and maltreatment exposure, an association between caregiving stress and number of negative caregiving behaviors was found. Surprisingly, among these children with relatively lower and average maltreatment-related difficulties, higher caregiving stress was associated with *lower* negative caregiving behavior. Offending caregivers may recognize when their caregiving stress levels are high and make active efforts to avoid taking their stress out on their child via negative caregiving behaviors, particularly if they experience guilt related to their child's trauma. It is also possible that offending caregivers may experience a dissociative response related to their *own* trauma exposure (in this case, domestic violence) when under high levels of stress. Dissociating could result in lower caregiving behaviors altogether, including negative caregiving, because these caregivers would be "checked out" and less able to engage in caregiving behavior. Furthermore, these caregivers could be triggered by their child's externalizing behaviors, or their child could serve as a trauma reminder of their shared domestic violence

exposure, thus leading to a “freeze” response (i.e., fight, flight, or freeze). The association between high caregiving stress, a dissociative response, and avoidance of caregiving behaviors altogether, has been discussed in prior literature (Lieberman, 2004; Pynoos et al., 1999).

On the other hand, when caregiving stress was reported to be low, high levels of negative caregiving behaviors were observed among offending caregivers with lower symptomatic youth. In fact, this subgroup was found to have the highest levels of negative caregiving behaviors in the sample. Prior research suggests that female victims of domestic violence, who made up the majority of the offending caregivers in the present sample, may be harsher in their caregiving practices in general compared to non-trauma exposed caregivers (Osofsky, 2003). Thus, when youth trauma symptoms are perceived to be low and offending caregivers are not occupied or influenced by high levels of stress, caregiver practices may be harsher.

Interestingly, child trauma factors did not significantly moderate the association between caregiving stress and behavior among non-offending caregivers. These findings may suggest that caregiver stress does not significantly impact caregiving behavior for these caregivers *without* a shared trauma history. Indeed, they may be able to better manage the greater emotional and behavioral dysregulation associated with the full range of child maltreatment-related difficulties as reflected in relatively consistent rates of negative caregiving behavior regardless of level of youth trauma symptoms. They may not become as dysregulated by their child’s behaviors as caregivers who were involved in the trauma. Indeed, many of these non-offending caregivers were foster parents or

grandparents who knew of their child's maltreatment history but were not involved in the perpetration of it. Thus, they may not experience significant guilt or a trauma response in the face of high stress or high youth trauma symptoms.

Limitations and Future Research Directions

Although this study builds upon existing literature in novels ways and holds important clinical implications, there are some limitations that deserve discussion. First, the three-way interaction analyses were slightly under-powered. Nonetheless, significant effects were found, which speaks to the strength of associations between the variables under study. Future studies should include larger sample sizes and consider including a more even distribution of offending and non-offending caregivers, to offer a more powerful test of study associations. Second, data were not available on caregiver involvement with child protective services (CPS) in the study database. Prior research suggests that caregiving stress levels vary by type of CPS involvement (e.g., differential response, removal of children) and child placement (e.g., foster care, kinship placement, emergency shelter) (Rodriguez-Jenkins & Marcenko, 2014), and that caregivers involved with CPS under-report difficulties to avoid further legal problems Križ et al. (2012). Thus, a variable assessing CPS involvement will be important to incorporate into future research in this area. Third, we did not have data to report on the socioeconomic status for children or caregivers, so we could not determine the representativeness of the present sample of the broader population of Arkansas for SES. The generalizability of our findings is, therefore, somewhat limited in this way. Future research should aim to recruit and retain a nationally representative sample, especially for the race, ethnicity, and

socioeconomic status of families. Fourth, though the present study did include a gold standard observational assessment of caregiving behavior, assessment of trauma was assessed via caregiver self-report. As multi-informant assessment of trauma symptoms and history affords a stronger methodological design, it should be incorporated into future research (Miller et al, 2013). Notably though, this may be difficult when assessing very young children who cannot reliably report on their own symptoms or have knowledge of their maltreatment experiences, especially if they experienced maltreatment very early in life. Thus, use of information from other adult informants (e.g., other caregivers, child welfare caseworkers, daycare or school teachers) may prove helpful. Finally, given the aims of this paper, the data presented are cross-sectional. However, use of longitudinal data in future research may help extend study findings in meaningful ways, such as examining whether degree of youth trauma mediates the caregiver stress-caregiving behavior relationship over the course of care among subgroups of caregivers (e.g., offending and non-offending caregivers).

Clinical Implications

To our knowledge, this is the first study to examine child PTSS and cumulative maltreatment exposure as moderators of the link between caregiving stress and both positive and negative caregiving behaviors. It is also the first study to examine these associations among subsamples of offending and non-offending caregivers. Generally, our results highlight the importance of considering the heterogeneity of caregivers involved in caregiving research and clinical practice with traumatized youth and families. Involvement of the caregiver in the youth trauma, may influence the effect of caregiving

stress on parenting as well as caregiving behavior in general. Thus, it is important to assess for offending caregiver status among caregivers involved in treatment, as well as how and to what degree it influences caregiving stress and behavior. Incorporating this information into the case conceptualization and treatment planning may lead to better outcomes for traumatized youth and families. Treatment planning may involve the need for "pre-work" with offending caregivers to assess for and build safety before engaging fully in trauma treatment. These principles are in line with several early childhood evidence-based trauma treatments, including Child-Parent Psychotherapy, Infant-Parent Psychotherapy, Trauma-Focused Cognitive Behavioral Therapy. Offending caregivers may also need additional support to successfully participate in their child's trauma treatment (e.g., own referral for trauma treatment) as well as manage highly stressful co-occurring youth behaviors. In this latter vein, PCIT may serve as an excellent fit for families who fit this profile, as it is designed to address significant youth externalizing behavior for children with co-occurring trauma exposure.

More generally, our results highlight the importance of assessing and discussing the relation between caregiving stress and behavior with treatment-seeking caregivers. Our results suggest that stress may be most likely to negatively impact situations designed to promote positive interactions, which in the present study was CLP. These types of interactions are incredibly important for relationship building, thus, are the focus of the first phase of PCIT. Child-Directed Interaction, one of the first skills taught in PCIT, is focused on teaching positive caregiving skills (e.g., labeled praises, reflections, imitation, etc.) that can be used throughout the day to promote positive caregiver-child

relationships and interactions. Caregivers can also be encouraged to monitor level of caregiving stress and discuss how it affects their interactions with their children. These types of discussions may improve caregiver awareness and motivation to change as skills are taught to improve caregiving behavior over the course of treatment.

Relatedly, our results reinforce the importance of considering contextual factors when building a case conceptualization and treatment plan for a family. To this end, it is important to include a thorough assessment of the caregiver's trauma history and role, if any, in their child's maltreatment experiences. Though barriers exist to comprehensive caregiver assessment (e.g., time, billing, clinic policy, expertise, etc.), it may yield valuable clinical information to consider when conceptualizing potential reasons for various caregiving behaviors, as well as deciding on how to intervene in a manner that will optimize treatment outcomes for traumatized youth and their caregivers and help families interrupt the intergenerational cycle of trauma.

Differential Effects of Trauma Types and Social Factors on Post-Traumatic Stress in a Treatment-seeking Sample

In the adult PTSD literature, trauma is often grouped by shared characteristics in an attempt to better understand outcomes associated with various types of trauma (see Cougle et al., 2009), such as by assaultive and non-assaultive trauma. Assaultive traumas are characterized by threat or injury to one's body, and can include sexual assault, physical abuse, and combat injury. Non-assaultive traumas, like neglect, psychological maltreatment, and witnessing violence, do not include direct injury to one's body. Though not yet studied in youth samples, research conducted with adult samples has yielded mixed evidence of the effects of assaultive versus non-assaultive trauma on PTSD outcomes, including symptoms of post-traumatic stress (PTSS). One goal of the present study is to examine this question in a sample of youth who have experienced trauma and are presenting for assessment and treatment at child advocacy centers (CACs).

Among the few studies that have grouped trauma exposure by assaultive properties, it has been hypothesized that assaultive trauma exposure, relative to non-assaultive, will result in more severe and chronic PTSD-related outcomes (e.g., symptom of post-traumatic stress, diagnoses, chronicity of symptoms) due in part to the more physically invasive nature of assaultive trauma. Indeed, some studies with adults have shown that experiencing assaultive relative to non-assaultive trauma was associated with

higher short- and long-term risk for the development of PTSD and PTSS (Breslau et al., 1999; Breslau et al., 2008). Another study with adults found that assaultive trauma resulted in a twofold increase in the duration of PTSD symptoms over time and a tenfold increase in the risk of developing chronic PTSD (Gill et al., 2008). There is also some evidence to suggest that prior assaultive trauma exposure (i.e., lifetime assaultive trauma history), but not non-assaultive trauma, enhances risk for the development of PTSD following *new* trauma exposure later in life (Cougle et al., 2009).

On the other hand, there are several studies conducted with adults that have failed to find more deleterious effects of assaultive relative to non-assaultive trauma. For example, one study failed to a significant impact of prior trauma, regardless of type, on the development of PTSD symptoms after a new trauma exposure (Breslau & Peterson, 2010). Similarly, Sartor and colleagues (2012) failed to find support for their hypothesis that assaultive trauma would lead to greater PTSS and likelihood of developing PTSD than non-assaultive trauma. The authors suggested that degree of saturation of trauma in a given sample (i.e., single incident versus chronic trauma) may play a role in discrepant study findings in the current literature. Indeed, several of these studies included chronically traumatized adult samples which may have diluted any potential differential impact by trauma type (e.g., Breslau & Peterson, 2010). In addition, they did not control for other types of trauma or have a combined trauma group, indicating that the categories may not have been discrete. In the present study, we

will examine the differential impact of three discrete categories of lifetime trauma exposure on PTSS: non-assaultive trauma only, assaultive trauma only, and both assaultive and non-assaultive trauma. Moreover, this will be studied in a youth sample with less opportunity to develop more severe chronic trauma histories. Additionally, analyses will also be conducted to determine whether results vary as a function of examining the "most bothersome trauma" (coded as non-assaultive only or assaultive only) to further build upon existing literature that solely examines lifetime or most recent trauma on PTSD outcomes.

Social Risk and Protective Factors

Equally important to studying the association between types of trauma and PTSS in a treatment-seeking youth sample is the examination of factors that may increase and decrease risk for PTSS severity. Among youth, socially-based risk factors are particularly salient in this regard (Charuvastra & Cloitre, 2008). Strong and supportive peer relationships are critically important to healthy social-emotional development during adolescence (Brown & Larson, 2009), and this is true for traumatized youth in particular. According to the Social Ecology Framework of PTSD (Charuvastra & Cloitre, 2008), PTSD risk and recovery are largely influenced by social networks and interactions. They describe that the "human social experience has a…central role in the way individuals respond to trauma…extending to experiences…at both the dyadic and community…level" (Charuvastra & Cloitre, 2008, p. 303). Indeed, they argue that factors related to one's broad social context may attenuate or enhance risk for the development of PTSD depending on context. PTSS after trauma is typically associated with "broken or

distressed social bonds" because of the trauma itself (e.g., physical abuse), social consequences associated with the trauma (e.g., blaming from others after sexual assault), or weakened social networks (e.g., placement in foster care) (Charuvastra & Cloitre, 2008, p. 318). Thus, the absence of strong social networks, or even disruptions in the social network, can heighten the severity of PTSS after trauma, which may arise, in part, from avoidant coping, enhanced self-blame, or how one responded to the trauma (Keane & Barlow, 2002). Conversely, the presence of strong social networks can weaken the association between trauma and PTSS by buffering the impact of the trauma via aiding the individual who experienced trauma to engage in healthy coping strategies.

Within the adult literature, a fair amount of research has been conducted to examine the role of social risk and protective factors on PTSS after trauma (see Charuvastra & Cloitre, 2008, for a review), with some evidence suggesting that social risk factors play a more powerful role than protective factors on PTSS outcomes (Davis et al., 1991; Filipas & Ullman, 2001; Ullman & Filipas, 2001). Furthermore, results tend to be mixed for social protective factors in particular. Some studies show no benefit of social protective factors (i.e., no impact on number of PTSS or PTSS severity; Davis et al., 1991; Zoellner et al., 1999) among those who experienced trauma, while others do show that they serve as a protective buffer (e.g., fewer PTSS/less severe PTSS post-trauma; Hyman et al., 2003; Koenen et al., 2003; Schumm et al., 2006). These results may vary as a function of the different types of social protective factors (e.g., perceived social

support from a partner, engagement with the community) examined as well as the types and/or manner in which trauma was operationalized. A second aim of the present study is to examine the degree to which specific social risk (peer problems) and protective (prosocial behaviors) factors affects the association between different types of trauma and PTSS in a treatment-seeking sample of youth, which has yet to be studied to date.

Peer Problems.

Consistent with the Social Ecological Framework of PTSD (Charuvastra & Cloitre, 2008), peer relationships are one social factor that may impact the development of PTSS after trauma exposure. Unfortunately, trauma-exposed youth are at greater risk for peer difficulties than their non-traumatized peers (Levendosky et al., 2002). To our knowledge, no studies to date have examined whether quality of peer relationships in particular moderate the impact of trauma on the development of PTSS after trauma among youth. However, some research has examined the role of social support, a construct related to peer relationships, in this regard. A recent meta-analysis of 64 studies conducted by Trickey and colleagues (2012) examined broad risk factors for adolescent PTSD and found medium-to-large effect sizes for low social support, though their review only included four studies that adequately assessed social support (Heptinstall et al., 2004; Stallard & Smith, 2007; Udwin et al., 2000; Vernberg et al., 1996). One additional study also found that low perceived support from peers increased risk for PTSS while high perceived support protected against PTSS in a sample of adolescents who had recently disclosed sexual abuse (Bal et al., 2005).

In similar studies conducted with adults, Wilson and Scarpa (2014) found that the impact of social support on the relation between childhood assault (sexual or physical abuse) and PTSS varied as a function of the source of support (i.e., family, peer, or significant other) and type of childhood trauma examined. In particular, greater perceived family and peer support functioned as a protective factor against the development of PTSS, but only for physical abuse survivors, not sexual abuse survivors. Conversely, perceived support from a significant other was a risk factor for PTSS among sexual abuse survivors, but not among physical abuse survivors. More relevant to the present study, Zoellner et al. (1999) found that interpersonal friction (i.e., overt arguments with peers) strengthened the relation between sexual assault that occurred during adulthood and PTSS three months later. Some of this friction with peers may stem from misunderstandings around what the trauma survivors needed or wanted from others post-trauma, particularly when the trauma is associated with stigma or shame, more private in nature, and/or undisclosed for a long period of time (Punamäki et al., 2005). The present study will build on this literature to examine one specific potential social risk factor, peer problems, on the relation between different types of trauma and PTSS in a clinical sample of youth.

Prosocial Behavior.

Similar to social risk factors, the study of protective factors that may aid in healthy recovery from trauma among youth is also important. Along these lines, prosocial behavior with peers and others may be particularly promising in this regard. Prosocial

behavior refers to “acts undertaken to protect or enhance the welfare of others” (Weinstein & Ryan, 2010, p. 222). Engagement in these types of behaviors, and the associated strengthening of social relationships that accompany such behaviors, may serve as a protective factor for a range of mental health issues. Though not studied with regard to PTSD in particular, greater participation in prosocial activities has been shown to longitudinally predict fewer mental health symptoms among community-based (Monahan et al., 2014) and school-based samples of adolescents recruited from high-risk U.S. neighborhoods (Kim et al., 2016). Greater prosocial community involvement has also been shown to predict greater PTSD remission among adult veterans (Koenen et al., 2003). According the Social Ecological Framework of PTSD (Charuvastra & Cloitre, 2008) described above, prosocial behavior engagement typically requires social connection, which may enhance meaning-making following trauma and subsequent healing (see Steger & Park, 2012, for a review). Stronger support systems resulting from prosocial behavior may also pave the way for more adaptive coping. Indeed, both active coping and social support have been shown to serve as buffers against the development of PTSD among trauma survivors (Thompson et al., 2018; Pina et al., 2008; Sippel et al., 2015). Though important, no published studies to date have examined whether prosocial behavior buffers the association between trauma and PTSS, which is another aim of the present study.

Present Study

As is evident, there is a dearth of research that has examined the association between trauma type and PTSS, or factors that enhance or attenuate this relation, among

traumatized youth in general, and treatment-seeking youth in particular. The present study addresses this gap by examining whether three types of lifetime trauma exposure, non-assaultive, assaultive, or both non-assaultive and assaultive, are differentially associated with the severity of PTSS. This association is examined with regard to trauma experienced over one's lifetime as well the current most bothersome trauma (non-assaultive or assaultive). Moreover, to improve our understanding of factors that may strengthen or attenuate this relationship, we explore whether two social factors, peer problems and prosocial behavior, moderate these hypothesized associations. The present study explores these associations in a sample of traumatized youth who presented to a CAC with a family member for care. CACs serve children and their families who have experienced maltreatment and offer a range of services (e.g., forensic interviews, medical care, mental health treatment, victim advocacy, and legal assistance). Moreover, as caregivers are typically involved in evidence-based assessment and treatment of the trauma, and often report results discrepant from those of youth (Oransky et al., 2013; Stallard et al., 2001), particularly under-reporting of traumas and PTSS (Ceballo et al., 2001; Howard et al., 1999; Stover et al., 2010; Thomson et al., 2002) which may impact outcomes, this study will further add to the literature by exploring the aforementioned questions separately using adolescent and caregiver report data, respectively, as opposed to data from one informant which is most commonly done. This includes an examination of concordance rates between youth and caregiver report.

Based on extant literature and theory, the following hypotheses are offered: ***1)*** Both non-assaultive *and* assaultive trauma exposure will be associated with greater PTSS severity relative to assaultive and non-assaultive trauma only, and assaultive trauma exposure will be associated with greater PTSS severity than non-assaultive trauma exposure. ***2)*** For each group of trauma exposure (i.e., both, assaultive, and non-assaultive), the hypothesized relation between trauma and PTSS severity will be stronger among youth who report greater (versus lesser) peer problems. ***3)*** For each group of trauma exposure (i.e., both, assaultive, and non-assaultive), the hypothesized relation between trauma and PTSS severity will be weaker among adolescents with higher (versus lower) prosocial behavior engagement. To provide a conservative test of study hypotheses, analyses will also examine and control for sample characteristics (e.g., age, gender, setting) that may potentially impact study outcomes (see Olff et al., 2017 for a review).

Method

Participants

Participants included maltreated youths (M_{age} = 12.54 years, *SD* = 2.89 years, range = 10-17 years) and their caregiver (*N* =312) pulled from a larger sample of (*N* = 1,440) who presented to 14 Child Advocacy Centers (CAC) located throughout Arkansas for a recent maltreatment experience. Sample sizes vary slightly based on analyses for each hypothesis. Children were primarily female (72.1%), white (79.5%), and non-Hispanic/Latinx (83.0%). Median household income for the 14 counties from which participants were recruited ranges from $32,900-49,900, with a median household

income of $45,700 for the overall state in 2019 (U.S. Census Bureau). *Inclusion criteria* included: 1) English- or Spanish-speaking adolescent; 2) child assent; 3) guardian consent; 4) completion of trauma exposure and symptom measures. *Exclusion criteria* included: 1) substantially limited cognitive capacity (i.e., cannot understand consenting process or assessments) of either caregiver or child; and 2) incomplete trauma exposure and symptom measures.

Recruitment, Screening, and Assessment

Data collected for a parent study were used for the present paper (see Brandt et al., 2018, for more information). CAC directors across the state of Arkansas (n =14) were invited and agreed to participate in the parent study. Participating CACs were directed to conduct screenings for trauma exposures and related symptoms, as well as broad mental health symptoms, with all youth ages 10-17 and their caregiver who presented for services between November 1, 2016 and July 1, 2019. Screenings were completed in 64 (85.3%) of Arkansas's 75 counties. CAC directors received funding from Arkansas Building Effective Services for Trauma (ARBEST), a statewide initiative to fund and enhance access to evidence-based services for children who have experienced maltreatment, for screening at least 80% of eligible children.

Family advocates within the CACs provided demographic information after the initial meeting with families (both parent and child). These data were then uploaded into the ARBEST online portal and families were assigned an identification number. Parents and children separately completed measures of lifetime trauma exposure, current PTSD

symptoms, and a broadband measure of various mental health symptoms. These measures were reviewed, scored, and uploaded into the online portal by a CAC therapist assigned to the family. From there, families elected to engage in mental health services through the CAC, receive referrals for mental health services outside the CAC, or decline mental health services.

Measures

Child and Adolescent Trauma Screen (CATS; Sachser et al., 2017).

The CATS is a short, publicly accessible questionnaire to screen for trauma exposure and related symptoms for children ages 7-17 that is based on the DSM-5 criteria for PTSD. The first 14 Yes/No items assess exposure to various traumatic events; the 15th item allows a child/caregiver to write-in any other scary/stressful event that was not included in the first 14 items. The child/caregiver then identifies the most stressful, scary, or bothersome event the child experienced (called the most "bothersome" event in the present study). The last 20 items assess for self- or parent-report of PTSS the child has experienced in the last two weeks and are rated on a Likert scale (0 = *never* to 3 = *almost always*). Symptoms are considered to be clinically significant if endorsed at a 2 (*half the time*) or greater. Four cluster scores are obtained for re-experiencing, avoidance, negative mood/cognitions, and arousal as well as a total PTSD symptom severity score (21+ = *probable PTSD*, 16-20 = *mild/moderate*, and 0-14 = *not elevated*). Psychosocial functioning is assessed using 5 Yes/No items that ask whether the post-traumatic stress symptoms interfere with 5 key areas of functioning (e.g., family relationships, school, etc.). The CATS has demonstrated good to excellent reliability (α = .88–.94) and good

convergent and discriminate validity (Sachser et al., 2017). Caregivers and youths were interviewed separately using the CATS.

Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997).

The SDQ is a parent- and self-report behavioral screening questionnaire for children ages 10-17. There are 25 items that assess 5 subscales related to a range of internalizing and externalizing behaviors youth may experience. The Prosocial Behavior and Peer Problems subscales were used in the present study. Higher scores indicate more prosocial behaviors (e.g., helping peers, volunteering) and greater peer difficulties (e.g., loneliness, bullying), respectively. Reliability and validity studies have shown the SDQ to have good internal consistency, test–retest reliability, predictive validity, discriminant validity, and concurrent validity to discriminate between clinical and nonclinical populations (Goodman, 2001; Goodman et al., 1998). The SDQ cut-off identifies youth with problems in the top 5%–10% of the population (Goodman et al., 1998).

Data Analytic Plan

Preliminary Analyses

All analyses were conducted in SPSS version 19 (IBM Corp., 2010). Data were spot-checked for data entry errors prior to cleaning data. Data were examined for distributional characteristics in the separate (N = 236, parent-only; N = 271, child-only) and the combined datasets (N = 150). Study variables showed skew and kurtosis levels within acceptable ranges, so no log transformations were conducted. Next, data were examined for outliers, influential cases, and fulfillment of model assumptions. No transformations of variables or adjustments

of cases were needed. Model assumptions for regression analyses were met across all models. Relevant clinical information was summarized using frequencies and descriptive statistics; most of this information was gathered from the parent, but child data were included when available.

Next, the categorical predictor for type of lifetime trauma exposure was made by creating three categories of trauma exposures: non-assaultive only, assaultive only, and both non-assaultive and non-assaultive. Items from the CATS (Sachser et al., 2017) that measured lifetime trauma exposure were categorized into these groups in the same fashion as prior literature (see Cougle et al., 2009 for more thorough descriptions). The non-assaultive trauma group included those experiencing a serious natural disaster, being around war, and witnessing domestic violence, and included only children who had experienced at least one non-assaultive but no assaultive traumas. The assaultive trauma group included exposures such as sexual assault, serious accident/injury, and physical abuse, and included children who had only experienced at least one assaultive but no non-assaultive traumas. The combined non- and assaultive trauma group included children who had experienced at least one non-assaultive and at least one assaultive trauma. For the most bothersome trauma, groups were created in a similar fashion, though the trauma was only coded as assaultive or non-assaultive.

With regard to the CATS symptom score, it was used as a continuous score of trauma symptom severity in multivariate analyses in line with best practice guidelines (Hayes & Montoya, 2017), as well as a categorical trauma severity score using established cutoffs to improve clinical generalizability of findings as clinicians often use

the latter when making treatment planning decisions. Specifically, scores between 0-14 indicate normative PTSS, 15-20 indicate "moderate PTSD," and 21+ indicate "probable PTSD" (Sacher et al., 2017).

Two datasets were used for analyses, including a "matched" caregiver-child dataset (N = 150) as well larger "unmatched" parent-only (N = 236) and child-only (N = 271) datasets. Descriptive statistics were run on the matched and unmatched datasets and concordance analyses were conducted using the matched dataset. To probe for differences between parent- and child-report on continuous outcomes in the matched dataset, paired *t*-tests were conducted. Cohen's kappa (Cohen, 1960) was used to assess agreement between caregiver- and child-reports of categorical variables, including lifetime trauma type, most bothersome trauma type, and clinical cut-off scores of PTSS. Kappa (κ) is a correlational statistic that examines agreement between reporters while correcting for chance agreement. K values greater than 0.75 are considered to indicate high agreement, 0.40-0.75 indicate moderate agreement, and less than 0.40 indicate poor agreement (Mannuzza et al., 1989). Bivariate correlations were also used to examine the associations among parent- and child-reported variables in the matched dataset, as well as to examine relations among study variables in the unmatched datasets. One-way ANOVAs were also used to probe for significant differences in means across categorical groups in the matched dataset. Sociodemographic variables found to be associated with the outcome variable were then controlled for in multivariate analyses for both parent and child models. Of note, for multivariate analyses, the larger unmatched datasets were used to increase power for analyses.

Multivariate Analyses

A power analysis was conducted using G*Power (Faul et al., 2009) to determine if the present sample size was powerful enough to detect meaningful effects for multivariate analyses. To have at least 80% power to detect significant effects for the two-way interactions, after specifying an alpha level of 0.05, a two-tailed examination, an effect size (Cohen's *d*) of 0.2, and the number of predictors for each liner multiple regression model, the recommended total sample size was $N = 68$, which the present sample size far exceeds.

Linear regressions analyses with a categorical predictor using PROCESS version 3.4.1 (Hayes, 2018) were employed to examine the associations between lifetime trauma exposure types (non-assaultive only, assaultive only, both non-assaultive and assaultive) and PTSS, as well as whether peer problems and prosocial behaviors moderated these associations. An indicator coding scheme (i.e., dummy coded categories, where *k*-1; see Hayes & Montoya, 2017, for full description and rationale) was used to compare the mean PTSS scores of the three levels of the categorical predictor, lifetime trauma type. Non-assaultive trauma type was first coded as 0, the comparison group, to account for the non-assaultive to assaultive trauma comparison and the non-assaultive to both trauma types comparison. Next, we reverse-coded the lifetime trauma types variable to have both trauma types as the comparison group (BT = 0). Doing so allows for the comparison between both trauma types and assaultive trauma, a comparison that is not otherwise captured. Thus, eight linear regressions were run, two each for the four different models, to examine two-way interaction effects. Simple slope analyses (Preacher et al., 2004)

were used to probe significant interactions, as indicated. Age and gender were covaried in the child-report models due to significant correlations with PTSS.

Results

Clinical History

The types of trauma histories endorsed by parents and children are reported in Table 6. In the parent-only sample, a biological parent was the offending caregiver involved in the trauma for which they sought treatment at the CAC for the majority of children (23.7%). The next most frequent offenders were "another known person" (e.g., coach, teacher) (22.0%) and other relatives (e.g., uncle, grandparent) (14.4%). The most frequent timeframe of the primary trauma (i.e., the trauma for which they sought treatment) was less than one year ago (66.5%), followed by 1-3 years ago (16.1%). On the CATS, just over half (58.1%) of the sample met criteria for clinically significant total PTSS, and 14.4% met criteria for borderline-clinical PTSS as reported by the caregiver on behalf of the child.

In the child-only sample, "another known person" (e.g., coach, teacher) (26.6%) was most commonly denoted as the offending caregiver involved in the trauma for which they sought treatment at the CAC. The next most frequent offenders were a biological parent (18.1%) and another relative (e.g., uncle, grandparent) (15.1%). The most frequent timeframe of the primary trauma (i.e., the trauma for which they sought treatment) was less than one year ago (66.8%), followed by 1-3 years ago (17.3%). Importantly, in the child-report only sample, over two-thirds (68.6%) of the sample met criteria for clinically

significant total PTSS and 13.7% met for borderline-clinical PTSS as reported by the child on the CATS. See Table 6 for additional demographic and clinical characteristics data by parent- and child-report samples.

Table 6 Participant demographic characteristics and clinical history

Characteristic, *N* (%)	**Parent-report Only (*N* = 236)**	**Child-report Only (*N* = 271)**
Female	176 (74.6)	224 (82.7)
Age*		
10	14 (5.9)	19 (7.0)
11	19 (8.1)	23 (8.5)
12	21 (8.9)	33 (12.2)
13	31 (13.1)	49 (18.1)
14	25 (10.6)	40 (14.8)
15	17 (7.2)	38 (14.0)
16	20 (8.5)	36 (13.3)
17	15 (6.4)	33 (12.2)
Race		
White	190 (80.5)	226 (83.4)
Black	23 (9.7)	28 (10.3)
Asian	2 (0.8)	3 (1.1)
American Indian	6 (2.5)	4 (1.5)
Other	15 (6.4)	10 (3.7)
Ethnicity		
Non-Hispanic/Latinx	200 (84.7)	240 (88.6)
Latinx	36 (15.3)	31 (11.4)
Lifetime Trauma Type^		
Non-assaultive only	28 (11.9)	20 (7.4)
Assaultive only	64 (27.1)	47 (17.3)
Both non-assaultive and assaultive	144 (61.0)	204 (75.3)
Bothersome Trauma Type^		
Non-assaultive	84 (35.6)	86 (31.7)
Assaultive	152 (64.4)	185 (68.3)
Offender Identity		
Biological parent	56 (23.7)	49 (18.1)
Another known person	52 (22.0)	72 (26.6)
Other relative	34 (14.4)	41 (15.1)

Stepparent	27 (11.4)	31 (11.4)
Sibling	18 (7.6)	18 (6.6)
Parent's partner	13 (5.5)	7 (2.6)
More than one offender	12 (5.1)	16 (5.9)
Unknown	9 (3.8)	18 (6.6)
Other	8 (3.4)	11 (4.1)
Not applicable	7 (3.0)	8 (3.0)
Timeframe of Primary Trauma		
Less than 1 year ago	157 (66.5)	181 (66.8)
1-3 years ago	38 (16.1)	47 (17.3)
3-5 years ago	16 (6.8)	18 (6.6)
Unknown	13 (5.5)	10 (3.7)
More than 5 years ago	12 (5.1)	15 (5.5)
Trauma Symptom Clinical Cutoff^		
Subclinical PTSD symptoms	65 (27.5)	48 (17.7)
Moderate PTSD symptoms	34 (14.4)	37 (13.7)
Probable PTSD	137 (58.1)	186 (68.6)

Note. *Incomplete age data available for parent-report; missing = 74.

Bivariate Analyses

Parent-Child Agreement.

As can be seen in Table 7, in the matched sample, there were significant differences between parent and child report of average PTSS, such that children reported significantly greater PTSS than their parents. There were no significant differences between parent and child report for either peer difficulties or prosocial behavior engagement.

Table 7 Paired t-tests for matched parent- and child- report of PTSS and social moderators

Outcome	Parent-reported		Child-reported		Parent-child Comparison	
	Mean	*SD*	Mean	*SD*	*t*	95% CI
CATS Total Score	25.88	12.94	30.25	13.94	-3.41*	[-6.91, -1.84]
SDQ Peer^	3.17	2.09	3.33	2.06	-0.25	[-0.48, 0.37]
SDQ Prosocial^^	7.87	2.11	7.92	1.78	-0.74	[-0.56, 0.25]

Note. *N* = 150.
CATS = Child and Adolescent Trauma Screen. SDQ = Strengths and Difficulties Questionnaire. CI = Confidence interval.
^Higher scores on this subscale indicate greater peer difficulties.
^^Higher scores on this subscale indicate greater prosocial behavior.
***p* = .001.**

Cohen's kappa's (κ) for parent- and child-report of lifetime and current most bothersome trauma types, as well as CATS cut-off scores, in the matched sample are presented in Table 8. Child and parent agreement regarding children's PTSS tied to the most bothersome trauma was statistically significant, but "poor", such that parents reported their child's PTSS to be in lower symptom severity categories (non-clinical and moderate PTSD) than their children. Similarly, child and parent agreement for lifetime exposure to categories of trauma types was clinically significant, but "poor". Children's responses fell within the both trauma type (assaultive and non-assaultive) category more often than their parents. Finally, child and parent agreement on the current most bothersome trauma type was statistically significant and "moderate."

Table 8 Kappas for matched parent- and child-reported trauma variables

Outcome		Child-report (*N*)				
	CATS Cut-off Score	Non-clinical	Moderate PTSD	Probable PTSD	Total P-R	κ
Parent-report (*N*)						.12*
	Non-clinical	7	6	18	31	
	Moderate PTSD	7	2	16	25	
	Probable PTSD	9	8	77	94	
	Total C-R	23	16	111	150	
	Lifetime Trauma Type	NT	AT	BT	Total P-R	κ
						.24**
	NT	4	1	9	14	
	AT	0	10	25	35	
	BT	2	9	85	96	
	Total C-R	6	20	119	145	
	Bothersome Trauma Type	NT	AT	Total P-R	--	κ
						.45**
	NT	28	16	44	--	
	AT	19	85	104	--	
	Total C-R	47	101	148	--	

Note. C-R = Child-report; P-R = Parent-report; NT = Non-assaultive trauma only; AT = Assaultive trauma only; BT = Both non-assaultive and assaultive trauma. The trauma type groups are discrete.
***p* < .05, ****p* = .00.**

Correlations between child and parent report of study variables within the matched sample can be found in Table 9. Both lifetime and bothersome trauma types were significantly and positively correlated between parent and child report. Parent and child report of PTSS, both total score and clinical cut-off scores, were significantly and positively correlated. In addition, parent report of child PTSS (continuous and cut-off) were positively and significantly related to parent report of peer difficulties, but not correlated with parent report of prosocial behavior. Parent report of PTSS (cut-off) was also significantly and positively correlated with child report of peer difficulties, and

significantly and negatively correlated with child report of prosocial behaviors. Child report of PTSS (continuous and cut-off) were positively and significantly related to child report of peer difficulties and parent report of prosocial behaviors. Parent report of peer problems was significantly and positively correlated with child report of peer problems, but significantly and negatively correlated with parent and child report of prosocial behavior engagement. Child report of peer difficulties was significantly and negatively correlated with child report of prosocial behavior engagement. Parent and child report of prosocial behavior were not significantly correlated.

Table 9 Bivariate correlations among matched parent- and child-reported variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Parent Lifetime Type^	--	.29**	.28**	.07	.12	.09	.09	.06	.11	.13	.07	.06
2. Child Lifetime Type^		--	.12	.08	-.06	.10	-.004	.11	.02	.16	-.02	.09
3. Parent Bothersome Type^^			--	.44**	-.06	.09	-.05	.05	.02	.11	.09	.01
4. Child Bothersome Type^^				--	.05	.11	.01	.13	.06	.12	.16	.06
5. Parent CATS Cut-off+					--	.22**	.85**	.27**	.28**	.18*	-.09	-.17*
6. Child CATS Cut-off+						--	.26**	.79**	.06	.31**	.27**	-.02
7. Parent CATS Score++							--	.32**	.39**	.13	-.15	-.10
8. Child CATS Score++								--	.13	.33**	.23**	-.01
9. Parent SDQ Peer Score*									--	.26**	-.43**	-.18*
10. Child SDQ Peer Score*										--	.04	-.22**
11. Parent SDQ Prosocial Score**											--	.10
12. Child SDQ Prosocial Score**												--

Note. *N* = 150.

^Refers to discrete groups of 0 = Non-assaultive trauma only, 1 = Assaultive trauma only, 2 = Both non-assaultive and assaultive trauma.

^^ Refers to discrete groups of 0 = Non-assaultive trauma, 1 = Assaultive trauma.

+Refers to the clinical cut-off scores of the child's PTSD symptoms.

++Refers to the raw scores of child's PTSD symptoms.

***Refers to a subscale on which higher scores indicate greater peer problems.**

****Refers to a subscale on which lower scores indicate lesser engagement in prosocial behaviors.**

***p < .05, ****p < .01.**

Parent-only.

As can be seen in Table 10, in the unmatched parent-only dataset, the type of trauma that was most bothersome currently was significantly positively correlated with lifetime trauma type. Lifetime trauma type and PTSS were significantly positively correlated, but bothersome trauma type and PTSS were not significantly correlated. Greater peer problems were significantly positively correlated with PTSS, such that greater peer problems were associated with more PTSS. Prosocial behaviors and peer problems were also significantly negatively correlated, such that greater prosocial behaviors were associated with fewer peer difficulties. Race was not significantly correlated with any model variables. Age was significantly positively correlated with lifetime trauma type and prosocial behaviors, and significantly negatively correlated with peer problems, such that being older (relative to younger) was associated with greater prosocial behaviors and fewer peer problems. Gender was significantly correlated with most bothersome trauma type, but not lifetime trauma type, as well as significantly positively correlated with prosocial behaviors, such that being a female (relative to a male) was associated with greater prosocial behaviors. No sociodemographic variables were significantly correlated with PTSS, so they were not controlled for in multivariate analyses.

Lifetime trauma type was significantly positively correlated with PTSS, so an ANOVA was conducted to examine differences among the three trauma types (non-assaultive only, assaultive only, both assaultive and non-assaultive) on PTSS. There was a significant effect of the type of trauma on PTSS, $F(2, 233) = 4.56$, $p = .01$. Using a

Tukey post hoc test, planned contrasts among the trauma types revealed that youth with a history of both assaultive and non-assaultive trauma exposure (*M* = 26.03) had significantly more PTSS relative to those who experienced only assaultive trauma (*M* = 19.81), *p* = .01, [1.29, 11.17]. No significant differences emerged between those with both non-assaultive and assaultive trauma and only non-assaultive trauma (*M* = 23.11), *p* = .46, [-2.84, 8.68]. There was no significant difference in PTSS between those who experienced assaultive only (*M* = 19.81) versus non-assaultive only trauma types (*M* = 23.11), *p* = .48, [-10.01, 3.40].

Table 10 Bivariate correlations for all model variables in parent-only models

Variable	1	2	3	4	5	6	7	8
1. Lifetime Trauma Type	--	.34**	.13*	.00	.10	.03	.17*	.11
2. Bothersome Type		--	.01	.11	-.01	.02	.12	.18**
3. PTSD Symptoms^			--	-.11	.37**	-.07	.11	.11
4. Prosocial Behaviors^^				--	-.41**	-.07	.26**	.16*
5. Peer Problems+					--	-.002	-.22**	.02
6. Race						--	.09	.07
7. Age							--	.11
8. Gender								--
M	--	--	24.23	7.84	3.05	--	13.48	++
SD	--	--	13.20	2.05	2.02	--	2.08	--

Note. *N* = 236, except for age correlations where *N* = 162.
^Refers to raw scores of the child's PTSD symptoms, 58.1% of the sample met criteria for clinically significant PTSD symptoms.
^^Refers to a subscale on which lower scores indicate lesser engagement in prosocial behaviors.
+Refers to a subscale on which higher scores indicate greater peer problems.
++176 females, 60 males.
***p* < .05, **p* < .01.**

Youth-only.

In the unmatched youth-only dataset, Table 11 shows that lifetime trauma type was significantly positively correlated with bothersome trauma type. Lifetime trauma type and PTSS were significantly positively correlated, as were lifetime trauma type and peer difficulties. Greater peer problems were significantly positively correlated with PTSS, such that greater peer problems were associated with more PTSS. Prosocial behaviors and peer problems were also significantly negatively correlated, such that greater prosocial behaviors were associated with fewer peer difficulties. Race was not significantly correlated with any model variables. Age was significantly positively correlated with bothersome trauma type, PTSS, and prosocial behaviors, such that being older (relative to younger) was associated with greater PTSS and more prosocial behaviors. Gender was significantly positively correlated with lifetime trauma type, bothersome trauma type, and PTSS, such that being female was associated with greater PTSS. Gender was also significantly positively correlated with age. Gender and age were significantly correlated with PTSS, so they were controlled for in multivariate analyses.

Lifetime trauma was significantly positively correlated with PTSS, so an ANOVA was conducted to examine differences among the three trauma types (non-assaultive only, assaultive only, both assaultive and non-assaultive) on PTSS. There was a significant effect of the type of trauma on PTSS, $F(2, 268) = 11.44$, $p = .00$. Using a Tukey post hoc test, planned contrasts among the trauma types revealed that youth with a history of both assaultive and non-assaultive trauma exposure ($M = 31.12$) had significantly more PTSS relative to those who experienced only assaultive trauma ($M = 23.60$), $p = .002$, [2.34,

12.70] and those who experienced only non-assaultive trauma (M = 19.15), p = .001, [4.46, 19.47]. There was no significant difference in PTSS between those who experienced assaultive only (M = 23.60) versus non-assaultive only trauma types (M = 19.15), p = .44, [-4.11, 13.00].

Table 11 Bivariate correlations for all model variables in child-only models

Variable	1	2	3	4	5	6	7	8
1. Lifetime Trauma Type	--	.19**	.28**	.01	.15*	.08	.12	.13*
2. Bothering Type		--	.10	.07	.07	.04	.16**	.25**
3. PTSD Symptoms^			--	-.07	.37**	.04	.26**	.23**
4. Prosocial Behaviors^^				--	-.24**	.01	.14*	.09
5. Peer Problems+					--	-.07	.08	.03
6. Race						--	-.02	.03
7. Age							--	.14*
8. Gender								--
M	--	--	28.93	8.00	3.18	--	13.81	++
SD	--	--	14.11	1.78	2.00	--	2.07	--

Note. *N* = 271.
^Refers to raw scores of the child's PTSD symptoms, 68.6% of the sample met criteria for clinically significant PTSD symptoms.
^^Refers to a subscale on which lower scores indicate lesser engagement in prosocial behaviors.
+Refers to a subscale on which higher scores indicate greater peer problems.
++224 females, 47 males.
***p* < .05, **p* < .01.**

Moderation Analyses for Peer Problems and Prosocial Behavior

Parent-only.

Lifetime Trauma. In the unmatched parent only dataset, as shown in Tables 12 and 13, Models 1 and 3, respectively, there were no significant main effects of any of the lifetime trauma type comparisons (i.e., non-assaultive compared to assaultive; non-

assaultive compared to both; both compared to assaultive) on PTSS when included in multivariate models. Peer problems were significantly positively related to PTSS when included in the multivariate model when the both trauma type group was the comparison group (in reference to the assaultive trauma group) (see Table 12, Model 1). However, prosocial behavior was not significantly associated with PTSS in multivariate models (see Table 13, Model 3). Furthermore, there were no significant interaction effects between any of the trauma type comparisons and peer problems or prosocial behaviors when predicting PTSS (see Tables 12-13, Models 1 and 3).

Table 12 Regression analyses for lifetime trauma types and PTSS moderated by peer problems

Variable	*B* (*SE*)	95% CI	*t*	R_2	MSE	F	Interaction $R_2 \Delta$
	Parent Report Only (*N* = 236)						
Model 1							
NT as Comparison Group				0.18	145.49	10.29**	0.01
Constant	19.85 (3.28)	[13.39, 26.31]	6.06**				
NT vs AT	-3.64 (4.65)	[-12.81, 5.52]	-0.78				
NT vs BT	-3.17 (3.75)	[-10.55, 4.22]	-0.84				
Peer Problems	1.23 (0.97)	[-0.68, 3.13]	1.27				
NT vs AT x Peer Problems	0.00 (1.37)	[-2.70, 2.71]	0.00				
NT vs BT x Peer Problems	1.70 (1.08)	[-0.42, 3.83]	1.58				
BT as Comparison Group				0.18	145.49	10.29**	0.01
Constant	16.69 (1.82)	[13.11, 202.6]	9.19**				
BT vs AT	-0.48 (3.77)	[-7.90, 6.94]	-0.13				
BT vs NT	3.17 (3.75)	[-4.22, 10.55]	0.84				
Peer Problems	2.93 (0.48)	[1.99, 3.87]	6.13**				
BT vs AT x Peer Problems	-1.70 (1.08)	[-3.84, 0.43]	-1.57				
BT vs NT x Peer Problems	-1.70 (1.08)	[-3.83, 0.42]	-1.58				
	Child Report Only (*N* = 271)						
Model 2							
NT as Comparison Group				0.28	146.74	14.74**	0.02*
Constant	2.43 (6.27)	[-9.91, 14.76]	0.39				
Age	1.17 (0.36)	[0.46, 1.89]	3.24**				
Gender	6.80 (1.99)	[2.87, 10.72]	3.41**				
NT vs AT	-7.49 (5.25)	[-17.83, 2.84]	-1.43				
NT vs BT	-2.27 (4.37)	[-10.87, 6.33]	-0.52				
Peer Problems	-1.10 (1.20)	[-3.45, 1.26]	-0.92				
NT vs AT x Peer Problems	3.60 (1.59)	[0.48, 6.73]	2.27*				
NT vs BT x Peer Problems	3.74 (1.27)	[1.23, 6.24]	2.94**				

BT as Comparison Group				0.28	146.74	14.74**	0.02*
Constant	0.16 (5.29)	[-10.26, 10.57]	0.03				
Age	1.17 (0.36)	[0.46, 1.89]	3.24**				
Gender	6.80 (1.99)	[2.87, 10.72]	3.41**				
BT vs AT	-5.22 (3.74)	[-12.58, 2.14]	-1.40				
BT vs NT	2.27 (4.37)	[-6.33, 10.87]	0.52				
Peer Problems	2.64 (0.42)	[1.80, 3.48]	6.22**				
BT vs AT x Peer Problems	-0.13 (1.12)	[-2.34, 2.07]	-0.12				
BT vs NT x Peer Problems	-3.74 (1.27)	[-6.24, -1.23]	-2.94**				

Note. CI = Confidence interval; vs = versus; NT = Non-assaultive trauma only; AT = Assaultive trauma only; BT = Both non-assaultive and assaultive trauma. The three trauma type groups are discrete.
***p*≤.05, ***p*≤.00.**

Table 13 Regression analyses for lifetime trauma types and PTSS moderated by prosocial behaviors

Variable	*B* (*SE*)	95% CI	*t*	R_2	MSE	F	Interaction $R_2 \Delta$
	Parent Report Only (*N* = 236)						
Model 3							
NT as Comparison Group				0.05	169.25	2.39*	0.00
Constant	22.33 (8.83)	[4.93, 39.73]	2.53*				
NT vs AT	6.11 (12.38)	[-18.27, 30.50]	0.49				
NT vs BT	8.85 (9.70)	[-10.26, 27.96]	0.91				
Prosocial Behaviors	0.10 (1.13)	[-2.12, 2.33]	0.09				
NT vs AT x Prosocial Behaviors	-1.16 (1.53)	[-4.17, 1.86]	-0.75				
NT vs BT x Prosocial Behaviors	-0.77 (1.23)	[-3.20, 1.67]	-0.62				

BT as Comparison Group				0.05	169.25	2.39*	0.00
Constant	31.18 (4.01)	[23.28, 39.08]	7.78**				
BT vs AT	-2.74 (9.55)	[-21.56, 16.08]	-0.29				
BT vs NT	-8.85 (9.70)	[-27.96, 10.26]	-0.91				
Prosocial Behaviors	-0.66 (0.50)	[-1.64, 0.32]	-1.33				
BT vs AT x Prosocial Behaviors	-0.39 (1.15)	[-2.65, 1.87]	-0.34				
BT vs NT x Prosocial Behaviors	0.77 (1.23)	[-1.67, 3.20]	0.62				
	Child Report Only (N = 271)						
Model 4							
NT as Comparison Group				0.19	164.78	9.02**	0.02*
Constant	11.56 (13.55)	[-15.11, 38.24]	0.85				
Age	1.43 (0.39)	[0.67, 2.19]	3.69**				
Gender	6.88 (2.12)	[2.71, 11.06]	3.25**				
NT vs AT	-26.07 (15.27)	[-56.14, 4.00]	-1.71$_t$				
NT vs BT	5.09 (13.21)	[-20.93, 31.11]	0.39				
Prosocial Behaviors	-1.91 (1.53)	[-4.93, 1.10]	-1.25				
NT vs AT x Prosocial Behaviors	3.52 (1.87)	[-0.16, 7.20]	1.88$_t$				
NT vs BT x Prosocial Behaviors	0.51 (1.61)	[-2.67, 3.68]	0.31				
BT as Comparison Group				0.19	164.78	9.02**	0.02*
Constant	16.65 (6.50)	[3.85, 29.46]	2.56*				
Age	1.43 (0.39)	[0.67, 2.19]	3.69**				
Gender	6.88 (2.12)	[2.71, 11.06]	3.25**				
BT vs AT	-31.16 (9.63)	[-50.13, -12.20]	-3.24**				
BT vs NT	-5.09 (13.21)	[-31.11, 20.93]	-0.39				
Prosocial Behaviors	-1.40 (0.51)	[-2.41, -0.40]	-2.74*				
BT vs AT x Prosocial Behaviors	3.01 (1.18)	[0.69, 5.33]	2.55*				
BT vs NT x Prosocial Behaviors	-0.51 (1.61)	[-3.68, 2.67]	-0.31				

Note. CI = Confidence interval; vs = versus; NT = Non-assaultive trauma only; AT = Assaultive trauma only; BT = Both non-assaultive and assaultive trauma. The three trauma type groups are discrete.
***t*≤.10, **p*≤.05, ***p*≤.00.**

Most Bothersome Trauma. For the most bothersome trauma type, there was no significant main effect of trauma type (i.e., non-assaultive compared to assaultive) on PTSS when included in multivariate models (see Tables 14 and 15, Models 5 and 7, respectively). Peer problems were significantly positively related to PTSS in the multivariate models (see Table 14, Model 5) but not prosocial behaviors (see Table 15, Model 7). Additionally, there were no significant interaction effects between trauma type and peer problems or prosocial behaviors when predicting PTSS (see Tables 14-15, Models 5 and 7, respectively).

Table 14 Regression analyses for bothersome trauma types and PTSS moderated by peer problems

Variable	*B* (*SE*)	95% CI	*t*	R_2	MSE	F	Interaction $R_2 \Delta$
	Parent Report Only (*N* = 236)						
Model 5							
NT as Comparison Group				0.14	152.83	12.57**	0.00
Constant	17.38 (2.48)	[12.50, 22.27]	7.01**				
NT vs AT	-0.90 (3.06)	[-6.94, 5.13]	-0.29				
Peer Problems	2.17 (0.67)	[0.84, 3.50]	3.22**				
NT vs AT x Peer Problems	0.42 (0.84)	[-1.23, 2.06]	0.50				
	Child Report Only (*N* = 271)						
Model 6							
NT as Comparison Group				0.22	158.72	14.35**	0.00
Constant	-2.61 (5.52)	[-13.48, 8.26]	-0.47				
Age	1.38 (0.38)	[0.63, 2.13]	3.62**				
Gender	6.87 (2.17)	[2.60, 11.13]	3.17**				
NT vs AT	-1.54 (3.10)	[-7.65, 4.57]	-0.50				
Peer Problems	2.14 (0.63)	[0.89, 3.39]	3.37**				
NT vs AT x Peer Problems	0.48 (0.80)	[-1.10, 2.06]	0.60				

Note. CI = Confidence interval; vs = versus; NT = Non-assaultive trauma only; AT = Assaultive trauma only.
The two trauma type groups are discrete.
***p*≤.00.**

Table 15 Regression analyses for bothersome trauma types and PTSS moderated by prosocial behaviors

Variable	*B* (*SE*)	95% CI	*t*	R^2	MSE	F	Interaction R^2 Δ
	Parent Report Only (*N* = 236)						
Model 7							
NT as Comparison Group				0.02	173.79	1.21	0.00
Constant	25.86 (5.62)	[14.79, 36.93]	4.60**				
NT vs AT	6.26 (7.08)	[-7.69, 20.20]	0.88				
Prosocial Behaviors	-0.23 (0.72)	[-1.65, 1.18]	-0.32				
NT vs AT x Prosocial Behaviors	-0.74 (0.89)	[-2.49, 1.01]	-0.84				
	Child Report Only (*N* = 271)						
Model 8							
NT as Comparison Group				0.11	180.25	6.42**	0.00
Constant	10.88 (8.42)	[-5.70, 27.46]	1.29				
Age	1.62 (0.41)	[0.82, 2.43]	3.98**				
Gender	6.99 (2.30)	[2.45, 11.53]	3.03**				
NT vs AT	-3.80 (8.11)	[-19.76, 12.16]	-0.47				
Prosocial Behaviors	-1.34 (0.84)	[-2.99, 0.30]	-1.61				
NT vs AT x Prosocial Behaviors	0.57 (1.01)	[-1.41, 2.56]	0.57				

Note. CI = Confidence interval; vs = versus; NT = Non-assaultive trauma only; AT = Assaultive trauma only. The two trauma type groups are discrete.
***p*≤.00.**

Youth-only.

Lifetime Trauma. In multivariate models that included peer problems, when controlling for age and gender, there were no significant main effects of any of the lifetime trauma type comparisons (i.e., non-assaultive compared to assaultive; non-assaultive compared to both; both compared to assaultive) on PTSS (Table 12, Model 2). Peer problems were significantly positively related to PTSS when the both trauma type group was the comparison group (see Table 12, Model 2). However, two significant positive interaction effects emerged when the non-assaultive trauma type group was the comparison group (relative to the assaultive only group and the both trauma type group) but not when the both trauma type group was compared to the assaultive only group (see Table 12, Model 2). Simple slope analyses were used to probe the interaction between the *non-assaultive* and the *assaultive trauma* groups and peer problems (see Figure 3). For high levels of peer problems (B = 11.20, p = .03), but not for average (B = 3.98, p = .25) or low (B = -3.24, p = .41) levels, the comparison between the non-assaultive and the assaultive trauma groups was significantly predictive of PTSS. In other words, at higher levels of peer problems, youth who only experienced assaultive trauma, relative to those who only experienced non-assaultive trauma, reported greater PTSS severity. Simple slope analyses were also used to probe the interaction between the *non-assaultive* and the *both trauma* type groups and peer problems (see Figure 3). For high (B = 17.11, p = .00) and average (B = 9.63, p = .00) levels of peer problems, but not for low (B = 2.14, p = .53) levels, the

comparison between the non-assaultive and the both trauma group was significantly predictive of PTSS. In other words, at high and average levels of peer problems, youth who experienced both assaultive and non-assaultive trauma, relative to those who only experienced non-assaultive trauma, reported greater PTSS severity. At low levels of peer problems, the comparisons between the three trauma groups were not significantly predictive of PTSS, indicating that the three trauma groups experienced relatively similar levels of PTSS at this low level of peer problems.

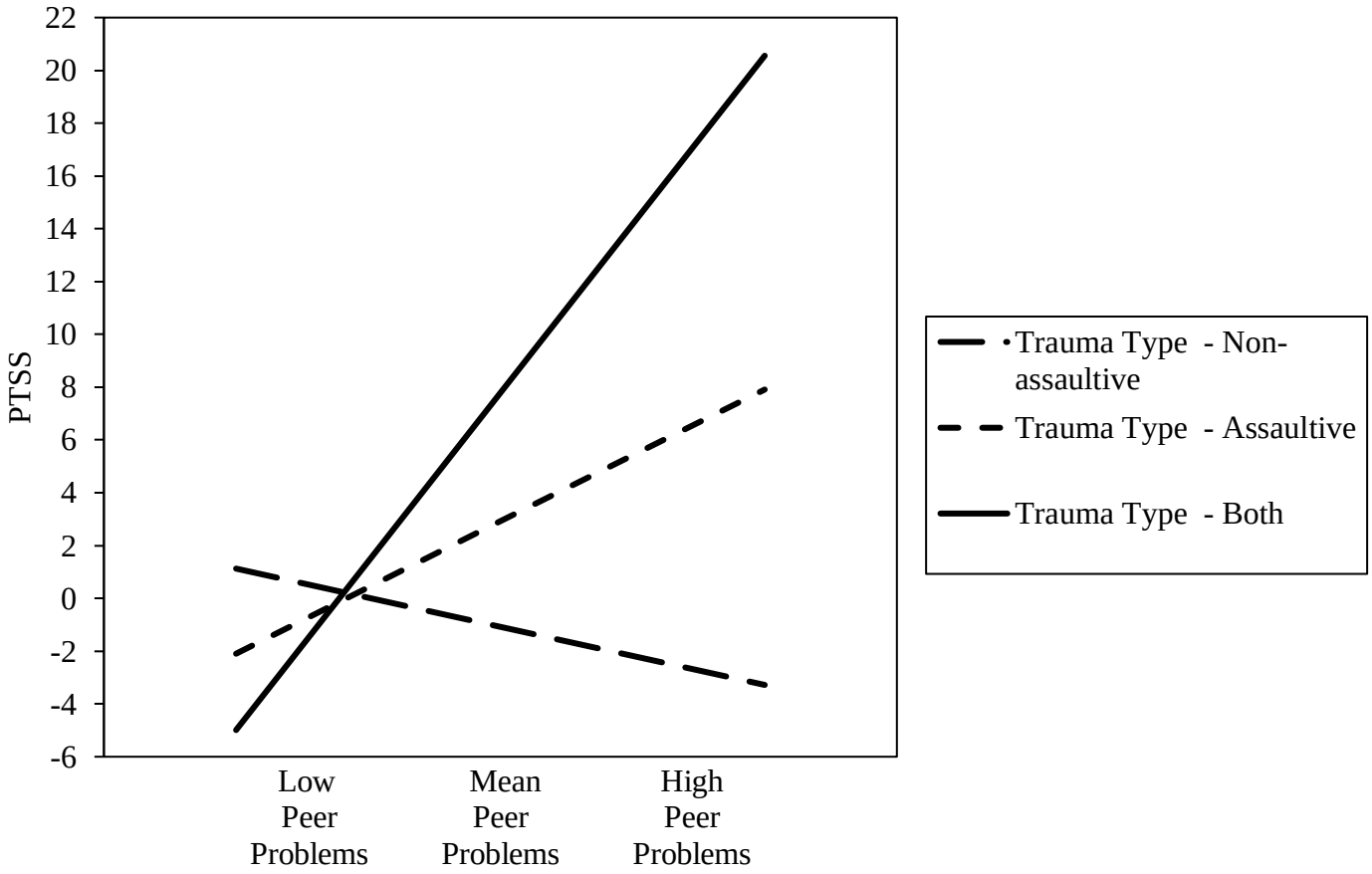

Figure 3 Peer problems moderate the relation between trauma type and post-traumatic stress symptoms.
Note. ***N*** **= 271.**

In multivariate models that included prosocial behavior, when controlling for age and gender, only the comparison between the both trauma group and the assaultive trauma group was significantly related to PTSS (see Table 13, Model 4). Prosocial behaviors were not significantly related to PTSS when non-assaultive trauma was the comparison group, but there was significant negative effect of prosocial behavior engagement on PTSS when the both trauma group was the comparison group (see Table 13, Model 4). There was also a significant positive interaction between the both and assaultive trauma groups (in reference to the assaultive only group) and prosocial behaviors for predicting PTSS but not when the non-assaultive only group was the comparison group (in reference to the assaultive only or both trauma type groups) (see Table 13, Model 4). Simple slope analyses were used to probe the interaction between the *both* trauma type and the *assaultive only* trauma groups and prosocial behaviors (see Figure 4). For low (B = -12.44, p = .00) and average (B = -7.08, p = .00) levels of prosocial behaviors, but not for high (B = -1.72, p = .56) levels, the comparison between the both trauma type and the assaultive only trauma group was significantly predictive of PTSS. In other words, at low and average levels of prosocial behavior, youth who experienced both assaultive and non-assaultive trauma, relative to those who only experienced assaultive trauma, reported greater PTSS severity. At high levels of prosocial behavior, this relation did not exist suggesting a potential buffering effect of prosocial behavior on the relation between the experience of both assaultive and non-assaultive trauma (in reference to assaultive trauma only) on PTSS.

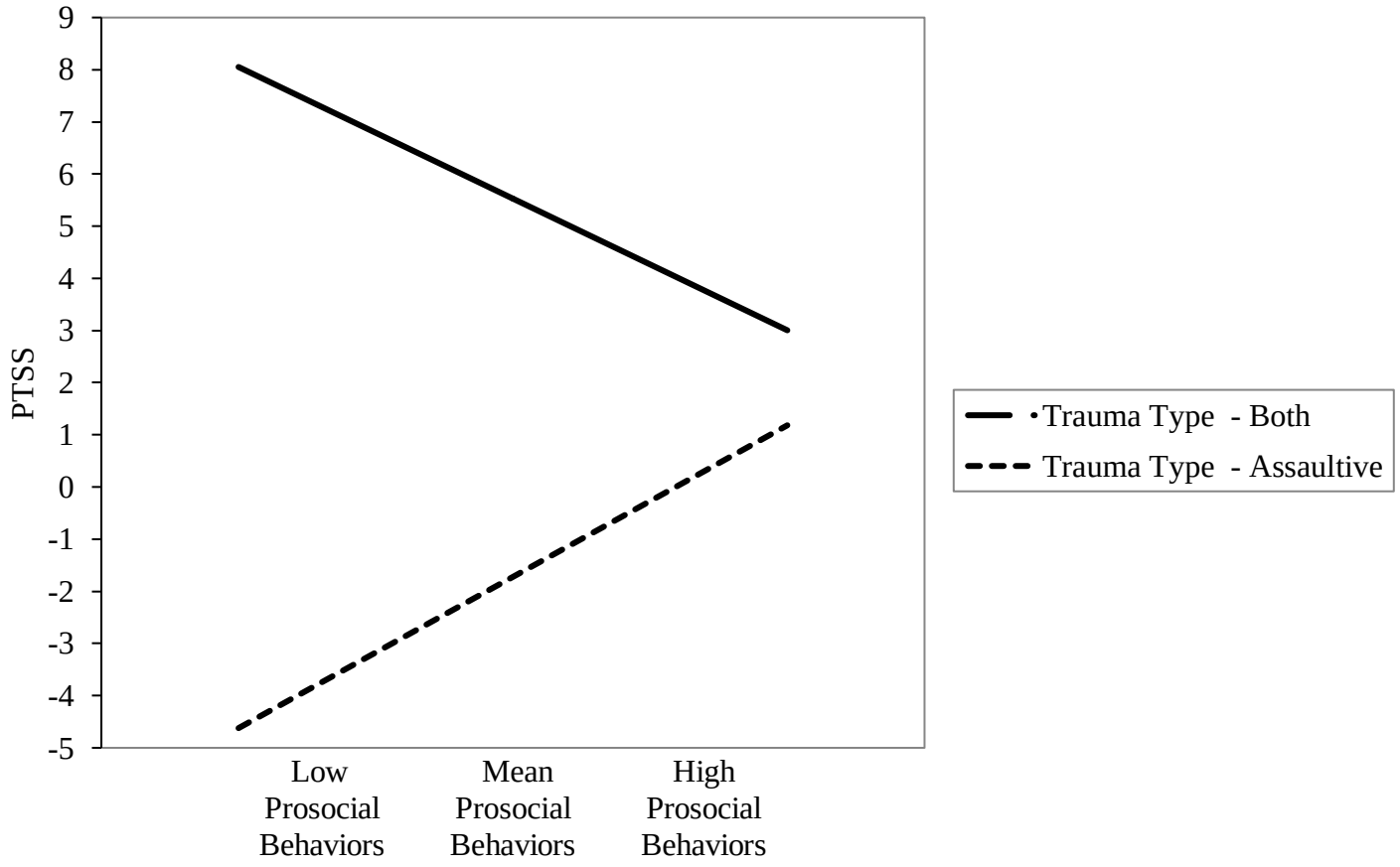

Figure 4 Prosocial behavior engagement moderates the relation between trauma type and post-traumatic stress symptoms.
Note. ***N*** **= 271.**

Most Bothersome Trauma. After controlling for gender and age, there was no significant main effect of most bothersome trauma type (i.e., non-assaultive compared to assaultive) on PTSS when included in multivariate models (see Tables 14 and 15, Models 6 and 8, respectively). Peer problems were significantly positively related to PTSS (see Table 14, Model 6), but prosocial behaviors were not significantly related to PTSS (see Table 15, Model 8). Additionally, there were no significant interaction effects between trauma type and peer problems or prosocial behaviors when predicting PTSS (see Tables 14-15, Models 6 and 8, respectively).

Discussion

The present study examined the association between different types of trauma exposure and PTSS in a sample of youth and their caregiver presenting to a CAC for care, as well as whether social factors, including peer problems and prosocial behavior, moderate this association. Building upon prior research conducted with adult samples that only compares assaultive and non-assaultive trauma groups, we compared youth who experienced lifetime non-assaultive trauma only (e.g., natural disaster), assaultive trauma only (e.g., sexual assault), or both non-assaultive and assaultive trauma (e.g., neglect and sexual abuse) to account for the poly-victimization that is common in trauma-exposed youth samples (Children's Bureau, 2020). We also explored these associations in reference to the "current most bothersome" trauma, though this single trauma was only categorized as non-assaultive or assaultive. Examining *both* lifetime trauma exposure and current most bothersome trauma adds to prior literature that has examined one or the other (Breslau et al., 1999; Breslau et al., 2008; Breslau & Peterson, 2010; Cougle et al.,

2009; Sartor et al., 2012). This is also the first study, to our knowledge, to examine peer problems and prosocial behavior as potential social moderators of the link between trauma exposure and PTSS. This examination is particularly important given trauma-exposed youth experience more social difficulties than their non-trauma exposed peers (Levendosky et al., 2002). Finally, as parents and youth commonly differ in their report of youth mental health symptoms (Oransky et al., 2013; Stallard et al., 2001; Ceballo et al., 2001; Howard et al., 1999; Stover et al., 2010; Thompson et al., 2002), we explored concordance rates of trauma related information in a matched-pairs sample of parents and their children, as well as examined study questions separately based on parent report and youth report, respectively. Generally, results suggest that, per youth report but not parent report, peer problems and prosocial behavior moderated the association between trauma type and PTSS.

Preliminary Results

In the matched pairs sample of youth and parents, we found poor agreement between parent and youth report of average number and severity of PTSS (i.e., non-clinical, moderate, or probable), as well as the type of trauma youth experienced during their lifetime. Specifically, parents reported less severe PTSS, as well as less trauma (i.e., the experience of *both* assaultive and non-assaultive trauma), relative to their children. Notably, when examined in relation to the "most bothersome trauma," parent-child agreement on the presence of assaultive and non-assaultive trauma was moderate, which suggests that parents have relatively greater awareness of the trauma that brings their child into

treatment. Collectively, these results support prior literature (Ceballo et al., 2001; Howard et al., 1999; Stover et al., 2010; Thompson et al., 2002), which suggests that parents under-report youth PTSS relative to their children's report. There were no significant differences between parent and youth report of peer problems or prosocial behavior, which is discrepant from prior research which has shown that parents are less aware of their children's difficulties within the peer domain as children move into adolescence (Brown & Larson, 2009).

When exploring variability in PTSS severity across trauma groups (i.e., non-assaultive only, assaultive only, both types), per parent report, youth who experienced *both* assaultive and non-assaultive trauma had significantly more severe PTSS than those who experienced only assaultive trauma. Per youth report, youth who experienced *both* assaultive and non-assaultive trauma had significantly more severe PTSS than those who experienced only assaultive trauma and more severe PTSS than those who experienced only non-assaultive trauma. There were no other differences across groups for parent or youth report. These results point to discrepancies between parent and youth report of trauma and PTSS. In addition, they support some prior research which suggests that those who experience both types of trauma report more severe PTSS relative to one trauma type, but these studies have been conducted with adults and this pattern has not consistently been found (Breslau et al., 2008; Breslau & Peterson, 2010; Sartor et al., 2012). These results also offer support for examining assaultive only, non-assaultive only, and both assaultive and non-assaultive trauma type groups as discrete groups in

youth trauma research as opposed to comparing two of these groups without controlling for multiple types of trauma youth may have experienced during their lifetime

Multivariate Models

Contrary to study hypotheses, per parent report, there were no significant main effects for any of the comparisons between trauma types on PTSS severity. Further, neither peer problems nor prosocial behavior moderated this hypothesized association. These results hold for both lifetime and most bothersome trauma. As parents under-reported trauma and PTSS relative to their children in the present sample, consistent with findings from the broader literature (Oransky et al., 2013; Stover et al., 2010), it is possible that there is not enough variance in PTSS across trauma groups to yield significant results in multivariate models.

In child-report models, there were significant main effects of trauma type comparisons on PTSS when prosocial behavior, but not peer problems, was included in multivariate models. Specifically, youth who experienced *both* assaultive and non-assaultive trauma, relative to those who only reported assaultive trauma, reported greater severity of PTSS. Further, peer problems moderated the association between two trauma type comparisons, *non-assaultive only to assaultive only* and *non-assaultive only to both assaultive and non-assaultive*, and PTSS severity. Specifically, at higher levels of peer problems, youth with more severe trauma histories (i.e., both assaultive and non-assaultive

and assaultive only relative to non-assaultive only) were associated with more severe PTSS. Notably, this interaction was also found with regard to the *both* assaultive and non-assaultive group relative to the non-assaultive group comparison at average levels of peer problems. These results offer partial support for study hypotheses and are in line with prior adult-focused research, which found that social risk factors, such as peer problems, enhance risk for PTSS severity (Zoellner et al., 1999). They are also consistent with the Social Ecology Framework of PTSD (Charuvastra & Cloitre, 2008), which suggests that "broken or distressed social bonds" may enhance risk for PTSS after trauma. Moreover, our results suggest that this exacerbating effect of peer problems is particularly strong for youth with more severe trauma histories (i.e., experienced *both* assaultive and non-assaultive trauma). Thus, the absence of strong social networks, or even disruptions in the social network, regardless of from where it originates (e.g., change in living situation, being blamed by others for their trauma, poor peer reaction to youth report of trauma, etc.) (Charuvastra & Cloitre, 2008), can be detrimental to youth with more severe trauma histories and deserves greater attention in the youth trauma literature.

Similar to peer support, study hypotheses were partially supported when prosocial behavior was examined as a moderator of various types of trauma and severity of PTSS. Specifically, youth who experienced *both* assaultive and non-assaultive trauma, relative to those who reported only assaultive trauma, reported greater severity of PTSS. Further, degree of prosocial behavior moderated the association between various type comparisons and PTSS severity. Specifically, at low and average levels of prosocial

behavior, youth with *both* assaultive and non-assaultive trauma, relative to assaultive only, experienced more severe PTSS. Notably, no relation was found at higher levels of prosocial behavior, suggesting a potential buffering effect as hypothesized. Further, no significant interaction effects were found for other trauma type comparisons. Though not studied in relation to trauma, results are consistent with prior research that found a buffering effect of various prosocial behaviors (e.g., volunteering, community and school involvement, etc.) on general mental health symptoms (Kim et al., 2016; Monahan et al., 2014). They are also consistent with the Social Ecological Framework of PTSD (Charuvastra & Cloitre, 2008) which suggests that community involvement, one form of prosocial behavior, may facilitate healing via enhancement of social connections and meaning-making following trauma (see Steger & Park, 2012, for a review). Prosocial behavior may also encourage active and adaptive coping with trauma, such as seeking social support in the face of stress. Thus, attention to protective social factors among youth who have experienced trauma, particularly those with more severe trauma histories, may help protect against as well as support recovery from PTSS. Additional research is needed in this area to replicate and expand upon these associations.

Overall, results suggest that it is important to include child report of trauma exposures and PTSS symptoms in trauma research in addition to parent report. As is evident in the present study, parents tend to under-report, or may not have knowledge of, youth trauma symptoms and experiences. Second, it is

important to include poly-victimization in youth trauma research either as a group deserving of its own consideration, or as an important covariate, as poly-victimization may significantly influence or confound study results. Third, focusing on the trauma that brings a youth into treatment, or is selected as the most bothersome trauma they have experienced, can yield different results than examining lifetime trauma history. Thus, both lifetime and most bothersome trauma should be considered when designing future studies and when interpreting results of existing studies in the youth trauma literature. Finally, study results offer support for extending the study of social risk and protective factors beyond social support in future research examining the impact of trauma on youth PTSS.

Limitations and Future Research Directions

Although this study builds upon existing literature in novel ways and holds important clinical implications, there are some limitations that deserve discussion. First, our results reflect information gathered at intake at CACs and are cross-sectional in nature. However, as youth trauma occurred before they presented for treatment and youth and parents were asked to report youth PTSS over the prior two weeks, temporal sequence of trauma and symptoms can be established. Nonetheless, future studies should aim to replicate our results in a longitudinal dataset, as well examine whether social factors *mediate* the association between trauma and PTSS. Second, we only focused on two types of social risk and protective factors in our study. Given the complexity of youth social networks, particularly during this developmental period, it is important to examine other highly salient social factors (e.g., romantic partner support, quality of best friend

relationships, involvement in different types of community involvement, peer selection and socialization factors that enhance maladaptive coping) in future research. Third, this study only included self- and parent-report of trauma. Thus, trauma exposures were not validated by any outside informant of child protective agency. Future research could examine trauma types based on chart review as well as parent- and youth-report. Finally, as our treatment seeking sample was recruited from rural and metropolitan areas in the mid-south and is primarily White and non-Hispanic, generalizability of results to more diverse populations and non-treatment seeking samples is limited. In addition, socioeconomic data were not collected at participating CACs for the present study. Though we do include median household income for the recruitment counties where the CACs are located, these data are only an approximation of the socioeconomic status of the sample. Future research should include more racially and ethnically diverse youth and families, examine study questions in non-treatment seeking samples, and assess socioeconomic and health insurance status to enhance generalizability of findings.

Clinical Implications

Generally, our results highlight the importance of assessing both parent and youth report of trauma exposures, related PTSS, and other relevant mental health symptoms when youth present for trauma treatment and throughout the course of care. Multi-informant assessment of mental health symptoms is considered best practice (Miller et al., 2013) and study results suggest that incorporating only parent report in assessment of youth trauma may miss critical information needed for comprehensive case conceptualization and treatment planning. Study results also emphasize the importance of

assessing for and attending to lifetime exposure to trauma, not only the trauma that prompted treatment, in treatment planning. Moreover, youth who are poly-victims of more than one *type* of trauma (i.e., both assaultive and non-assaultive) are likely to have more severe PTSS than their peers whose trauma exposure was limited to non-assaultive or assaultive only. Clinically, these youths may need stabilization work typically done toward the end of treatment (e.g., enhancing safety, building social skills) at the start of care when using evidence-based trauma treatments, such as Trauma-Focused Cognitive Behavioral Therapy (TF-CBT; Cohen et al., 2017). Additionally, assessment of and clinical attention to problems within youths' peer networks and degree of prosocial behavior engagement as part of clinical care may improve treatment outcomes. This type of attention may include incorporation of social skills training and efforts to increase prosocial peer relationships and behavior in the context of current care and future peer networks after successful completion of trauma-focused treatment.

REFERENCES

Abidin, R. R. (2012). *Parenting stress index (4th ed.): Professional Manual.* Psychological Assessment Resources.

Administration for Children and Families. (2020, January 15). *Child abuse, neglect data released* [Press release]. U.S. Department of Health and Human Services. https://www.acf.hhs.gov/media/press/2020/child-abuse-neglect-data-released

Anastopoulos, A., Guevremont, D., Shelton, T., & DuPaul, G. (1992). Parenting stress among families of children with attention deficit hyperactivity disorder. *Journal of Abnormal Child Psychology*, *20*(5), 503–520. https://doi.org/10.1007/BF00916812

Bagner, D. M., & Eyberg, S. M. (2007). Parent-Child Interaction Therapy for disruptive behavior in children with mental retardation: A randomized controlled trial. *Journal of Clinical Child & Adolescent Psychology*, *36*(3), 418–429. https://doi.org/10.1080/15374410701448448

Bal, S., De Bourdeaudhuij, I., Crombez, G., & Van Oost, P. (2005). Predictors of trauma symptomatology in sexually abused adolescents: A 6-month follow-up study. *Journal of Interpersonal Violence, 20*(11), 1390–1405. https://doi.org/10.1177/0886260505278720

Barber, B. K. (Ed.). (2002). *Intrusive parenting: How psychological control affects children and adolescents.* American Psychological Association. https://doi.org/10.1037/10422-000

Batzer, S., Berg, T., Godinet, M. T., & Stotzer, R. L. (2018). Efficacy or chaos? Parent–Child Interaction Therapy in maltreating populations: A review of research. *Trauma, Violence, & Abuse*, *19*(1), 3–19. https://doi.org/10.1177/1524838015620819

Baumrind, D. (1966). Effects of authoritative parental control on child behavior. *Child Development*, *37*(4), 887–907. https://doi.org/10.2307/1126611

Belsky, J., Woodworth, S., & Crnic, K. (1996). Trouble in the second year: Three questions about family interaction. *Child Development*, *67*(2), 556–578. https://doi.org/10.1111/j.1467-8624.1996.tb01751.x

Berlin, L. J., Ispa, J. M., Fine, M. A., Malone, P. S., Brooks-Gunn, J., Brady-Smith, C., Ayoub, C., & Bai, Y. (2009). Correlates and consequences of spanking and verbal punishment for low-income White, African American, and Mexican American toddlers. *Child Development*, *80*(5), 1403–1420. https://doi.org/10.1111/j.1467-8624.2009.01341.x

Bessmer, J. L. (1996). The Dyadic Parent-Child Interaction Coding System II (DPICS II): Reliability and validity. (Publication No. 9800066). [Doctoral dissertation, University of Florida]. ProQuest Dissertations Publishing.

Bigfoot, D. S., & Funderburk, B. W. (2011). Honoring children, making relatives: The cultural translation of Parent-Child Interaction Therapy for American Indian and Alaska Native Families. *Journal of Psychoactive Drugs*, *43*(4), 309–318. https://doi.org/10.1080/02791072.2011.628924

Bögels, S. M., & van Melick, M. (2004). The relationship between child-report, parent self-report, and partner report of perceived parental rearing behaviors and anxiety in children

and parents. *Personality and Individual Differences*, *37*(8), 1583–1596. https://doi.org/10.1016/j.paid.2004.02.014

Boggs, S. R., Eyberg, S., & Reynolds, L. A. (1990). Concurrent validity of the Eyberg Child Behavior Inventory. *Journal of Clinical Child Psychology*, *19*(1), 75–78. https://doi.org/10.1207/s15374424jccp1901_9

Borrego, J., Timmer, S. G., Urquiza, A. J., & Follette, W. C. (2004). Physically abusive mothers' responses following episodes of child noncompliance and compliance. *Journal of Consulting and Clinical Psychology*, *72*(5), 897–903. https://doi.org/10.1037/0022-006X.72.5.897

Brandt, T. W., Lind, T., Schreier, A., Sievers, C. M., & Kramer, T. L. (2018). Identifying youth at risk for commercial sexual exploitation within child advocacy centers: A statewide pilot study. *Journal of Interpersonal Violence*, 886260518766560. https://doi.org/10.1177/0886260518766560

Breslau, N., Chilcoat, H. D., Kessler, R. C., & Davis, G. C. (1999). Previous exposure to trauma and PTSD effects of subsequent trauma: Results from the Detroit area survey of trauma. *American Journal of Psychiatry*, *156*(6), 902. https://doi.org/10.1176/ajp.156.6.902

Breslau, N., & Peterson, E. L. (2010). Assaultive violence and the risk of posttraumatic stress disorder following a subsequent trauma. *Behaviour Research and Therapy*, *48*(10), 1063–1066. https://doi.org/10.1016/j.brat.2010.07.001

Breslau, N., Peterson, E. L., & Schultz, L. R. (2008). A second look at prior trauma and the posttraumatic stress disorder effects of subsequent trauma: A prospective epidemiological

study. *Archives of General Psychiatry*, *65*(4), 431. https://doi.org/10.1001/archpsyc.65.4.431

Briere, J. (1996). *Trauma Symptom Checklist for Children (TSCC): Professional Manual.* Psychological Assessment Resources.

Briere, J (2005). *Trauma Symptom Checklist for Young Children (TSCYC): Professional Manual.* Psychological Assessment Resources.

Brown, B.B., & Larson, J. (2009). Peer relationships in adolescence. In R.M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (Vol. 2, pp. 74-103). Wiley & Sons. http://doi.org/10.1002/9780470479193.adlpsy002004

Campbell, S. (1994). Hard-to-manage preschool boys: Externalizing behavior, social competence, and family context at two-year follow-up. *Journal of Abnormal Child Psychology*, *22*(2), 147–166. https://doi.org/10.1007/BF02167897

Capage, L. C., Bennett, G. M., & Mcneil, C. B. (2001). A comparison between African American and Caucasian children referred for treatment of disruptive behavior disorders. *Child & Family Behavior Therapy*, *23*(1), 1–14. https://doi.org/10.1300/J019v23n01_01

Ceballo, R., Dahl, T.A., Aretakis, M.T. & Ramirez, C. (2001). Inner-city children's exposure to community violence: How much do parents know? *Journal of Marriage and Family*, *63*, 927-940. http://doi.org/:10.1111/j.1741-3737.2001.00927.x

Cicchetti, D., & Toth, S. L. (2000). Developmental processes in maltreated children. In D. J. Hansen (Ed.), *Nebraska Symposium on Motivation. Current theory and research in motivation: Motivation and child maltreatment* (Vol. 46, pp. 85–160). University of Nebraska Press.

Charuvastra, A., & Cloitre, M. (2008). Social bonds and posttraumatic stress disorder. *Annual Review of Psychology,* 59(1), 301–328. https://doi.org/10.1146/annurev.psych.58.110405.085650

Child Welfare Information Gateway. (2013). *Parent-child interaction therapy with at-risk families*. U.S. Department of Health and Human Services, Children's Bureau. https://www.childwelfare.gov/pubPDFs/f_interactbulletin.pdf

Child Welfare Information Gateway. (2020). Reasonable efforts to preserve or reunify families and achieve permanency for children. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Children's Bureau. https://www.childwelfare.gov/pubPDFs/reunify.pdf

Children's Bureau. (2020). *Child maltreatment 2018*. U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families. https://www.acf.hhs.gov/cb/research-data-technology/statistics-research/child-maltreatment

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*(1), 37–46. doi:10.1177/001316446002000104

Cohen J. (1988). *Statistical power analysis for the behavioral sciences*. Routledge Academic.

Cohen, J. A., Mannarino, A. P., & Deblinger, E. (2017). *Treating trauma and traumatic grief in children and adolescents* (2nd ed.). Guilford Press.

Cooley, M. E., Veldorale-Griffin, A., Petren, R. E., & Mullis, A. K. (2014). Parent-Child Interaction Therapy: A meta-analysis of child behavior outcomes and parent stress.

Journal of Family Social Work, *17*(3), 191–208. https://doi.org/10.1080/10522158.2014.888696

Costa, N., Weems, C., Pellerin, K., & Dalton, R. (2006). Parenting stress and childhood psychopathology: An examination of specificity to internalizing and externalizing symptoms. *Journal of Psychopathology and Behavioral Assessment*, *28*(2), 113–122. https://doi.org/10.1007/s10862-006-7489-3

Cougle, J. R., Resnick, H., & Kilpatrick, D. G. (2009). Does prior exposure to interpersonal violence increase risk of PTSD following subsequent exposure? *Behaviour Research and Therapy*, *47*(12), 1012–1017. https://doi.org/10.1016/j.brat.2009.07.014

Crnic, K. A., Gaze, C., & Hoffman, C. (2005). Cumulative parenting stress across the preschool period: Relations to maternal parenting and child behavior at age 5. *Infant and Child Development*, *14*(2), 117–132. https://doi.org/10.1002/icd.384

Crnic, K., & Ross, E. (2017). Parenting stress and parental efficacy. In K. Deater-Deckard & R. Panneton (Eds.), *Parental stress and early child development: Adaptive and maladaptive outcomes* (pp. 263–284). Springer International Publishing. https://doi.org/10.1007/978-3-319-55376-4_11

Dale, M. K. (2014). *Addressing the underlying issue of poverty in child-neglect cases.* American Bar Association. https://www.americanbar.org/groups/litigation/committees/childrens-rights/articles/2014/addressing-underlying-issue-poverty-child-neglect-cases/

Davis, R. C., Brickman, E., & Baker, T. (1991). Supportive and unsupportive responses of others to rape victims: Effects on concurrent victim adjustment. *American Journal of Community Psychology, 19*(3), 443-451. https://doi-org./10.1007/BF00938035

Deater-Deckard, K. (1998). Parenting stress and child adjustment: Some old hypotheses and new questions. *Clinical Psychology: Science and Practice*, *5*(3), 314–332. https://doi.org/10.1111/j.1468-2850.1998.tb00152.x

Deater-Deckard, K., & Scarr, S. (1996). Parenting stress among dual-earner mothers and fathers: Are there gender differences? *Journal of Family Psychology*, *10*(1), 45–59. https://doi.org/10.1037/0893-3200.10.1.45

Donenberg, G., & Baker, B. (1993). The impact of young children with externalizing behaviors on their families. *Journal of Abnormal Child Psychology*, *21*(2), 179–198. https://doi.org/10.1007/BF00911315

Drake, B., & Pandey, S. (1996). Understanding the relationship between neighborhood poverty and specific types of child maltreatment. *Child Abuse & Neglect, 20*(11), 1003–1018. https://doi.org/10.1016/0145-2134(96)00091-9

Dyches, T. T., Smith, T. B., Korth, B. B., Roper, S. O., & Mandleco, B. (2012). Positive parenting of children with developmental disabilities: A meta-analysis. *Research in Developmental Disabilities*, *33*(6), 2213–2220. https://doi.org/10.1016/j.ridd.2012.06.015

Eckenrode, J., Smith, E. G., McCarthy, M. E., & Dineen, M. (2014). Income inequality and child maltreatment in the United States. *Pediatrics,133*(3), 454-461; https://doi.org/10.1542/peds.2013-1707

Eisenstadt, T. H., Eyberg, S., Mcneil, C. B., Newcomb, K., & Funderburk, B. (1993). Parent-Child Interaction Therapy with behavior problem children: Relative effectiveness of two stages and overall treatment outcome. *Journal of Clinical Child Psychology*, *22*(1), 42–51. https://doi.org/10.1207/s15374424jccp2201_4

Eyberg, S. M., Chase, R. M., Fernandez, M. A., & Nelson, M. M. (2014). *Dyadic Parent-Child Interaction Coding System (DPICS): Clinical Manual (4th Ed.).* PCIT International Inc.

Eyberg, S. M., Funderburk, B. W., Hembree-Kigin, T. L., Mcneil, C. B., Querido, J. G., & Hood, K. K. (2001). Parent-Child Interaction Therapy with behavior problem children: one and two year maintenance of treatment effects in the family. *Child & Family Behavior Therapy*, *23*(4), 1–20. https://doi.org/10.1300/J019v23n04_01

Eyberg, S. M., Nelson, M. M., & Boggs, S. R. (2008). Evidence-based psychosocial treatments for children and adolescents with disruptive behavior. *Journal of Clinical Child & Adolescent Psychology*, *37*(1), 215–237. https://doi.org/10.1080/15374410701820117

Eyberg, S., & Pincus, D. (1999). Eyberg Child Behavior Inventory & Sutter-Eyberg Student Behavior Inventory-Revised: Professional Manual. Psychological Assessment Resources.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

Fernandez, M. A., Butler, A. M., & Eyberg, S. M. (2011). Treatment outcome for low socioeconomic status African American families in Parent-Child Interaction Therapy: A

pilot study. *Child & Family Behavior Therapy*, *33*(1), 32–48. https://doi.org/10.1080/07317107.2011.545011

Filipas, H. H., & Ullman, S. E. (2001). Social reactions to sexual assault victims from various support sources. *Violence and Victims, 16*(6), 673-92.

Foote, R. (1999). The Dyadic Parent-Child Interaction Coding System II (DPICS II): Reliability and validity with father-child dyads (Publication No. 9945969). [Doctoral dissertation, University of Florida]. ProQuest Dissertations Publishing.

Ghosh-Ippen, C., Ford, J., Racusin, R., Acker, M., Bosquet, K., Rogers, C., et al. (2002). *Trauma Events Screening Inventory-Parent Report Revised.* The Child Trauma Research Project of the Early Trauma Network and The National Center for PTSD Dartmouth Child Trauma Research Group.

Gill, J., Page, G., Sharps, P., & Campbell, J. (2008). Experiences of traumatic events and associations with PTSD and depression development in urban health care-seeking women. *Journal of Urban Health*, *85*(5), 693–706. https://doi.org/10.1007/s11524-008-9290-y

Goodman, R, Meltzer, H., & Bailey, V. (1998). The strengths and difficulties questionnaire: A pilot study on the validity of the self-report version. *Adolescent Psychiatry*, *7*(3), 125-130. https://doi-org/10.1007/s007870050057

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, *38*(5), 581–586. https://doi.org/10.1111/j.1469-7610.1997.tb01545.x

Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire. *Journal of the American Academy of Child & Adolescent Psychiatry*, *40*(11), 1337–1345. https://doi.org/10.1097/00004583-200111000-00015

Haskett, M. E., Ahern, L. S., Ward, C. S., & Allaire, J. C. (2006). Factor structure and validity of the Parenting Stress Index-Short Form. *Journal of Clinical Child & Adolescent Psychology*, *35*(2), 302–312. https://doi.org/10.1207/s15374424jccp3502_14

Hayes, A.F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd Edition). Guilford Press.

Hayes, A. F., & Montoya, A. K. (2017). A tutorial on testing, visualizing, and probing an interaction involving a multicategorical variable in linear regression analysis. *Communication Methods and Measures, 11*(1), 1-30. doi: http://dx.doi.org/10.1080/19312458.2016.1271116

Heptinstall, E., Sethna, V., & Taylor, E. (2004). PTSD and depression in refugee children: Associations with pre-migration trauma and post-migration stress. *European Child & Adolescent Psychiatry*, *13*, 373–380.

Hickman, L. J., Jaycox, L. H., Setodji, C. M., Kofner, A., Schultz, D., Barnes-Proby, D., & Harris, R. (2013). How much does "how much" matter? assessing the relationship between children's lifetime exposure to violence and trauma symptoms, behavior problems, and parenting stress. *Journal of Interpersonal Violence*, *28*(6), 1338–1362. https://doi.org/10.1177/0886260512468239

Hillson, J. M. C., & Kuiper, N. A. (1994). A stress and coping model of child maltreatment. *Clinical Psychology Review*, *14*(4), 261–285. https://doi.org/10.1016/0272-7358(94)90025-6

Howard, D. E., Cross, S. I., Li, X., & Huang, W. (1999). Parent-youth concordance regarding violence exposure: Relationship to youth psychosocial functioning. *The Journal of Adolescent Health*, *25*(6), 396–406. https://doi.org/10.1016/s1054-139x(99)00102-0

Hu, X., Han, Z. R., Bai, L., & Gao, M. M. (2019). The mediating role of parenting stress in the relations between parental emotion regulation and parenting behaviors in chinese families of children with autism spectrum disorders: A dyadic analysis. *Journal of Autism and Developmental Disorders*, *49*(10), 3983-3998. https://doi.org/10.1007/s10803-019-04103-z

Hyman, S., Gold, S., & Cott, M. (2003). Forms of social support that moderate PTSD in childhood sexual abuse survivors. *Journal of Family Violence, 18*(5), 295–300. https://doi.org/10.1023/A:1025117311660

IBM Corp. (2010). IBM SPSS Statistics for Windows, Version 19.0. [Computer software]. Armonk, NY: IBM Corp.

Keane, T. M., & Barlow, D. H. (2002). Posttraumatic stress disorder. In: D. H. Barlow (Ed.), *Anxiety and its disorder: The nature and treatment of anxiety and panic* (pp. 418–452). Guilford Press.

Kennedy, S. C., Kim, J. S., Tripodi, S. J., Brown, S. M., & Gowdy, G. (2016). Does Parent–Child Interaction Therapy reduce future physical abuse? a meta-analysis. *Research on Social Work Practice*, *26*(2), 147–156. https://doi.org/10.1177/1049731514543024

Kilpatrick, D. G., Saunders, B. E., & Smith, D. W. (2003). *Youth victimization: Prevalence and implications.* U.S. Department of Justice, Office of Justice Programs, National Institute of Justice. https://www.ncjrs.gov/pdffiles1/nij/194972.pdf

Kim, B. K. E., Gilman, A. B., Hill, K. G., & Hawkins, J. D. (2016). Examining protective factors against violence among high-risk youth: Findings from the Seattle Social Development Project. *Journal of Criminal Justice*, *45*, 19–25. https://doi.org/10.1016/j.jcrimjus.2016.02.015

Kolko, D. J. (1992). Characteristics of child victims of physical violence: research findings and clinical implications. *Journal of Interpersonal Violence*, *7*(2), 244–276. https://doi.org/10.1177/088626092007002009

Koenen, K., Stellman, J., Stellman, S., & Sommer, J. (2003). Risk factors for course of posttraumatic stress disorder among Vietnam veterans: A 14-year follow-up of American Legionnaires. *Journal of Consulting and Clinical Psychology, 71*(6), 980–986. https://doi.org/10.1037/0022-006X.71.6.980

Križ, K., Slayter, E., Iannicelli, A., & Lourie, J. (2012). Fear management: How child protection workers engage with non-citizen immigrant families. *Children and Youth Services Review*, *34*(1), 316–323. https://doi.org/10.1016/j.childyouth.2011.11.001

Lansford, J. E., Deater-Deckard, K., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2004). Ethnic differences in the link between physical discipline and later adolescent externalizing behaviors. *Journal of Child Psychology and Psychiatry*, *45*(4), 801–812. https://doi.org/10.1111/j.1469-7610.2004.00273.x

Leung, C., Tsang, S., Heung, K., & Yiu, I. (2009). Effectiveness of Parent-Child Interaction Therapy (PCIT) among Chinese families. *Research on Social Work Practice, 19*(3), 304–313. https://doi.org/10.1177/1049731508321713

Levendosky, A. A., Huth-Bocks, A., & Semel, M. A. (2002). Adolescent peer relationships and mental health functioning in families with domestic violence. *Journal of Clinical Child & Adolescent Psychology*, *31*(2), 206–218. https://doi.org/10.1207/S15374424JCCP3102_06

Lieberman, A. F. (2004). Traumatic stress and quality of attachment: Reality and internalization in disorders of infant mental health. *Infant Mental Health Journal, 25*(4), 336–351. http://doi.org/10.1002/imhj.20009

Maliken, A. C., & Katz, L. F. (2013). Exploring the impact of parental psychopathology and emotion regulation on evidence-based parenting interventions: A transdiagnostic approach to improving treatment effectiveness. *Clinical child and family psychology review, 16*(2), 173–186. https://doi.org/10.1007/s10567-013-0132-4

Malinen, K., Rönkä, A., Sevón, E., & Schoebi, D. (2017). The difficulty of being a professional, a parent, and a spouse on the same day: Daily spillover of workplace interactions on parenting, and the role of spousal support. *Journal of Prevention & Intervention in the Community*, *45*(3), 156–167. https://doi.org/10.1080/10852352.2016.1198121

Mannuzza, S., Fyer, A. J., Martin, L. Y., Gallops, M. S., Endicott, J., Gorman, J., Liebowitz, M. R., & Klein, D. F. (1989). Reliability of anxiety assessment: I. Diagnostic agreement.

Archives of General Psychiatry, *46*(12), 1093–1101. https://doi.org/10.1001/archpsyc.1989.01810120035007

Mash, E. J., & Johnston, C. (1990). Determinants of parenting stress: Illustrations from families of hyperactive children and families of physically abused children. *Journal of Clinical Child Psychology*, *19*(4), 313–328. https://doi.org/10.1207/s15374424jccp1904_3

Matos, M., Torres, R., Santiago, R., Jurado, M., & Rodríguez, I. (2006). Adaptation of Parent-Child Interaction Therapy for Puerto Rican families: A preliminary study. *Family Process 45*(2), 205-222. https://www.doi.org/10.1111/j.1545-5300.2006.00091.x

McGuire, T. G., & Miranda, J. (2008). New evidence regarding racial and ethnic disparities in mental health: Policy implications. *Health affairs*, *27*(2), 393–403. https://doi.org/10.1377/hlthaff.27.2.393

McBride, B. A., & Mills, G. (1993). A comparison of mother and father involvement with their preschool age children. *Early Childhood Research Quarterly*, *8*(4), 457–477. https://doi.org/10.1016/S0885-2006(05)80080-8

McCabe, K., & Yeh, M. (2009). Parent-Child Interaction Therapy for Mexican Americans: A randomized clinical trial. *Journal of Clinical Child & Adolescent Psychology*, *38*(5), 753–759. https://doi.org/10.1080/15374410903103544

Miller, A. B., Esposito-Smythers, C., Weismoore, J. T., & Renshaw, K. D. (2013). The relation between child maltreatment and adolescent suicidal behavior: A systematic review and critical examination of the literature. *Clinical Child and Family Psychology Review, 16*(2), 146–72. https://doi.org/10.1007/s10567-013-0131-5.

Monahan, K. C., Oesterle, S., Rhew, I., & Hawkins, J. D. (2014). The relation between risk and protective factors for problem behaviors and depressive symptoms, antisocial behavior, and alcohol use in adolescence. *Journal of Community Psychology*, *42*(5), 621–638. https://doi.org/10.1002/jcop.21642

Morris, A. S., Silk, J. S., Steinberg, L., Sessa, F. M., Avenevoli, S., & Essex, M. J. (2002). Temperamental vulnerability and negative parenting as interacting predictors of child adjustment. *Journal of Marriage and Family*, *64*(2), 461–471. https://doi.org/10.1111/j.1741-3737.2002.00461.x

O'Connell, L. K., Davis, M. M., & Bauer, N. S. (2015). Assessing parenting behaviors to improve child outcomes. *Pediatrics*, *135*(2), e286-e288. https://doi.org/10.1542/peds.2014-2497

Olff, M., Langeland, W., Draijer, N., & Gersons, B. P. R. (2007). Gender differences in posttraumatic stress disorder. *Psychological Bulletin*, *133*(2), 183-204. http://doi.org/10.1037/0033-2909.133.2.183

Olsen, S. F., Yang, C., Hart, C. H., Robinson, C. C., Wu, P., Nelson, D. A., Nelson, L. J., Jin, S., & Wo, J. (2002). Maternal psychological control and preschool children's behavioral outcomes in China, Russia, and the United States. In B. K. Barber (Ed.), *Intrusive parenting: How psychological control affects children and adolescents* (pp. 235–262). American Psychological Association. https://doi.org/10.1037/10422-008

Oransky, M., Hahn, H., & Stover, C. S. (2013). Caregiver and youth agreement regarding youths' trauma histories: Implications for youths' functioning after exposure to trauma.

Journal of Youth and Adolescence, *42*(10), 1528–1542. http://doi.org/10.1007/s10964-013-9947-z

Peled, E., & Edleson, J. L. (1992). Multiple perspectives on group work with children of battered women. *Violence and Victimization, 7*(4), 327–346. https://doi.org/10.1891/0886-6708.7.4.327

Pina, A., Villalta, I., Ortiz, C., Gottschall, A., Costa, N., & Weems, C. (2008). Social support, discrimination, and coping as predictors of posttraumatic stress reactions in youth survivors of Hurricane Katrina. *Journal of Clinical Child & Adolescent Psychology, 37*(3), 564–574. https://doi.org/10.1080/15374410802148228

Preacher, K. J., Curran, P. J., & Bauer, D. J. (2004). *Simple intercepts, simple slopes, and regions of significance in MLR 2-way interactions.* http://www.quantpsy.org/interact/mlr2_instructions.pdf

Punamäki, R., Komproe, I., Qouta, S., El-Masri, M., & de Jong, J. (2005). The deterioration and mobilization effects of trauma on social support: Childhood maltreatment and adulthood military violence in a Palestinian community sample. *Child Abuse & Neglect, 29*(4), 351–373. https://doi.org/10.1016/j.chiabu

Pynoos, R. S., Steinberg, A. M., & Piacentini, J. C. (1999). A developmental psychopathology model of childhood traumatic stress and intersection with anxiety disorders. *Biological Psychiatry*, *46*(11), 1542–1554. https://doi.org/10.1016/S0006-3223(99)00262-0

Rodgers, A. Y. (1993). The assessment of variables related to the parenting behavior of mothers with young children. *Children and Youth Services Review*, *15*(5), 385–402. https://doi.org/10.1016/0190-7409(93)90011-W

Rodriguez-JenKins, J., & Marcenko, M. O. (2014). Parenting stress among child welfare involved families: Differences by child placement. *Children and youth services review*, *46*, 19–27. https://doi.org/10.1016/j.childyouth.2014.07.024

Sachser, C., Berliner, L., Holt, T., Jensen, T. K., Jungbluth, N., Risch, E., Rosner, R., & Goldbeck, L. (2017). International development and psychometric properties of the Child and Adolescent Trauma Screen (CATS). *Journal of Affective Disorders*, *210*, 189–195. https://doi.org/10.1016/j.jad.2016.12.040

Salloum, A., Stover, C., Swaidan, V., & Storch, E. (2015). Parent and child PTSD and parent depression in relation to parenting stress among trauma-exposed children. *Journal of Child and Family Studies*, *24*(5), 1203–1212. https://doi.org/10.1007/s10826-014-9928-1

Sartor, C. E., Mccutcheon, V. V., Callahan O'Leary, C., Van Buren, D. J., Allsworth, J. E., Jeffe, D. B., & Cottler, L. B. (2012). Lifetime trauma exposure and posttraumatic stress disorder in women sentenced to drug court. *Psychiatry Research*, *200*(2–3), 602–608. https://doi.org/10.1016/j.psychres.2012.05.033

Schuhmann, E. M., Foote, R. C., Eyberg, S. M., Boggs, S. R., & Algina, J. (1998). Efficacy of Parent-Child Interaction Therapy: Interim report of a randomized trial with short-term maintenance. *Journal of Clinical Child Psychology*, *27*(1), 34–45. https://doi.org/10.1207/s15374424jccp2701_4

Schumm, J., Briggs-Phillips, M., & Hobfoll, S. (2006). Cumulative interpersonal traumas and social support as risk and resiliency factors in predicting PTSD and depression among inner-city women. *Journal of Traumatic Stress, 19*(6), 825–836. https://doi.org/10.1002/jts.20159

Shah, R., Kennedy, S., Clark, M. D., Bauer, S. C., & Schwartz, A. (2016). Primary care-based interventions to promote positive parenting behaviors: A meta-analysis. *Pediatrics*, *137*(5), 1-14. https://doi.org/10.1542/peds.2015-3393

Sippel, L. M., Pietrzak, R. H., Charney, D. S., Mayes, L. C., & Southwick, S. M. (2015). How does social support enhance resilience in the trauma-exposed individual? *Ecology and Society*, *20*(4). https://doi.org/10.5751/ES-07832-200410

Slade, E. P., & Wissow, L. S. (2004). Spanking in early childhood and later behavior problems: A prospective study of infants and young toddlers. *Pediatrics, 113*(5), 1321–1330. https://doi.org/10.1542/peds.113.5.1321

Song, S.-H., Kim, B.-N., Choi, N.-H., Ryu, J., Mcdermott, B., Cobham, V., Park, S., Kim, J.-W., Hong, S.-B., Shin, M.-S., Yoo, H.-J., & Cho, S.-C. (2012). A 30-month prospective follow-up study of psychological symptoms, psychiatric diagnoses, and their effects on quality of life in children witnessing a single incident of death at school. *The Journal of Clinical Psychiatry*, *73*(5), e594-e600. https://doi.org/10.4088/JCP.11m07348

Stallard, P., & Smith, E. (2007). Appraisals and cognitive coping styles associated with chronic post-traumatic symptoms in child road traffic accident survivors. *Journal of Child Psychology and Psychiatry, 48,* 194–201.

Stallard, P., Velleman, R., & Baldwin, S. (2001). Recovery from posttraumatic stress disorder in children following road traffic accidents: The role of talking and feeling understood. *Journal of Community and Applied Social Psychology, 11*, 37–41. https://doi-org/10.1002/casp.610

Steger, M. F., & Park, C. L. (2012). *The creation of meaning following trauma: Meaning making and trajectories of distress and recovery.* In R. A. McMackin, E. Newman, J. M. Fogler, & T. M. Keane (Eds.), *Trauma therapy in context: The science and craft of evidence-based practice* (p. 171–191). American Psychological Association. https://doi-org/10.1037/13746-008

Stiles, M. (2002). Witnessing domestic violence: The effect on children. *American Family Physician, 66*(11), 2052, 2055-2056, 2058, 2064, 2066.

Stith, S. M., Liu, T., Davies, L. C., Boykin, E. L., Alder, M. C., Harris, J. M., Som, A., Mcpherson, M., & Dees, J. E. M. E. G. (2009). Risk factors in child maltreatment: A meta-analytic review of the literature. *Aggression and Violent Behavior*, *14*(1), 13–29. https://doi.org/10.1016/j.avb.2006.03.006

Stover, C. S., Hahn, H., Im, J. J., & Berkowitz, S. (2010). Agreement of parent and child reports of trauma exposure and symptoms in the peritraumatic period. *Psychological Trauma: Theory, Research, Practice and Policy*, *2*(3), 159–168a. https://doi.org/10.1037/a0019156

Strand, V. C., Sarmiento, T. L., & Pasquale, L. E. (2005). Assessment and screening tools for trauma in children and adolescents: A review. *Trauma, Violence, & Abuse*, *6*(1), 55–78. https://doi.org/10.1177/1524838004272559

Teti, D. M., Nakagawa, M., Das, R., & Wirth, O. (1991). Security of attachment between preschoolers and their mothers: Relations among social interaction, parenting stress, and mothers' sorts of the Attachment Q-Set. *Developmental Psychology*, *27*(3), 440–447. https://doi.org/10.1037/0012-1649.27.3.440

The National Child Traumatic Stress Network. (2009a). *Child physical abuse fact sheet* [Fact sheet]. https://www.nctsn.org/sites/default/files/resources//child_physical_abuse_fact_sheet.pdf

The National Child Traumatic Stress Network. (2009b). *Child sexual abuse fact sheet: For parents, teachers, and other caregivers* [Fact sheet]. https://www.nctsn.org/sites/default/files/resources//child_sexual_abuse_fact_sheet_parents_teachers_caregivers.pdf

The National Child Traumatic Stress Network. (2010). Early childhood trauma. Zero to Six Collaborative Group, National Center for Child Traumatic Stress. https://www.nctsn.org/sites/default/files/resources//early_childhood_trauma.pdf

The National Child Traumatic Stress Network (2015). *Child maltreatment in military families: A fact sheet for providers* [Fact sheet]. https://www.nctsn.org/sites/default/files/resources//child_maltreatment_military_families_providers.pdf

Thomson, C. C., Roberts, K., Curran, A., Ryan, L., & Wright, R. (2002). Caretaker-child concordance for child's exposure to violence in a preadolescent inner-city population. *Archives of Pediatrics & Adolescent Medicine, 156*(8), 818-823. http://doi.org/10.1001/archpedi.156.8.818.

Thompson, N. J., Fiorillo, D., Rothbaum, B. O., Ressler, K. J., & Michopoulos, V. (2018). Coping strategies as mediators in relation to resilience and posttraumatic stress disorder. *Journal of Affective Disorders*, *225*, 153–159. https://doi.org/10.1016/j.jad.2017.08.049

Timmer, S. G., Urquiza, A. J., Zebell, N. M., & Mcgrath, J. M. (2005). Parent-Child Interaction Therapy: Application to maltreating parent-child dyads. *Child Abuse & Neglect*, *29*(7), 825–842. https://doi.org/10.1016/j.chiabu.2005.01.003

Trickey, D., Siddaway, A. P., Meiser-Stedman, R., Serpell, L., & Field, A. P. (2012). A meta-analysis of risk factors for post-traumatic stress disorder in children and adolescents. *Clinical Psychology Review*, *32*(2), 122–138. https://doi.org/10.1016/j.cpr.2011.12.001

Udwin, O., Boyle, S., Yule, W., Bolton, D., & O'Ryan, D. (2000). Risk factors for long-term psychological effects of a disaster experienced in adolescence: Predictors of post-traumatic stress disorder. *Journal of Child Psychology and Psychiatry, 41*, 969–979.

Ullman, S., & Filipas, H. (2001). Predictors of PTSD symptom severity and social reactions in sexual assault victims. *Journal of Traumatic Stress, 14*(2), 369–389. https://doi.org/10.1023/A:1011125220522

Vernberg, E. M., LaGreca, A. M., Silverman, W. K., & Prinstein, M. J. (1996). Prediction of posttraumatic stress symptoms in children after Hurricane Andrew. *Journal of Abnormal Psychology, 105*(2), 237–248.

Weinstein, N., & Ryan, R. M. (2010). When helping helps: Autonomous motivation for prosocial behavior and its influence on well-being for the helper and recipient. *Journal of Personality and Social Psychology*, *98*(2), 222–244. https://doi.org/10.1037/a0016984

Whitcomb, S. A., & Merrell, K. W. (Eds.) (2012). *Behavioral, social, and emotional assessment of children and adolescents* (4th ed.). Routledge.

Williamson, V., Creswell, C., Fearon, P., Hiller, R. M., Walker, J., & Halligan, S. L. (2017). The role of parenting behaviors in childhood post-traumatic stress disorder: A meta-

analytic review. *Clinical Psychology Review, 53*, 1–13. https://doi.org/10.1016/j.cpr.2017.01.005

Wilson, L., & Scarpa, A. (2014). Childhood abuse, perceived social support, and posttraumatic stress symptoms: A moderation model. *Psychological Trauma: Theory, Research, Practice, and Policy, 6*(5), 512–518. https://doi.org/10.1037/a0032635

World Population Review. (2020, January). *Arkansas population 2020*. https://worldpopulationreview.com/states/arkansas-population

Yasinski, C., Hayes, A. M., Ready, C. B., Cummings, J. A., Berman, I. S., McCauley, T., Webb, C., & Deblinger, E. (2016). In-session caregiver behavior predicts symptom change in youth receiving trauma-focused cognitive behavioral therapy (TF-CBT). *Journal of Consulting and Clinical Psychology, 84*(12), 1066–1077. https://doi.org/10.1037/ccp0000147

Zahn-Waxler, C., Duggal, S., & Gruber, R. (2002). Parental psychopathology. In M. H. Bornstein (Ed.), *Handbook of parenting: Social conditions and applied parenting* (p. 295–327). Lawrence Erlbaum Associates Publishers.

Zoellner, L., Foa, E., & Brigidi, B. (1999). Interpersonal friction and PTSD in female victims of sexual and nonsexual assault. *Journal of Traumatic Stress, 12*(4), 689–700. https://doi.org/10.1023/A:1024777303848

BIOGRAPHY

Caitlin A. Williams graduated from Tuscola High School in Waynesville, North Carolina, in 2008. She graduated summa cum laude with highest honors with her Bachelor of Arts in Psychology and a double-minor in History and English from the University of North Carolina at Chapel Hill in Chapel Hill, North Carolina in 2012. She was also inducted into Phi Beta Kappa in the spring of 2012. She received her Master of Arts in Psychology, with a concentration in Clinical Psychology, from George Mason University in Fairfax, Virginia in May 2016. She completed her pre-doctoral internship in the Child Trauma Track at the University of Arkansas for Medical Sciences in Little Rock, Arkansas from July 2019-June 2020. She will begin a postdoctoral fellowship in Clinical Psychology on the Child/Family Track at Cherokee Health Systems in Knoxville, Tennessee in summer 2020.