

THE MATERNAL INFLUENCE: CHILD-CAREGIVER INTERACTIONS AS A  
MECHANISM FOR THE INTERGENERATIONAL TRANSMISSION OF TRAUMA

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By

Samantha J. Klaver

Director: Dr. Kia Åsberg  
Associate Professor of Psychology  
Department of Psychology

Committee Members: Dr. David Solomon, Psychology  
Dr. Cathy Grist, Human Services

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## ABSTRACT

### THE MATERNAL INFLUENCE: CHILD-CAREGIVER INTERACTIONS AS A MECHANISM FOR THE INTERGENERATIONAL TRANSMISSION OF TRAUMA

Samantha J. Klaver, M.A.

Western Carolina University (March 2019)

Director: Dr. Kia Åsberg

Child maltreatment (CM) is a substantial public health concern and its occurrence often brings a host of negative outcomes for the individuals involved and the larger community as a whole. Adults who experienced CM in their youth often endure a wide variety of persistent physical and psychological dysfunction (Afifi et al., 2016; Jaffee, 2017). In addition, growing evidence suggests the negative consequences of exposure to CM may not only persist over the exposed individual's life span, but also may be transmitted across generations (Schwerdtfeger & Goff, 2007), though the specific mechanisms underlying this intergenerational transmission of trauma are poorly understood. The current study sought to examine potential maternal caregiver-child interactions and characteristics (e.g., emotion regulation and attachment) which may present as pathways for the transmission of trauma utilizing path analysis. Though the model demonstrated unsatisfactory fit,  $\chi^2 = 188.26$  ( $df = 13$ ,  $P = .000$ ), RMSEA = 0.29, NFI = 0.46, NNFI = 0.93, CFI = 0.46, the current study found robust correlations between maternal caregiver's negative emotion regulation capabilities and insecure attachment and those of their children. The current study adds to the extant literature in providing additional support for programming aimed at improving the mother-child relationship, both within the context of CM and within families without such experiences.

## CHAPTER 1: INTRODUCTION

According to the U.S. Department of Health and Human Services (2017), the national estimate of children who experience maltreatment has increased dramatically in the past few years. In fact, in 2015, nearly 683,000 victims of child maltreatment (CM) were reported to child protective services nationwide, which was nearly a four percent increase from the estimated number of victims in 2011 (U.S. Department of Health & Human Services [US DHHS], 2017). The increasing prevalence rates are even more concerning when the occasionally fatal impact of CM is considered; indeed, an estimated 1,670 children died from some form of maltreatment in the United States in 2015 (US DHHS, 2017).

Aside from the threat of death, individuals who experience maltreatment are also at an increased risk for other serious adverse outcomes across multiple domains, which often span well into their adult lives. Adults who experienced CM in their youth often endure a wide variety of persistent physical and psychological dysfunction (Afifi et al., 2016; Jaffee, 2017). In addition, growing evidence suggests the negative consequences of exposure to CM may not only persist over the exposed individual's life span, but also may be transmitted across generations. Indeed, research has consistently shown that a maternal caregivers' history of trauma, including CM exposure, has a significant impact on their child's overall adjustment (Noll, Trickett, Harris, & Putnam, 2009). Although numerous perspectives aim to explain the association between maternal trauma and the subsequent maladaptive outcomes for her offspring, one of the most established and well-supported frameworks is the intergenerational transmission of trauma (Schwerdtfeger & Goff, 2007). This theory, which posits that maternal caregivers can "pass on" an increased risk for trauma and other adverse outcomes to her child, has been generally supported in previous literature (for review, see Thornberry, Knight, & Lovegrove, 2012).

However, the mechanisms by which these intergenerational transmission processes occur are still poorly understood.

To better inform early intervention strategies for adult survivors of CM and their children, a more nuanced understanding of specific factors of maternal caregiver's trauma histories and their subsequent caregiver-child interactions or parenting practices that may contribute to trauma transmission is needed. The current study aims to fill gaps in the literature by examining the association between maternal caregiver's childhood trauma experiences and outcomes for her child. More specifically, the current study aims to examine specific maternal factors (e.g., maternal emotion regulation and maternal attachment style) which may present as pathways for the intergenerational transmission of trauma.

## CHAPTER 2: LITERATURE REVIEW

### **Childhood Maltreatment: Definitions and Prevalence**

According to the U.S. Department of Health and Human Services (2017), the national estimate of children who experience maltreatment has increased dramatically in the past few years. In fact, in 2015, nearly 683,000 victims of child maltreatment (CM) were reported to child protective services nationwide, which was nearly a four percent increase from the estimated number of victims in 2011 (U.S. Department of Health & Human Services [US DHHS], 2017). The 2014 National Child Abuse and Neglect Data System (NCANDS) report states that approximately 3.2 million reports of suspected child maltreatment were investigated or identified (US DHHS, 2016). Of the cases reported, 702,208 (or 1 in 5) cases of suspected child maltreatment were confirmed or substantiated (US DHHS, 2016). However, due to underreporting by victims and professionals (Sedlak et al., 2010; Theodore & Runyan, 2006), this number is likely inaccurate. The true number of children affected by maltreatment may be closer to 25 percent, or 1 in 4 children (Finkelhor, Turner, Shattuck, & Hamby, 2015).

The difficulties in ascertaining prevalence rates may be a result, at least in part, by the lack of a universal definition for child maltreatment. Indeed, though CM has been studied extensively in recent decades, a single, uniform definition of child maltreatment has generally evaded researchers and clinicians alike. This can perhaps best be explained by the great variation in state, federal, and global ideologies about what constitutes maltreatment. Though previous efforts had been made to protect children from abuse in the United States (for example, the founding of the New York Society for the Prevention of Cruelty to Children by Henry Bergh in 1875, or the establishment of the U.S. Children's Bureau in 1912), the first federal intervention and legal definition did not come until the early 1970s with the introduction of the Child Abuse Prevention and Treatment Act (CAPTA; Scannapieco & Connell-Carrick, 2005, p. 8). According

to the Child Welfare Information Gateway (2017), this act, which has seen revisions as recently as 2010, defines child maltreatment as “any recent act or failure to act on the part of a parent or caretaker which results in death, serious physical or emotional harm, sexual abuse or exploitation, or an act or failure to act which presents an imminent risk of serious harm.”

Despite the federal guidelines introduced by CAPTA, large variations in the definition of maltreatment has continued to persist, as each U.S. state is responsible for specifically defining “abuse” and “neglect” via state statutes (Scannapieco & Connell-Carrick, 2005, p. 9). Outside state and federal legislation, many researchers within the literature have concluded that CM is most commonly defined as “all forms of physical and emotional ill-treatment, sexual abuse, neglect, and exploitation that results in actual or potential harm to the child’s health, development or dignity in the context of a relationship of responsibility, trust or power” (Krug, Mercy, Dahlberg, & Ziwi, 2002). The construct is commonly broken down further into two separate dimensions: abuse (e.g., acts of commission) and neglect (e.g., acts of omission; Greenfield, 2010). Indeed, within the dimension of abuse, various “subtypes” are considered, including physical abuse, sexual abuse, and emotional abuse.

### **Physical abuse**

Child physical abuse is most commonly defined as “any non-accidental physical injury to the child, and can include striking, kicking, burning, or biting the child, or any action that results in a physical impairment of the child” (Child Welfare Information Gateway, 2016a, p. 2). Of all maltreated children in the U.S., an estimated 17.2 percent experience some form of physical abuse (US DHHS, 2017).

### **Emotional abuse**

Child emotional abuse (also referred to in the literature as child psychological abuse), is often defined as “injury to the psychological capacity or emotional stability of the child as

evidenced by an observable or substantial change in behavior, emotional response, or cognition and injury as evidenced by anxiety, depression, withdrawal, or aggressive behavior” (US DHHS, 2017). Emotionally abusive behaviors may include a variety of behaviors, such as blaming, belittling, isolating, or otherwise behaving in a manner that is harmful, potentially harmful, or insensitive to the child’s developmental needs, or can potentially damage the child psychologically or emotionally (Barnett, Manly, & Cicchetti 1991). An estimated 6.2 percent of maltreated children in the U.S. experience psychological maltreatment (US DHHS, 2017).

### **Sexual abuse**

In the past, the definition of child sexual abuse only included contact abuse (e.g., kissing, touching, fondling, or penetration). This definition excluded all non-contact behaviors, such as exhibitionism, voyeurism, or pornography (Collin-Vézina, Daigneault, & Hébert, 2013). However, recent literature has grown to be more inclusive in its definition of CSA, being now widely accepted as “any completed or attempted sexual act, sexual contact with, or exploitation (e.g., non-contact sexual interaction) of a child by a caregiver” (Leeb et al., 2008). It is estimated that nearly 8.4 percent of maltreated children in the U.S. have experienced sexual abuse (US DHHS, 2017).

### **Neglect**

Child neglect has consistently been considered the most common form of child maltreatment, with an estimated 75.3 percent of maltreated children in the U.S. being victimized with neglect (US DHHS, 2017). Neglect is often defined as “the failure of a parent or other person with responsibility for the child 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 Gateway, 2017).

## **Poly-victimization**

It is important to note that many individuals often experience more than one form of CM, a phenomenon referred to as multi-type maltreatment (Higgins & McCabe, 2000) or poly-victimization (Finkelhor, Turner, Hamby, & Ormrod, 2011). In fact, in 2014, the National Survey of Children's Exposure to Violence (NatSCEV) found that 38.7 percent of individuals surveyed had experienced more than one type of direct CM victimization in their youth (Finkelhor et al., 2011). Moreover, child maltreatment rarely occurs alone; indeed, the experience of CM often co-occurs with other forms of victimization, such as bullying or assault by a peer (Finkelhor, Ormrod, & Turner, 2007). Research has shown that individuals with multiple types of abuse experience greater symptoms and more severe adverse outcomes (Arata, Langhinrichsen-Rohling, Bowers, & O'Farrill-Swails, 2005). Indeed, those who experience multi-type maltreatment and/or poly-victimization are more likely to experience high levels of trauma symptoms and worse outcomes as adults than those who are exposed to only one type of maltreatment or no maltreatment experiences at all (Finkelhor et al., 2007; Higgins & McCabe, 2001; Richmond, Elliott, Pierce, Aspelmeier, & Alexander, 2009).

## **Adverse Outcomes Following Child Maltreatment**

The negative repercussions of child maltreatment on an individual's psychological development and long-term mental health have been well-documented within the literature. Indeed, adults with a history of maltreatment are more likely to experience physical health problems, such as gastrointestinal and gynecological problems, obesity, arthritis, stroke, hepatitis, diabetes, and heart and thyroid disease than the general population (Felitti et al., 1998; Sachs-Ericsson, Cromer, Hernandez, & Kendall-Tackett, 2009; Springer et al., 2007). Sachs-Ericsson and colleagues (2009), in a review of recent literature, found that a majority of studies showed that adults with CM victimization histories had higher rates of physical health problems

than those without such experiences. Further to this, Wegman and Stetler (2009) utilized a meta-analysis approach to examine 24 studies and found that CM was related to an increased risk of neurological, musculoskeletal, respiratory, cardiovascular and gastrointestinal problems. Similarly, a large-scale longitudinal study conducted by Springer and colleagues (2007) found that child physical abuse predicted severe physical health difficulties and several medical diagnoses, including heart problems and high blood pressure. These physical health complications may be direct effects of CM victimization, or a result of early life stress on the immune system. Some researchers also suggest that these high rates of physical health ailments could be caused by a greater propensity for individuals victimized by CM to engage in high-risk behaviors, like smoking, alcohol abuse or risky sexual behavior (Sachs-Ericsson et al., 2009; Watts-English, Fortson, Gibler, Hooper, & De Bellis, 2006; Wegman & Stetler, 2009). Regardless of the cause of these outcomes, it is clear that CM victimization can severely impact physical health and longevity.

Moreover, persisting mental health problems are a common consequence of CM in adults. Mental health problems associated with CM victimization include personality disorders, dissociative disorders, depression, anxiety disorders and psychosis (Afifi, Boman, Fleisher, & Sareen, 2009; Cannon, Bonomi, Anderson, Rivara, & Thompson, 2010; Clark, Caldwell, Power, & Stansfeld, 2010; Maniglio, 2012; Norman et al., 2012; Springer et al., 2007). Indeed, a large, nationally representative study in the U.S. found that individuals who experiences CM (particularly, child physical abuse) were at a higher risk for the develop a wide range of psychiatric disorders (including attention-deficit hyperactivity disorder [ADHD], bipolar disorder, panic disorder, drug and alcohol abuse, nicotine dependence, generalized anxiety disorder [GAD], and major depressive disorder [MDD]) in adulthood, compared to those who did not report experiencing CM (Sugaya et al., 2012).

Although the number of potential adverse outcomes following CM are numerous, one of the most studied adverse outcomes stemming from child maltreatment is the increased risk of post-traumatic stress disorder (PTSD). The development of PTSD is a common outcome following the victimization of child maltreatment and is most often diagnosed immediately after disclosure (Sugaya et al., 2012). Studies have consistently shown associations between childhood physical and sexual abuse and neglect with the development of PTSD or trauma symptoms in adolescence and adulthood. Indeed, Koenen and colleagues (2009) found in their prospective study that 41.7% of female participants with substantiated cases of CM developed post-traumatic stress disorder following the abusive incident. Furthermore, in an American representative study based on the National Comorbidity Survey, adults who had experienced CM victimization were six times more likely to have PTSD compared to adults who had not experienced CM victimization (Afifi et al., 2009). Thus, trauma symptoms and trauma symptomology are a particularly important focus when discussing child maltreatment. Moreover, most intervention efforts following CM (e.g., Trauma-Focused Cognitive Behavioral therapy [TF-CBT; Cohen, Mannarino, & Deblinger, 2006] or Parent-Child Interaction therapy [PCIT; Hembree-Kigin & McNeil, 1995]) are aimed at decreasing the impact of post-traumatic stress disorder and trauma symptomology in individuals who experienced maltreatment, as the symptoms of the disorder can be highly distressing and interfere with many domains of functioning, including executive functioning, memory and sleep (Shalev, Liberzon, & Marmar, 2017).

### **The Intergenerational Transmission of Trauma**

It has long been demonstrated in the literature that mothers, or maternal caregivers, have a large capacity for influencing their child's physical health, psychological functioning, and overall wellbeing (Christian, Mullany, Katz, & Black, 2015; Lu, Walsh, Whire, & Shield, 2018; Van Ee, Kleber, & Jongmans, 2016). Indeed, research has suggested that a maternal caregivers'

history of childhood maltreatment or victimization is a “key risk factor” in the experience of maltreatment of her children (Belsky, 1993; Egeland, Bosquet, & Chung, 2002; Kotch, Muller, & Blakely, 1999), such that a maternal caregiver’s history of maltreatment greatly elevates her children’s risk of maltreatment (Dixon, Browne, & Hamilton-Giachritsis, 2005; Egeland et al., 2002; Pears & Capaldi, 2001). Further to this, research has consistently shown that a maternal caregivers’ history of trauma, including her maltreatment history, has a significant impact on their child’s overall adjustment (Noll, Trickett, Harris, & Putnam, 2009), suggesting a robust link between maternal trauma experiences and child functioning. For example, Lyons-Ruth and Block (1996) conducted a longitudinal study which examined infants of low-income mothers who had experienced some form of violent childhood victimization (i.e., abuse, neglect, or community violence) They found that levels of infant distress were significantly related to the severity of mothers’ childhood trauma experiences, such that the infant’s levels of distress increased as the mother’s CM victimization severity increased. In regard to general psychopathology and behavioral problems, several studies have found that children whose mothers experienced child sexual abuse exhibit greater internalizing and externalizing symptomatology than other children (Buist & Janson, 2001; Dubowitz et al., 2011). Moreover, increased rates of depression, anxiety, psychosomatic problems, aggression, guilt, and other such psychological dysfunction are common in children of trauma and CM survivors (Felsen, 1998), suggesting that some psychological difficulties can be transferred from caregiver to child

In particular, research has found a robust link between maternal caregiver’s CM experiences and the subsequent occurrence of trauma symptomology in her children. In fact, a recent epidemiological investigation in a large sample documented that maternal lifetime post-traumatic stress symptoms predicted their adult child’s risk of a PTSD diagnosis, even when the maternal trauma exposure had occurred prior to the child’s birth (Roberts et al., 2012). Although

numerous perspectives aim to explain the association between maternal trauma and the subsequent maladaptive outcomes for her offspring, one of the most established and well-supported frameworks is the intergenerational transmission of trauma. The intergenerational transmission of trauma theory was first introduced to explain how consequences of trauma (such as PTSD, somatic symptomology, and other internalizing and externalizing behavior problems) appeared to develop in Holocaust survivors' families (Dekel & Goldblatt, 2008). The theory was soon applied to a variety of types and severities of trauma, including natural disasters (Goodman, & West-Olatunji, 2008), wars (Davidson & Mellor, 2001) and interpersonal traumas (such as child maltreatment; Widom, Czaja, & DuMont, 2015).

In the context of parent-to-child trauma transmission, it should be noted that most research on intergenerational trauma explains the transference of trauma symptomology through the “cycle of violence”; meaning, the caregiver with a history of trauma or abuse subsequently engages in traumatizing or abusive behavior towards their child, causing their children to exhibit increased maladaptive outcomes (Karr-Morse & Wiley, 1997; Widom & Wilson, 2015). This “violence breeds violence” perspective (Curtis, 1963) has been constantly reinforced and conceptually expanded in research throughout the past few decades. Despite the popularity of this perspective, very few studies have successfully and methodologically assessed its validity (Thornberry, Knight, & Lovegrove, 2012). Additionally, this perspective often overstates the current data pertaining to the cycle of violence within populations who of caregivers who have experienced CM in their youth. Research has shown that only about one-third of individuals who were maltreated as children will go on to abuse or neglect their own children (Belsky, 1993; Kaufman & Zigler, 1987). In fact, the cycle of violence (i.e., the victim-to-victimizer cycle) has been demonstrated in only a minority of male survivors, and is virtually non-existent among females (Glasser et al., 2001). It is possible, then, that there are other mechanisms by which this

phenomenon of intergenerational trauma transference occurs. In the past decade, researchers studying this phenomena have suggested and examined a variety of theoretical models by which processes underlying the intergenerational transmission of trauma occur. Kellerman, in a 2001 review, discussed the four prominent models that are most prominent and supported in the literature, including the psychodynamic model, the sociocultural model, the family systems model, the biological model (Kellermann, 2001, p. 260).

### **Psychodynamic model of trauma transmission**

When the phenomena of the intergenerational transmission of trauma was first studied in in 1960s, the most prominent perspective in the field was that trauma was transmitted through interpersonal relations. This psychodynamic view suggests that children unconsciously absorbs their parents' repressed and insufficiently worked-through trauma experiences (Kellerman, 2001, p. 260), in a behavior referred to as "projective identification" (Rowland-Klein & Dunlop; 1998). Specifically, it is suggested within this model that the parents project their trauma-related emotions onto the child, causing the child to engage in introjection (i.e., the unconscious adoption of attitudes of others). Ultimately, proponents of this model argue, this projection and introjection culminates in increased trauma symptomology for the child. Despite its popularity early in the literature, the psychodynamic model of trauma transmission has seen little evidenced-based support (Jacobs, 2011).

### **Family systems model of trauma transmission**

Another perspective within the literature includes the family systems model. Within this model, the intergenerational transmission of trauma is based within the enmeshment and tacit communication between the caregiver and child. Proponents of this model argue that interdependency is often created between the family – that is, the family system is highly closed and isolated. Within such a system, the "parents live vicariously through their children, and the

children live vicariously in the horrific past of their parents”, causing problems in attachment, separation and trauma symptomology (Kellerman, 2001, p. 260). Like the psychodynamic model of trauma transmission, the family systems model has received little support in recent years (Jacobs, 2011; Kahane-Nissenbaum, 2011).

### **Biological model of trauma transmission**

Unlike the previous two aforementioned models, the biological model of trauma transmission is still relatively prominent in modern literature, with hundreds of studies published examining the model (Kellermann, 2011). This model posits that a genes, or a biochemical predisposition for trauma symptomology, causes the intergenerational transmission of trauma from caregiver to child, similar to how a hereditary disease may be passed on (Kellermann, 2013). However, despite the breadth of research demonstrating these effects (Lev-Wiesel, 2007; Yehuda et al., 2005; Yehuda, Halligan & Grossman, 2001) the majority of the research examining specific genes or epigenetic factors hypothesized to be associated with PTSD risk have been inconclusive (Kellermann, 2013; Segman & Shalev, 2003).

### **Sociocultural model of trauma transmission**

The final model discussed by Kellermann (2001) the sociocultural model of trauma transmission. Following numerous well-established child development theories (for examples, see Bowlby, 1969 or Morris, Silk, Steinberg, Myers, & Robinson, 2007), children learn and develop key skills that foster positive outcomes directly from their caregivers through modeling and socialization. As noted by Bandura in 1977, children learn through observing and imitating their caregivers. However, the maternal caregiver’s own history of abuse may cause difficulty in her functioning effectively as a parent in this regard (Lewin & Bergin, 2001; Zuravin & Fontanella, 1999). Fraiberg, Adelson, and Shapiro’s (1975) seminal work, *Ghosts in the Nursery*, described how past traumatic experiences (such as child maltreatment) may compromise a

caregiver's ability to offer adequate physical and emotional caregiving. Indeed, as previously noted, CM is a risk factor for subsequent emotion regulatory deficits, attachment difficulties, and a variety of interpersonal problems such as distrust and suspiciousness, avoidance of intimate relationships, social information processing biases, and impaired perspective taking (Cole & Putnam, 1992; Cook et al., 2005; Hildyard and Wolfe, 2002), all of which are thought to undermine a caregiver's role of fostering a functional caregiver-child relationship and bolstering children's healthy psychological development (DeOliveira, Bailey, Moran, & Pederson, 2004; Koren-Karie, Oppenheim, & Getzler-Yosef, 2004, Lyons-Ruth, Yellin, Melnick, & Atwood, 2005). For example, a maternal caregiver who has been traumatized may become unresponsive or engage in frightening behaviors in the face of trauma reminders, limiting her ability to adequately care for her child (Fearon & Mansell, 2001; Turton et al., 2004). Indeed, some in the literature have suggested that typical infant behaviors, such as acute distress and helplessness in response to daily frustrations, may serve as traumatic reminders for mothers with trauma histories, perpetuating this cycle (Liotti, 2004; Stovall-McClough & Cloitre, 2006)

Drawing from a long history of research on the social ecological and social learning models of resilience regularly focus on the impact of parenting practices and caregiver-child interactions in the overall wellbeing of a child. Indeed, researchers within the field often view parental functioning as a variable affected by individual factors (such as CM) which in turn affects their child's health and adjustment (e.g., Ehrensaft, Knous-Westfall, & Cohen, 2016; Grasso et al., 2016; Morelen, Menke, Rosenblum, Beeghly, & Muzik, 2016). While robust associations between maternal caregiver's history of CM, their subsequent parenting practices, and their child's subsequent functioning, the exact pathways in which this occurs are still unclear. Researchers have recently begun to pinpoint variables such as maternal emotion regulation and attachment as potential pathways for trauma symptomology transmission.

## **Emotion regulation**

Emotion regulation (ER), often conceptualized as “the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one’s goals” (Thompson, 1994, p. 27-28), has been extensively studied in the extant literature as a potential maternal variable impacting her child’s subsequent wellbeing. ER is composed of both internal (e.g., physiological reactivity, cognitive efforts) and external (e.g., emotional expressivity, facial reactions, emotion-driven behavior) processes working together to manage emotional intensity, duration, and displays. Within the literature, emotion regulation can either be described as “adaptive” or dysregulated. Adaptive emotion regulation suggest that one has a sense of control over their emotions and that the emotional management efforts are adaptive and appropriate given their goals and the situational demands. Conversely, emotion dysregulation encompasses difficulties with ER that interfere with one’s ability to reach their goals or to meet situational demands (Cicchetti, Ganiban, & Barnett, 1991).

From the emotion socialization literature, Gottman and colleagues’ (1996) seminal work demonstrated how maternal caregiver’s own emotion regulation (or dysregulation) significantly influences their parenting behaviors and, subsequently, their child’s ER. According to their model of parental meta-emotion philosophy, caregiver’s thoughts and feelings about emotions (including their ability to regulate their own emotions) influence their parenting behaviors which then influence child outcomes (Gottman, Katz, & Hooven, 1996). Morris and colleagues (2007) built upon Gottman et al.’s (1996) work to develop a tripartite model of the impact of the family on children’s ER and adjustment. Their tripartite model posits that children develop emotion regulation in three ways, including “a) observational learning, modeling, and social referencing, b) parenting practices specifically related to emotion and emotion management and c) the

emotional climate of the family via parenting style, the attachment relationship, family expressiveness, and the marital relationship” (Morelen, Shaffer, & Suveg, 2016, p. 3).

Morris et al.’s (2007) framework demonstrates the potential association between maternal caregivers’ emotion regulation and their child’s ability to regulate emotions. Indeed, previous literature has supported this perspective, as robust correlations between maternal caregiver’s ER and her child’s subsequent ER capabilities have been found. For example, McDowell and colleagues (2002) found that children with maternal caregivers with adaptive emotion regulation abilities (e.g., the ability to respond to situations with the child in a supportive manner and demonstrate functional emotional parent behaviors) had more adaptive social and psychological outcomes. Conversely, children of maternal caregivers who exhibit more emotional dysregulation were at an increased risk of child emotion dysregulation and symptomology (Dix, 1991; Ramsden & Hubbard, 2002), including poorer social, behavioral, and emotional outcomes (Compton, Snyder, Schrepferman, Bank, & Shortt, 2003)

Emotion regulation may be of particular importance when studying the intergenerational transmission trauma from caregiver to child, as difficulties with self-regulation appear to be a central factor in the etiology of PTSD – that is, the diagnostic criteria for PTSD (i.e., heightened arousal, the re-experience of traumatic events, and avoidance and numbing; (American Psychiatric Association [APA], 2003) suggest serious disruptions in physiological, emotional, and behavioral regulation. In fact, past research that examined individuals immediately following trauma exposure found that those demonstrating increased emotional reactivity and dissociation were at increased risk of developing PTSD (Ozer, Best, Lipsey, & Weiss, 2003; Ursano et al., 1999), suggesting a strong link between ER and PTSD. Thus, emotion regulation stands as an important factor within caregiver-child interactions and a potential pathway in the intergenerational transmission of trauma.

## **Attachment**

When discussing the influence that a mother or maternal caregiver may have on her child's wellbeing, the literature often cites attachment as a key variable. Attachment is often referred to as the internal working models relating to an individual's relationship with others. These working models are commonly divided into two broad types of attachment styles: secure and insecure. Secure attachment develops when individuals learn – and expect – others to be responsive to their needs. These individuals are thus flexible in their need for reassurance and support from others (Pietromonaco & Powers, 2015). Conversely, insecure attachment develops when individuals learn that others may not be responsive to their needs, and they thus either seek excessive reassurance and support or distance themselves from others (Pietromonaco & Powers, 2015). Attachment often impacts the individual's perspective and interactions with the world, as the individual learns to adapt to the expected responsiveness of those around them (Shaver, Belsky, & Brennan, 2000). For example, as noted by Ainsworth, Wittig and Foss (1969), secure attachment in childhood has been associated with numerous positive outcomes and even acts as a predictor of resilience among high-risk populations, while impaired (i.e., insecure) attachment has been associated with a variety of negative outcomes, including psychopathology and altered peer relationships (Zimmer-Gembeck et al., 2017).

Further to this, robust correlations between caregiver attachment and child attachment have been demonstrated previously. Indeed, as described within Bowlby's (1969) theory of attachment, the initial relationship that exists between the infant and caregiver serves as the foundation for a child's subsequent mental health. Research in the area of attachment has concluded that adult patterns are empirically correlated with infant patterns (e.g., a dismissing parent tends to have an avoidant infant). For example, Ricks (1985) found that mothers who reported having supportive or encouraging parents throughout childhood acted similarly for their

children, predicting their child's subsequent attachment security. Steele et al. (1996) similarly found that the quality of attachment that expectant mothers and fathers reported with their own parents, measured during the third trimester of pregnancy, predicted the development of attachment between each expectant parent and the infant when the infant was one year of age, while van Ijzendoorn (1992) estimated that approximately half of a child's attachment style could be accounted for by parental attachment.

The current literature suggests a link between attachment and the intergenerational transmission of trauma symptoms. The experience of CM can affect an individual's perspective on the security of the world around them and, subsequently, lead to the development of insecure attachment (Bowlby, 1969; Finzi, Ram, Har-Even, Shnit, & Weizman, 2001). Maternal caregivers with maltreatment histories may pass this attachment style to their children through their actions. Indeed, Iyengar and colleagues (2014) noted that "[A] mother's unresolved trauma may interfere with her ability to sensitively respond to her infant, thus affecting the development of attachment in her own child, and potentially contributing to the intergenerational transmission of trauma". To explain this association, Hesse and Main (2006) suggested that when traumatic experiences (like CM) have not been resolved, the caregiver may react poorly or inappropriately to her infant, as they may serve as traumatic reminders. Lyons-Ruth and colleagues (1999) focused more on the experience of the infant when the parent is not emotionally available to comfort him or her; they argued that infants experience "unmodulated fear" when their mother either fails to provide an adequate response to their distress or displays atypical parental behaviors instead. Whichever perspective is taken, it is clear that attachment as an important factor within caregiver-child interactions and, too, may be potential pathway in the intergenerational transmission of trauma.

Moreover, the dynamic interplay between ER and attachment further frames how maternal trauma may be transferred from caregiver to child, as attachment has been shown to affect the development of self-regulatory and ER abilities. Recent studies have documented associations between the quality of the mother-infant attachment relationship and self-regulation abilities later in life, particularly in the context of adverse or stressful experience. Consistently, attachments identified as secure have been associated with more adaptive self-regulatory abilities and more optimal physiological and behavioral stress regulation, compared to attachments identified as insecure (Eisenberg et al., 2001; Kochanska, Philibet, & Barry, 2009; Oosterman, De Schipper, Fisher, Dozier, & Schuengel, 2010). Conversely, an insecure attachment relationship in infancy has been associated with increased child vulnerability to the effects of contextual risk, such as CM or other trauma (Wan & Green, 2009).

Thus, a maternal caregiver's history of trauma experiences (including CM) may interfere with her ability to engage in positive child-caregiver interactions. The maternal caregiver may be unable to model and foster appropriate emotion regulation or attachment skills to her child, which in turn causes the child to exhibit increased trauma symptomology, regardless of personal trauma experiences. These possible maternal "lapses" in caregiver-child interactions following CM experiences may act as a mechanism by which trauma is transferred through generations. However, despite the potential for these pathways, no research has yet been conducted examining emotion regulation and attachment as a mechanism in the intergenerational transmission of trauma, specifically in a non-offending population of maternal caregivers. These mechanisms, however, should be of particular interest to researchers, clinicians, and policy makers. The identification of such pathways has enormous implications in terms of possible prevention and intervention techniques for child maltreatment and its' subsequent adverse outcomes. For example, the findings of this study may help intervention efforts focus on limiting

the presence of factors that influence the cascading effects of early life trauma on succeeding generations. While some parenting and trauma interventions (such as TF-CBT [Cohen, Deblinger, & Mannarino, 2006], PCIT [Hembree-Kigin & McNeil, 1995] or Child-Parent Psychotherapy [CPP; Cicchetti, Toth, & Rogosch, 1999]), have a large focus on parental involvement, they may not address maternal characteristics as in-depth as may be necessary for meaningful treatment gains. Additionally, a better understanding of these mechanisms and associations may suggest that parenting interventions be expanded to include a larger focus in teaching maternal caregivers how to better model and foster the development of secure attachment and emotion regulation capabilities within their interactions with their child.

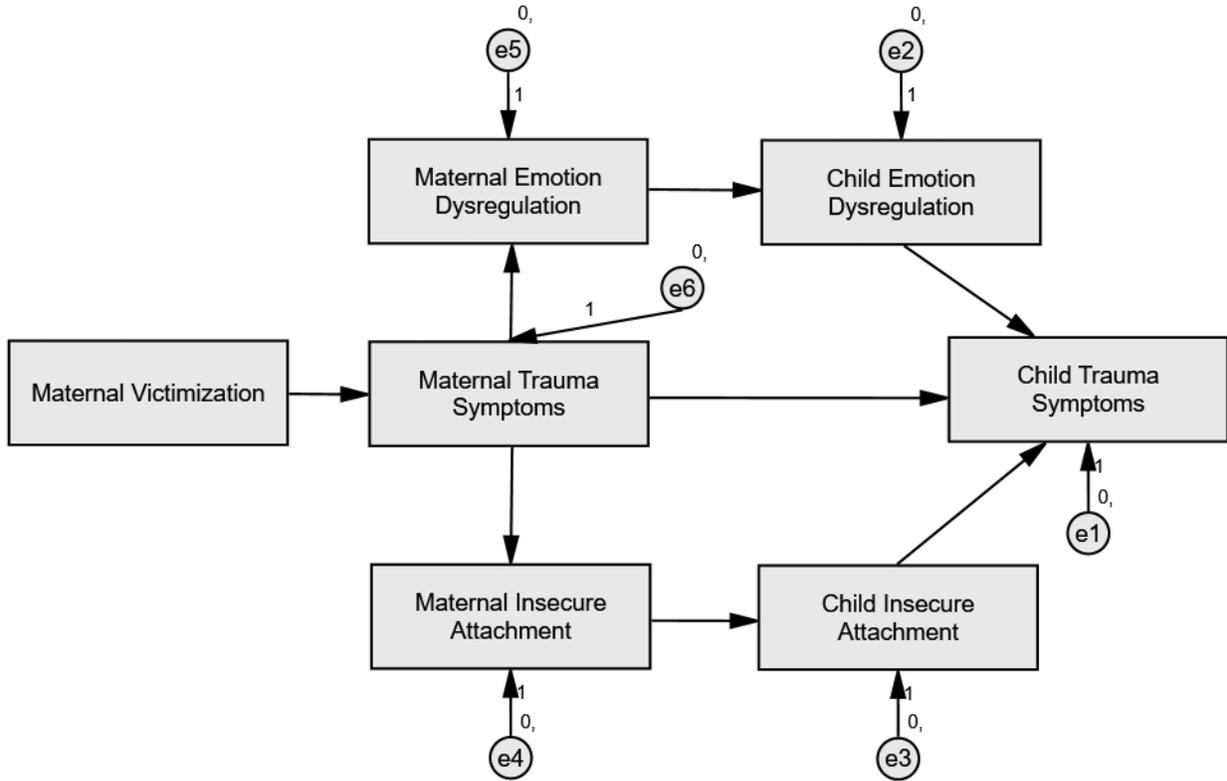
### **The Present Study**

As previously stated, most research on intergenerational trauma explain the transference of trauma symptomology through the cycle of violence; meaning, the caregiver with a history of trauma or abuse subsequently engages in traumatizing or abusive behavior towards their child (Widom & Wilson, 2015), ignoring the fact that the majority of individuals who experienced CM as children do not go on to abuse their own child (Belsky, 1993; Kaufman & Zigler, 1987). The present study aimed to fill this gap in the literature by examining the association between non-offending maternal caregiver's childhood maltreatment experiences, their child's maltreatment experiences and subsequent behavioral and emotional functioning. More specifically, the current study aimed to examine specific maternal and parenting factors (e.g., maternal emotion regulation and maternal attachment) which may present as pathways for the transmission of intergenerational trauma.

Based on the extant literature, the following hypothesis were developed and tested within the present study:

1. Maternal caregivers' CM victimization will be significantly and positively correlated with maternal trauma symptoms, maternal emotion dysregulation and maternal insecure attachment, such that maternal caregivers with higher total victimization scores on the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) will also have higher scores on the scales measuring dysregulation and insecure attachment within the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) and the Attachment Style Questionnaire (ASQ; Feeney, Noller, & Hanrahan, 1994), respectively.
  - a. Conversely, maternal caregiver victimization will be significantly and negatively correlated with maternal adaptive regulation and maternal secure attachment, such that maternal caregivers with higher total victimization scores on the CTQ will have lower scores on the scales measuring adaptive regulation and secure attachment within the ERQ and the ASQ.
2. Maternal caregivers' attachment and emotion regulation will correlate with her child's attachment and emotion regulation.
  - a. Specifically, children whose maternal caregivers with higher scores on the scales measuring dysregulation and insecure attachment within the ERQ and the ASQ will have higher scores on the scales measuring dysregulation and insecure attachment within the Emotion Regulation Checklist (ERC; Shields and Cicchetti 1997) and the Child Relationship Checklist (CRC; Briegel, 2017 from Niec, 2018), respectively.
  - b. Conversely, children whose maternal caregivers with higher scores on the scales measuring dysregulation and insecure attachment within the ERQ and the ASQ will have lower scores on the scales measuring dysregulation and insecure attachment within the ERC and the CRC.

3. Maternal caregivers' trauma symptoms will be positively correlated with her child's trauma symptoms, such that children of maternal caregivers with higher total trauma symptoms scores, as measured by the Trauma Symptom Checklist-40 (TSC-40; Briere, 1996), will also have higher total trauma symptom scores, as measured by the Parent Report of Post-Traumatic Symptoms (PROPS; Greenwald & Rubin, 1999).
4. Child attachment and child emotion regulation will correlate with child trauma symptoms.
  - a. Specifically, children with higher scores on the scales assessing emotion dysregulation and insecure attachment within the ERC and the CRC will have higher total trauma symptom scores on the PROPS.
  - b. Conversely, children with higher scores on the scales assessing adaptive emotion regulation and secure attachment within the ERC and the CRC will have lower total trauma symptom scores child psychopathology on the PROPS.
5. As depicted in the hypothesized path model (shown in Figure 1), maternal caregivers' emotion dysregulation and insecure attachment will act as unique pathways between maternal trauma symptoms and child trauma symptoms, aiding in the intergenerational transmission of trauma.



*Figure 1.* Hypothesized pathways of the intergenerational transmission of trauma symptoms between maternal caregiver and child.

## CHAPTER 3: METHODS

### Participants

Participants for the present study were recruited using Qualtrics, an online sampling site. Unlike with similar online sampling sites (e.g., Amazon's Mechanical Turk), no compensation was offered to the participants in exchange for their participation. In order to be eligible for the study, the maternal caregivers had to have a child<sup>1</sup> currently under the age of 18 and had to have been a primary caregiver for the child for at least 6 months prior to taking the survey.

Of an initial 238 maternal caregivers who began the online survey, only 185 (77.7%) completed the survey in its entirety. Further to this, 2 maternal caregivers were excluded from the present study's analyses, as they had identified as being a primary caregiver for the child for the aforementioned amount of time (both excluded caregivers reported being the target child's primary caregiver for only 2 months) and were thus deemed ineligible. After removing cases with incomplete data required for analysis, the final sample consisted of 155 maternal caregivers.

Demographic information for both the maternal caregiver and the target child can be found in Tables 1 and 2, respectively (p. 29-39). The ages of the maternal caregivers ranged from 19 to 53 years ( $M=34.51$ ), while the ages of the target children ranged from 7 months to 17 years ( $M=8.12$ ). The majority (69%) of the maternal caregivers in the present study identified as the target child's biological mother, with the next largest groups being step-mother (18.7%) and adoptive mother (5.2%). The sample was fairly homogenous, with the majority of maternal caregivers identifying as Caucasian (76.5%).

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<sup>1</sup> Maternal caregivers with more than one child in their care were asked to report on their oldest child who was, at the time of survey participation, under the age of 18 (frequently referred to throughout the current study as the "target child").

Table 1. *Demographic Maternal Caregiver Variables (N=155)*

Variable	N (%)
<i>Maternal Caregiver Age</i>	
Under 25 years	11 (7)
25 – 30 years	39 (25.2)
31 – 40 years	72 (46.5)
41 – 50 years	32 (20.6)
Over 50 years	1 (.6)
Total (N=155, $M_{age}=34.51$ , $SD=7.46$ )	
<i>Maternal Caregiver Ethnicity/Race</i>	
Caucasian	124 (76.5)
African American/Black	2 (1.2)
Asian	6 (3.7)
Hispanic/Latina	12 (7.4)
Native American	1 (.6)
Other	7 (4.3)
Missing	10 (6.2)
<i>Maternal Caregiver Marital Status</i>	
Single	28 (18.1)
Married	91 (58.7)
Separated	13 (8.4)
Divorced	20 (12.9)
Widowed	1 (.6)
Missing	2 (1.3)
<i>Maternal Caregiver Annual Income</i>	
Less than \$20,000	13 (8.4)
\$20,001 - \$34,999	22 (14.2)
\$35,000 - \$49,999	23 (14.8)
\$50,000 - \$74,999	28 (18.1)
\$75,000 - \$99,999	22 (14.2)
Greater than \$100,000	45 (29)
Missing	2 (1.3)
<i>Maternal Caregiver Education Level</i>	
Less than a high school diploma	1 (.6)
High school diploma/GED or equivalent	13 (8.4)
Some college (no degree)	47 (30.3)
Vocational training	9 (5.5)
Bachelor's degree	50 (32.3)
Master's degree	24 (15.5)
Doctorate degree	8 (5.2)
Other	2 (1.3)
Missing	1 (.6)
<i>Maternal Caregiver Relationship to Child</i>	
Biological mother	107 (69)
Adoptive mother	8 (5.2)
Foster mother	1 (.6)
Step-mother	29 (18.7)

Other relative (unspecified)	7 (4.5)
Other non-relative (unspecified)	3 (1.9)

Table 2. *Demographic Child Variables (N=155)*

Variable	N (%)
<i>Child Age</i>	
Under 5 years	42 (27.1)
5 – 10 years	63 (40.6)
11– 15 years	38 (24.6)
Over 15 years, but younger than 18-years	12 (7.8)
Total (N=155, $M_{age}=8.12$ , $SD=4.63$ )	
<i>Child Gender</i>	
Male	66 (42.6)
Female	88 (56.8)
Missing	1 (.6)
<i>Time in Maternal Caregiver's Care</i>	
Under 1 year	4 (2.5)
1 – 5 years	71 (45.9)
6 – 10 years	44 (28.4)
11 – 15 years	27 (17.4)
Over 15 years	9 (5.8)

## Maternal Caregiver Measures

### Demographics

After being presented with an informed consent, maternal caregivers were presented with a demographics questionnaire, which was used to gather information regarding the maternal caregiver's marital status, education level, socioeconomic status, age, and ethnicity. This questionnaire also gathered other relevant demographic information specific to the target child, including the child's gender, age, and how long they have been in the care of the maternal caregiver.

### Maternal victimization history

Maternal victimization history was measured using the Child Trauma Questionnaire (CTQ; Bernstein & Fink, 1998). The CTQ is a 28-item, retrospective self-report inventory for assessing maltreatment experiences before the age of 18. Maternal caregivers were asked to

answer questions indicative of the varying types of abuse, with responses ranging from 1 (*Not True*) to 5 (*Very Often True*). The CTQ produces scores on five different subscales, which correlate to a specific type of maltreatment experience (e.g.; emotional neglect, physical neglect, emotional abuse, physical abuse, and sexual abuse). Each of these five subscales are composed of and assessed by five items. Three additional items on the CTQ assess tendencies of respondents to minimize or deny abuse experiences to further protect the measures' validity. Multiple studies that have employed confirmatory factor analysis (see Goodyear, Newcomb, & Allison, 2000) have confirmed the CTQ's structure. Additionally, this scale has demonstrated good validity and reliability with varying populations and has consistently demonstrated high test-retest reliability and good internal consistency. For the purpose of the present study, the overall total victimization score was utilized; it demonstrated good internal consistency, with a Cronbach's alpha of .89.

### **Maternal emotion regulation**

Maternal emotion regulation was assessed utilizing the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). Maternal caregivers were asked to rate, with responses ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*), how much they agree with 10 statements that reflect two different, opposing emotion regulation styles: the reappraisal style or the suppression style. The reappraisal style describes caregivers who make attempts to control their emotions by employing various, adaptive cognitive strategies (adaptive regulation), while the suppression style describes caregivers who make attempts to control their emotions by inhibiting emotionally expressive behavior (emotion dysregulation). The ERQ has demonstrated good internal, as well as test-retest, reliability (Gross & John, 2003). Within the present study, the Cognitive Reappraisal scale and the Expression Suppression scale demonstrated good to adequate internal consistency, with Cronbach's alphas of .84 and .75, respectively.

## **Maternal attachment**

Maternal attachment was assessed utilizing the Attachment Style Questionnaire (ASQ; Feeney, Noller, & Hanrahan, 1994). The ASQ is a 40-item questionnaire, and the maternal caregivers were asked to rate aspects of themselves and others on a scale ranging from 1 (*I Disagree with this Statement A Lot*) to 4 (*I Agree with this Statement A Lot*). This measure yields five subscales (e.g., confidence, discomfort with closeness, relationships as secondary, need for approval, and preoccupation with relationships), which can be further divided into Secure Attachment and Insecure Attachment scales. In the present study, both scales demonstrated poor to adequate internal consistency, with Cronbach's alphas of .58 and .72, respectively.

## **Maternal trauma symptoms**

Maternal trauma symptoms was measured using the Trauma Symptom Checklist-40 (TSC-40; Briere, 1996). The TSC-40 is a 40-item self-report measure which is utilized to assess the symptomatology of adults resulting from childhood or adult traumatic experiences. The TSC-40 includes six subscales (e.g., anxiety, depression, dissociation, sexual abuse trauma index, sexual problems, and sleep disturbance), and also offers an overall trauma symptom score. Maternal caregivers were asked to indicate how often they experience each of the symptoms, with responses ranging from 0 (*Never*) to 3 (*Often*). For the purpose of the current study, the overall trauma symptom score was utilized; it demonstrated excellent internal consistency, with a Cronbach's alpha of .93.

## **Child Measures<sup>2</sup>**

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<sup>2</sup> As previously noted, child assent was not sought for the present study. Thus, all child measures are parent-report. Previous research conducted with similar populations has indicated high correlations between mother-reports and child-reports (for example, in previous studies, maternal and paternal reports of child trauma symptomology were significantly correlated with child-reports of trauma symptomology, suggesting adequate inter-rater concordance rates; Renk et al., 2007).

### **Child emotion regulation**

Child emotion regulation was assessed using the Emotion Regulation Checklist (ERC; Shields and Cicchetti 1997) The ERC is a parent-report measure that examines child self-regulation. Maternal caregivers were asked to answer 24 items, with responses ranging from 1 (*Almost Always*) to 4 (*Never*), which are used to assess children's typical methods of managing emotional experiences. The responses provide information of the child's positive and negative emotion regulation abilities and methods. The ERC is composed of two subscales: Lability/Negativity and Emotion Regulation. The Lability/Negativity subscale includes 15 items that assess a lack of flexibility, mood lability, and dysregulated negative affect, while the Emotion Regulation subscale consists of 8 items that measure emotional expression, empathy, and emotional self-awareness. In the present study, both scales demonstrated excellent internal consistency, with a Cronbach's alpha of .91 for each scale.

### **Child attachment**

Child attachment was assessed using the Child Relationship Checklist (CRC) and the Child Relationship Development Questionnaire (CRDQ; Briegel, 2017, from Niec, 2018). The CRC reflects insecure attachment and the CRDQ reflects secure attachment. Each questionnaire yields two scores: a total score and an intensity score. For the purpose of the present study, the total score for each was utilized. For the CRC, excellent internal consistency was demonstrated, with a Cronbach's alpha of .93. Similar rates of internal consistency was found for the CRDQ, with a Cronbach's alpha of .92.

### **Child trauma symptoms**

Child trauma symptoms was assessed utilizing the Parent Report of Post-Traumatic Symptoms (PROPS; Greenwald & Rubin, 1999). The PROPS is a 32-item parent-report measure which assesses a broad range of post-traumatic symptoms. Maternal caregivers were asked to

respond to a variety of symptoms which their child may have experienced or exhibited within the last week, with responses ranging from 0 (*Not True*) to 2 (*Very True or Often True*). Multiple studies have indicated that the PROPS shows good internal consistency, test-retest reliability, criterion validity, convergent and discriminant validity (Greenwald & Rubin, 1999; Greenwald, et al., 2002). Additionally, the measure has been shown to be highly correlated with the Trauma Symptom Checklist for Children (Briere, 1996), another well-established and widely-accepted measure of trauma symptomology in children. For the purpose of the present study, an overall total trauma symptoms score was used; it demonstrated excellent internal consistency, with a Cronbach's alpha of .95.

### **Other Measures<sup>3</sup>**

#### **Maternal trauma experiences**

To control for other forms of maternal victimization (both in childhood and adulthood), maternal caregivers were asked to also complete the Childhood Traumatic Events Scale (CTES) and the Recent Traumatic Events Scale (RTES; Pennebaker & Susman, 1988), which examines other traumatic experiences within the maternal caregiver's first 18 years of life and within the last year, including the death of a close family member or friend, parental separation, and serious illness. Maternal caregivers were asked to answer questions surrounding these topics, with responses ranging from 0 (*Not at all Traumatic*) to 5 (*Extremely Traumatic*). Though these two questionnaire were not utilized in the present study, their subscales have previously demonstrated adequate internal consistency and are often utilized in research examining childhood and recent trauma (Pennebaker & Susman, 1988; Sujan, Humphreys, Ray & Lee, 2014).

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<sup>3</sup> This section includes measures taken by the participants but were not utilized for the present study's analyses.

### **Maternal psychopathology**

Maternal psychopathology was measured using the Symptom Checklist 90 Revised (SCL-90-R; Derogatis & Unger, 2010). The SCL-90-R is a parent self-report scale which assesses a variety of symptoms of psychological maladjustment. Maternal caregivers were asked to respond to a variety of symptoms which they may have experienced within the last month, with responses ranging from 1 (*Never*) to 4 (*Very Often*). Scores for nine distinct subscales can be obtained (including scales that assess symptoms of anxiety, phobia, paranoia, and depression), as well as an overall summary score (the Global Severity Index; GSI), reflecting the female caregiver's overall level of distress, can be computed. Though the questionnaire was not utilized in the present study, the subscales have previously demonstrated good to adequate internal consistency (Ardakani et al., 2016; Reshvanloo, & Shamir, 2016; Prinz et al., 2013).

### **Parenting stress**

Parenting stress was measured using the Parental Stress Scale (PSS; Berry & Jones, 1995). The PSS is a self-report scale that contains 18 items, representing either positive themes of parenthood (e.g., emotional benefits, self-enrichment, and personal development) or negative components (e.g., demands on resources, opportunity costs and restrictions). Maternal caregivers were asked the rate to which they agree with items which focus on their typical relationship with their child or children on a five-point scale, with responses ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Multiple studies have shown that the PSS has good internal reliability and test-retest reliability. The scale has previously demonstrated acceptable convergent validity and internal consistency (Louie, Cromer, & Berry, 2017; Zelman & Ferro, 2018).

### **Child victimization history**

Child victimization history was measured using the Juvenile Victimization Questionnaire – 2<sup>nd</sup> Revision (JVQ-R2; Finklehor, Hamby, Turner, & Omrod, 2011), Abbreviated Interview

Version, Caregiver Lifetime Form. The JVQ-R2 is a 34-item questionnaire that examines the conventional crime, child maltreatment, peer & sibling victimization, sexual victimization, and witnessing & indirect victimization. Maternal caregivers were asked whether their child experienced a variety of victimization incidences. If maternal caregivers endorsed that her child had experienced one of the victimization experiences, supplementary questions (including questions about the time of the incident, the perpetrator, and whether the child was physical hurt during the incident) were asked. The JVQ-R2 has consistently demonstrated adequate test-retest reliability, construct validity, and internal reliability (Finkehor, Hamby, Ormrod, & Turner, 2005).

### **Child psychopathology**

Child psychopathology was measured using the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991). The CBCL is a widely used, 118-item parent-report measure of child emotional and behavioral problems. Maternal caregivers were asked to answer how much each item describes their child, with responses ranging from 0 (*Not True*) to 2 (*Very True or Often True*). The CBCL produces two broadband scales (e.g., internalizing and externalizing problems), which can be used as indices of psychopathology. Maternal caregivers were given the behavioral checklist which accurately reflects their child's age. The CBCL has consistently demonstrated adequate test-retest reliability, construct validity, and internal reliability (Achenbach & Edelbrock, 1991; Nakamura, Ebesutani, Bernstein, & Chorpita, 2009).

### **Data Analysis Plan**

IBM SPSS for Windows, Version 24, was used to perform all statistical analyses. First, descriptive statistics were examined for demographic variables, including age, gender, ethnicity, income (Tables 1 and 2, p. 29-30) for both the maternal caregiver and the child, as well as for the

variables of interest (Table 3, p. 38). Next, bivariate correlations between the variables of interest were examined (Table 4, p.40).

Because a larger number of participants was able to be recruited than expected, path analysis was also employed to test the overall proposed model (Figure 1, p. 41). This analysis technique measures the extent to which a model fits a data set and allows the testing of inter-relationships between a range of variables simultaneously. In the current study, a bootstrapping technique, in addition to mean imputation for missing data points, was conducted on the data, as this procedure has been advocated as the best approach when sample sizes are small to medium (e.g., less than 200 participants; Efron & Tibshirani 1993). In addition, bias corrected 95% confidence interval (CI) bootstrap percentiles were used, as these have been shown to be more accurate when dealing with smaller sample sizes and mediation effects (Efron & Tibshirani 1993, Hoyle & Panter 1995). Further to this, the raw maximum-likelihood estimation (also known as full information maximum likelihood estimation) in AMOS (Arbuckle, 1995) was also used to handle any missing data. This procedure has been shown to produce unbiased parameter estimates and reasonable standard errors even when large percentages of data are missing (Graham, 2003; Schafer & Graham, 2002).

## CHAPTER 4: RESULTS

### **Correlations and Hypothesis Testing**

Bivariate correlations between maternal caregiver characteristics (e.g., maternal victimization, emotion regulation, attachment, and trauma symptomology) and child characteristics (e.g., child emotion regulation, attachment, and trauma symptoms) were examined. As can be seen on Table 3, consistent with the present study's hypotheses (i.e., Hypothesis 1), significant positive correlations were seen between the maternal caregiver's victimization and maternal dysregulation, as well as maternal insecure attachment and maternal trauma symptoms. In contrast, and again consistent with the present study's hypotheses (Hypothesis 1), significant negative correlations were seen between the maternal caregiver's victimization and maternal adaptive regulation, as well as maternal secure attachment. Interestingly, no significant correlations between maternal caregiver victimization and her child's subsequent characteristics (e.g., the child's emotion regulation, attachment, or trauma symptoms) were seen.

Moreover, the present study hypothesized (Hypothesis 2) that maternal caregivers' attachment and emotion regulation would correlate with her child's attachment and emotion regulation. Specifically, the present study hypothesized positive correlations between maternal caregiver's dysregulation and child's dysregulation, as well as maternal caregiver's insecure attachment and child's insecure attachment. Interestingly, as can be seen on Table 3, neither of these correlations were significant. Additionally, the present study hypothesized (Hypothesis 2) negative correlations between maternal caregiver's dysregulation and child's adaptive regulation, as well as maternal caregiver's insecure attachment and child's secure attachment. As can be seen on Table 3, neither of these correlations were significant.

Consistent with the present study’s hypotheses (Hypothesis 3), maternal caregiver’s trauma symptoms were significantly and positively correlated with her child’s trauma symptoms. The present study additionally hypothesized (Hypothesis 4) that child attachment and emotion regulation would correlate with child trauma symptoms. As hypothesized, child adaptive regulation and secure attachment were each negatively and significantly correlated with child trauma symptoms. Similarly, child dysregulation and insecure attachment were positively and significantly correlated with child trauma symptoms.

Table 3. *Bivariate Correlations Among Variables*

Variables	1	2	3	4	5	6	7	8	9	10	11
1. MC Victimization	-										
2. MC Adaptive Regulation	-.124	-									
3. MC Dysregulation	.194*	-.063	-								
4. MC Secure Attachment	-.301**	.091	-.410**	-							
5. MC Insecure Attachment	.238**	-.285**	.385**	-.513**	-						
6. MC Trauma Symptoms	.424**	-.199*	.260**	-.390**	.613**	-					
7. Child Adaptive Regulation	.082	.195	.053	.047	-.082	-.184	-				
8. Child Dysregulation	-.064	-.141	.067	-.065	.252*	.336**	-.546**	-			
9. Child Secure Attachment	.130	.163	.004	.187	-.081	-.043	.633**	-.278**	-		
10. Child Insecure Attachment	-.019	-.190	.052	-.182	.303**	.503**	-.494**	.781**	-.285**	-	
11. Child Trauma Symptoms	-.034	-.007	.183	-.117	.214*	.328**	-.448**	-.487**	-.222**	-.535**	-

Note. MC = Maternal Caregiver

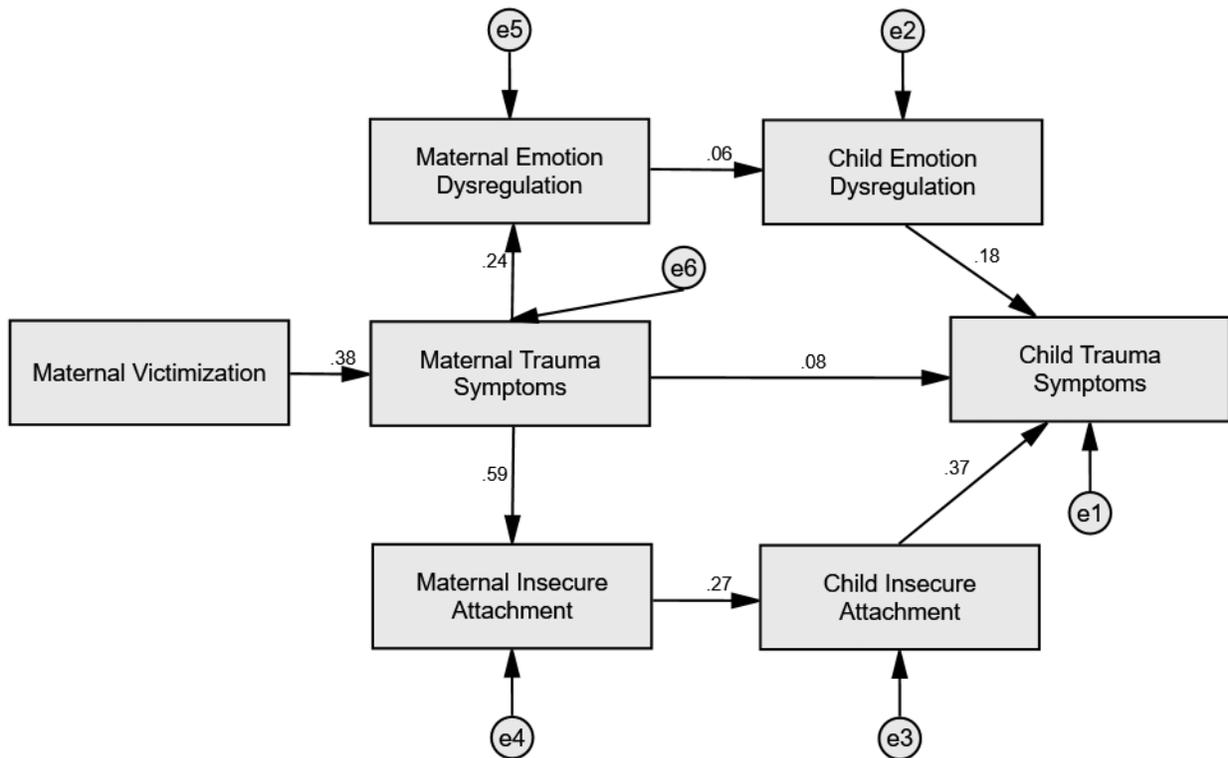
\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at .05 level (2-tailed).

### Path Analysis

Next, to test the paths proposed in the present study (Hypothesis 5), path analysis using AMOS (Arbuckle, 1995) was utilized. The results of the path analysis with the standardized regression coefficients for physical activity are presented below in Figure 2. As can be seen in Figure 2 (standardized coefficients are presented), the present study’s hypothesized model

demonstrated unsatisfactory fit,  $\chi^2 = 188.26$  ( $df = 13$ ,  $p = .000$ ), RMSEA = 0.29, NFI = 0.46, NNFI = 0.93, CFI = 0.46. None of the proposed path analyses were significant ( $ps$  ranged from .46 to .27).



*Figure 2.* Results of the path analysis examining the intergenerational transmission of trauma symptoms between maternal caregiver and child.

## CHAPTER 5: DISCUSSION

Child maltreatment is a substantial public health concern, considering that victimization is associated with an increased risk for serious adverse outcomes across multiple domains. Research has consistently shown that, compared to those without such experiences, children who are victims of maltreatment are more likely to develop various psychological dysfunction (Schilling, Aseltine, & Gore, 2007; Springer, Sheridan, Kuo, & Carnes, 2007), behavior problems (Lansford et al., 2007) and physical health issues (Norman et al., 2012; Springer et al., 2007) that often span well into their adult lives. In addition, growing evidence suggests the negative consequences of exposure to CM may not only persist over the exposed individual's life span, but also may be transmitted across generations.

Despite much literature on the field being dedicated to studying the relationship of trauma continuity within families, there is a distinct lack of research which examines the underlying mechanisms involved in the intergenerational transmission of trauma (Roberts et al., 2012). The present study's primary aim was to fill this gap in the literature by examining the association between non-offending maternal caregiver's childhood maltreatment experiences and their child's subsequent behavioral and emotional functioning. More specifically, the current study aimed to examine specific maternal factors (i.e., maternal emotion dysregulation and maternal attachment) which may present as a pathway for the transmission of intergenerational trauma following maltreatment. Although the present study's model was an unsatisfactory fit with the current data, the present study still adds to the literature in many ways.

First, the current research highlights the importance of caregiver-child interactions and maternal characteristics in the overall wellbeing and outcome of their children by demonstrating links between these variables. As previously noted, the present study found strong correlations between maternal characteristics (i.e., maternal ER and attachment) and child characteristics

(i.e., child ER and attachment), supporting previous research within the maltreatment and child development realm. Indeed, the present study found strong correlations between a maternal caregiver's emotion regulation capabilities and those of her child, similar to findings by Gentzler and colleagues (2015) and Bariola, Gullone, and Hughes (2011). Further, similar to findings by Tarabulsky and colleagues (2005) and Cook and Roggman (2010), the current study also found strong correlations between a maternal caregiver's insecure attachment and that of her child. The findings of the present study add additional support to parenting programs teaching emotion parenting strategies (Baker, Brassard, Schneiderman, Donnelly, & Bahl, 2011) and for programs aimed at improving the mother-child relationship (i.e., Circle of Security [Cooper, Hoffman, Powell, & Marvin, 2011] or Parent Management Training [PMT; Eyberg, Nelson, & Boggs, 2008]), both within the context of CM and within families without such experiences.

Further, despite the present study's model fit, it is important to note that whether or not emotion regulation or attachment are related to their child's subsequent outcomes is not in question; both the present study and previous research have found support for such associations (Leerkes, Su, Calkins, O'Brien, & Suppel, 2017; Zimmer-Gembeck et al., 2017). However, the present study's findings suggest that maternal dysregulation or insecure attachment may impact the trauma transmission process indirectly, through various parenting practices which directly impact the child. Maternal dysregulation and insecure attachment have been previously correlated with a variety of negative parenting practices. Indeed, research has suggested that women who experienced childhood victimization either are more punitive and more physical punishment of their young children (DiLillo, Tremblay, & Peterson, 2000; Dubowitz et al., 2001) or are more permissive and fail to set appropriate limits with their children (DiLillo & Damashek, 2003), each of which may be impacting trauma symptomology within the child. Further, other parenting practices such as reflective functioning (Berthelot et al., 2015; Choi-

Kain & Gunderson, 2008) and parent responsiveness (Eidelstein et al., 2001) may play a (2005) direct role in these associations. Indeed, numerous studies have found that highly avoidant (i.e., insecurely attached) mothers may not be less in tune to their child's needs, causing high levels of stress within the child. Indeed, they found that mothers with higher reflective functioning showed less hostility and intrusiveness, but more responsiveness, in interactions with their children (Kelly 2005; Slade 2005; Vrieze, 2011). However, further research is necessary to test and examine these variables as potential pathways or mechanisms in the intergenerational transmission of trauma.

### **Limitations and Future Research**

As noted throughout, some limitations should be considered when interpreting the present study's findings. First, the sample size of the present study was relatively small (N=155), which may impact the power of the proposed associations, specifically within the path analysis. Though it is unsurprising that the sample size was small (in general, attrition rates for online surveys, as well as for surveys examining trauma or CM, are similar to that of the present study [22.3% attrition]), it is important to note that parameter estimates and chi-square tests of fit are particularly sensitive to sample size (Iacobucci, 2009). It is possible that the unsatisfactory model fit in the present study does not reflect a lack of associations between the proposed variables, but rather a lack of power in examining the associations fully. Future research wishing to examine these caregiver-child associations should aim for a much larger sample size in order to properly examine these potential pathways and mechanisms. Current consensus in the field suggests that the minimum sample size in structural equation analyses (SEM) or path analyses should be equal to the number of parameters to estimate in the model, multiplied by 5 (see Kline, 2011 for review).

Furthermore, all measures in the present study were completed by the maternal caregiver. This includes measures which reflected the attributes of the child (e.g., child trauma symptoms, emotion regulation, and attachment). While this method has been shown to be advantageous in avoiding method variance, and though many previous research studies have found high concordance between maternal- and child-rated questionnaires (Renk et al., 2007), other studies have found relatively low reliability between reporters (Mannarino & Cohen, 1996; Niditch & Varela, 2011). Many of the child-based measures involved examining the child's internal processes or characteristics, of which maternal caregivers may be unable to provide an accurate reporting of such constructs. Second, as suggested previously by Mannarino and Cohen (1996), maternal caregivers may be particularly prone to avoiding socially undesirable responses. Moreover, it is difficult to assess whether or not the maternal self-report measures in the present study were predictive of actual parenting behavior (Bailey, Moran, & Pederson, 2007). As previously noted, maternal caregivers may avoid socially undesirable responses (Mannarino & Cohen, 1996), and deficits related to CM victimization may compromise a caregiver's ability to reflect on and describe their parenting or interpersonal behaviors with accuracy (Bailey et al., 2007). Future research may wish to utilize a variety of different measures (e.g., child-report or subjective, observational measures) when examining these associations.

Finally, a relatively small subset (57%) of the current study's maternal caregiver participants had endorsed any childhood victimization experiences. Considering the present study had hypothesized that it was childhood victimization (more specifically, childhood maltreatment) that would impact the caregiver's ability to model appropriate behavior, this can be considered a limitation which impacted the power of the hypothesized association's and model. Examining these pathways or mechanisms in a clinical sample (i.e., a sample involving traumatized or maltreated maternal caregivers and children) may yield different results and

should be a focus of future research. Further, the present study focused specifically on maternal caregivers, as the research has documented more robust intergenerational trauma transmission effects between mothers and their children, in comparison to any transmission effects between fathers and their children (Yehuda, Bell, Bierer, & Schmeidler, 2008). However, some studies have found that such a link exists (Bachem, Levin, Zhou, Zerach, & Solomon, 2018; Bowers & Yehuda, 2018). Future studies may wish to study fathers or other types of long-term primary caregivers in the intergenerational transmission of trauma.

Other limitations include the relative ethnic homogeneity of the present study's sample, which impacts the generalizability of the results. As previously noted, the sample was largely Caucasian (76.5%), biological mothers (69%), and of relatively high socio-economic status (i.e., 29% of caregivers in the study reported an annual income greater than \$100,000). Being that CM disproportionately impacts racial and ethnic minorities, as well as those living in poverty (Lanier, Macguire-Jack, Walsh, Drake, & Hubel, 2014), future research should focus on samples that are more racially and socioeconomically diverse.

Despite the aforementioned limitations, the findings from this study have important treatment implications. Clinically, the current study highlights the importance of addressing both maternal caregiver and child emotion regulation and attachment in interventions aiming to decrease trauma symptoms and other psychological dysfunction. Further to this, programming aimed at improving maternal caregiver-child relationships (both within the context of maltreatment and within families without such experiences) should continue to be a primary focus for policy makers and clinicians alike, as these interactions clearly have a large impact on both maternal and child psychological outcomes.

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