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Parental Ptsd, Emotion Regulation, And Behavior Problems In Toddlerhood: Unique Associations Among Families In Urban Poverty

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PARENTAL PTSD, EMOTION REGULATION, AND BEHAVIOR PROBLEMS IN TODDLERHOOD: UNIQUE ASSOCIATIONS AMONG FAMILIES IN URBAN POVERTY

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DEDICATION

I would like to first and foremost dedicate this dissertation to my late brother, Danial, who has been the driving force behind my motivation since the day he was born to work hard, follow my dreams, and make a positive difference in this world. Danny, I hope I will always make you proud.

I would also like to dedicate this dissertation to my parents. I would have not been able to accomplish all that I accomplished during graduate school if it wasn't for their sacrifice of bringing our family to America and believing in my strength and ability to accomplish my goals.

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CHAPTER 1: INTRODUCTION

Statement of the Problem

The purpose of the current study was to investigate associations between maternal and paternal posttraumatic stress disorder (PTSD) symptoms and toddlers' internalizing and externalizing problems, and to further test parental emotion regulation and parenting quality as mediators of these associations among families in a low socioeconomic status (SES), urban population. To evaluate these purposes, analyses were conducted separately for mothers and fathers. To maximize reliability, a multi-method approach was utilized.

Internalizing and Externalizing Problems in Toddlerhood

About 16% of children in the United States experience clinical levels of emotional and behavioral difficulties during their early years of development (Campbell, 1995; Egger & Angold, 2006). Toddlerhood, specifically, is a developmental period during internalizing and externalizing (e.g. aggression and defiance) problems increase at normative rates (Campbell, 1995; Campbell, Shaw, & Gilliom, 2000), which are early precursors of mental health disorders (Olson, Bates, & Lanthier, 2000; Tandon, Cardeli, & Luby, 2011). While for most children, these increases subside with age, some children do not show the normative declines and are at risk for later psychopathology and adverse life outcomes (e.g., not graduating from high school, residing in poverty, incarceration), especially if they lack proper screening and intervention (Brauner & Stephens, 2006; Campbell et al., 1996; Farrington, 2005; Holmes, Slaughter, & Kashani, 2001; Shaw, Winslow, & Flanagan, 1999; U.S. Department of Education, 2002). Despite this empirical evidence, the topic of behavior problems among toddlers and the parental factors that predict such difficulties remain understudied in low SES, urban, and ethnic minority populations (Knitzer, 2012). In addition, most prior studies have failed to evaluate the co-presence of

internalizing and externalizing problems (Wiggins, Mitchell, Hyde, & Monk, 2015) and the maternal and paternal correlates of toddler behavior problems in a single study (De Los Reyes & Kazdin, 2005).

Parental PTSD

Previous research has identified a link between internalizing and externalizing problems in young children and life stress that children experience (Campbell, 1995; Leadbeater & Bishop, 1994; Myers, Tayloer, Alvy, Arrington, & Richardson, 1992). Evaluating behavior problems during toddlerhood is particularly important among low SES populations, as they are at risk for exposure to various types of stress associated with living in poverty, such as trauma (Evans & English, 2002). The lifetime prevalence rate of exposure to at least one potentially traumatic event in the United States is 90% (Gillespie et al., 2009; Goldmann et al., 2011; Roberts et al., 2011), with significantly higher rates among low-income populations (Gillespie et al., 2009; Kessler et al., 1995; Parto, Evans, & Zonderman, 2011; Roberts et al., 2011). In turn, exposure to potentially traumatic events places individuals at risk for PTSD (Ozer & Weiss, 2004), and both are known to affect parenting quality and children's outcomes (Ahmadzadeh & Malekian, 2004; Leen-Feldner et al., 2011; Qouta, Punamaki, & Sarraj, 2008; Osofsky, Osofsky, & Bocknek, 2010; Scheeringa & Zeanah, 2008).

Research suggests that the associations between parental trauma and children's psychopathology occur through parents' mental health (Kimura, 1999; Linares et al., 2001; Panuzio, Taft, Black, Koenen, & Murphy, 2007; Qouta, Punamaki, & Sarraj, 2008; Self-Brown, LeBlanc, & Kelley, 2004). Parents who have been exposed to traumatic events who then manifest symptoms of PTSD tend to have more impaired parenting (less warmth, greater harshness and reactivity) than parents who have been exposed to traumatic events but do not

have PTSD symptoms (Chemtob & Carlson, 2004; Schwerdtfeger & Geoff, 2007; Walker, 1999). These maladaptive parenting practices increase the likelihood that young children will display behavior difficulties and subsequent psychopathology as they grow up (Ahlfs-Dunn & Huth-Bocks, 2014; Enlow et al., 2011; Lambert, Holzer, & Hasbun, 2014; Lieberman, Van Horn, & Ozer, 2005; Linares et al., 2001; Sack, Clarke, & Seeley, 1995; Scheeringa & Zeanah, 2008; Yehuda, Halligan, & Bierer, 2001). Moreover, such negative outcomes are known to be transmitted from generation to generation, often through dysfunctional parenting practices and parent-child interactions (Dekel & Goldblatt, 2008; Schwartz, Dohrenwend, & Levav, 1994; Widom, 1989).

However, the ways in which parents' PTSD symptoms impact parenting of toddlers, especially those in low SES populations, is not well understood. This is particularly the case for fathers or father figures. Most studies evaluating the link between parental PTSD and children's outcomes have focused on older children, military families, or veteran populations (Ahmadzadeh & Malekian, 2004; Davidson & Mellor, 2001; Gewirtz et al., 2010; Qouta, Punamaki, & Sarraj, 2005; Scheeringa & Zeanah, 2008). The effects of parental war-related PTSD on children of veterans may not manifest in the same way as the effects of parental PTSD in low-income, urban families, possibly as a result of chronic and pervasive interpersonal and community violence that may have occurred in several generations of poverty. Determining parental factors impacted by PTSD that place toddlers at risk for behavior problems is of critical public health significance among low-income families, as this information could lead to appropriate prevention and intervention strategies.

Emotion Regulation

PTSD is, by definition, a disorder that includes emotion regulation difficulties (Ehring &

Quack, 2010; Frewen & Lanius, 2006; Litz, Orsillo, Kaloupek, & Weathers, 2000). Emotion dysregulation (impairment in ability to monitor, evaluate, and regulate emotional reactions and proactive choices in goal-directed behavior) among parents have been found to be associated with impaired parenting of school aged children (Samuelson, Krueger, & Wilson, 2012) and preschoolers' internalizing problems (Coyne & Thompson, 2011). Based on the findings supporting the link between PTSD, emotion regulation, parenting, and children's outcomes, I hypothesize that the association between parental PTSD, parenting, and toddler internalizing and externalizing behavior problems will be mediated at least partially through parents' overall emotion regulation abilities. Research on these associations among low-income parents of toddlers is scarce, and I aim to address these research gaps in the present study.

Toddlerhood is a developmentally important time when children acquire critical socioemotional skills such as the ability to regulate their own negative emotions (Campos, Campos, & Barrett, 1989; Sroufe, 1996). It is also a stressful time for parenting. The often-reported autonomy seeking of toddlers commonly results in frustration for both them and their parents, leading to toddler tantrums and parental stress (Carter, Briggs-Gowan, & Davis, 2004; Egger & Angold, 2006). Parents' ability to regulate their own emotions during stressful parent-child interactions can significantly affect both parenting quality and toddlers' socioemotional functioning during this challenging developmental period (Dix, 1991). Parents who have emotion regulation difficulties may place their toddlers at risk for developing behavior problems, as toddlers are only beginning to learn how to regulate their own emotions (Kopp, 1989). Therefore, identifying factors that hinder parental emotion regulation, and the ways in which this variable is associated with other parental risk factors (e.g., symptoms of PTSD) and children's outcomes is important to study among populations who are at risk for experiencing potentially

traumatic events and developing PTSD symptoms.

Conceptual Models and Hypotheses

The current study is guided by a conceptual framework derived from research on the intergenerational transmission of trauma (Dekel & Goldblatt, 2008; Fraiberg, Adelson, & Shapiro, 1975; Rosenheck & Nathan, 1985; Schwartz, Dohrenwend, & Levav, 1994). This framework emphasizes the ways in which symptoms of PTSD in mothers and fathers may impact parental functioning, and how PTSD symptoms and parental factors may affect toddlers' behavior problems. In the current study, analyses specifically focused on two potential mechanisms by which maternal and paternal PTSD symptoms may be associated with toddler's internalizing and externalizing problems: parental emotion regulation and parenting quality. Analyses were based on data collected for mothers, fathers, and toddlers in a low SES urban community sample. Toddlers were between the ages of 24 and 31 months, and 60% were male.

The following hypotheses were evaluated in the present study, using separate analyses for mothers and fathers (see Figure 1 for a graphic portrayal of the conceptual models evaluated for each parent):

1. A higher number of PTSD symptoms in mothers will predict higher emotion dysregulation and poorer parenting quality in mothers. Similarly, a higher number of PTSD symptoms in fathers will predict higher emotion dysregulation and poorer parenting quality in fathers.
2. Higher maternal emotion dysregulation will predict less positive parenting quality among mothers. Similarly, higher paternal emotion dysregulation will predict less positive parenting quality among fathers.
3. The relationship between number of parental PTSD symptoms and parenting quality will

be mediated by emotion regulation for both mothers and fathers.

4. A higher number of PTSD symptoms in mothers will predict higher toddler internalizing and externalizing problems; similarly, a higher number of PTSD symptoms in fathers will predict higher toddler internalizing and externalizing problems. The associations between PTSD symptoms and toddler behavior problems will be stronger for mothers than fathers, and stronger for internalizing behavior problems than externalizing behavior problems.
5. The relationship between parental PTSD symptom severity and toddler internalizing and externalizing problems will be mediated by both higher emotion dysregulation and poorer parenting quality for both mothers and fathers.

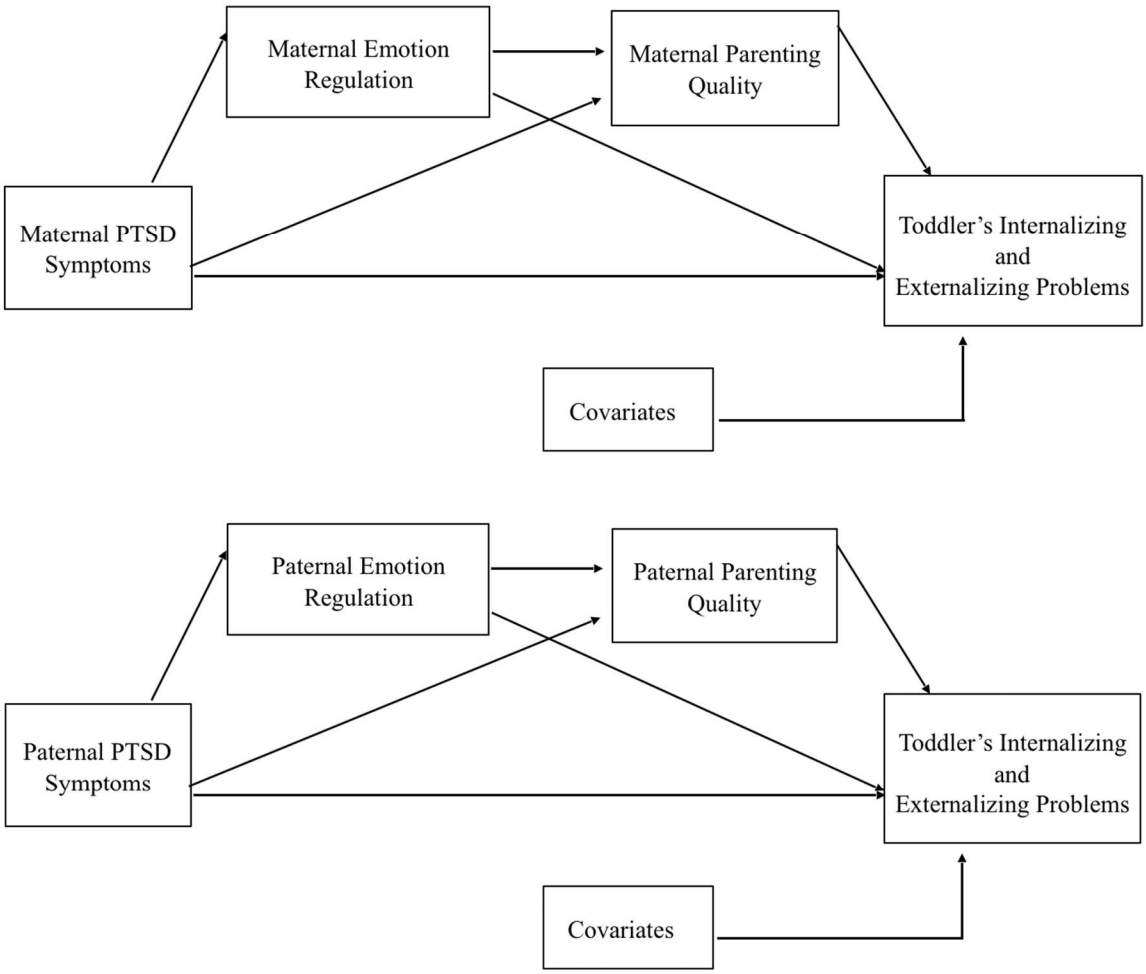

Figure 1. Conceptual models for mothers and fathers

CHAPTER 2: REVIEW OF THE LITERATURE

Childhood Psychopathology

Childhood psychopathology is the scientific study of emotional and behavioral problems in children, encompassing the development, course, prevalence, risk factors, and protective factors of psychological issues in children from birth through adolescents (Achenbach, 1974; Cicchetti, 1984; Sroufe & Rutter, 1984; Wenar & Kerig, 2000). Psychopathology in children is primarily described as the presence of internalizing (e.g., depression and anxiety) and/or externalizing (e.g., aggression, defiance, hyperactivity, inattention) problems (Achenbach & Rescorla, 2001; Carter, Briggs-Gowan, Jones, & Little, 2003; Sterba, Prinstein, & Cox, 2007). National data indicates that one in four children in the United States have psychological difficulties at some point in their life, and about 10% of children have serious mental disturbances at some point in their life (Department of Health and Human Services, 1999).

Due to lack of adequate screening and interventions, improperly addressed internalizing problems (Bongers, Koot, van der Ende, & Verhulst, 2003; Colder, Mott, & Berman, 2002; Gilliom & Shaw, 2004), and externalizing problems (Miner & Clarke-Stewart, 2008) during early childhood (infancy, toddlerhood, and preschool years) tend to increase over time. Other studies have also found similar findings that support the continuity of psychopathology in children from infancy and toddlerhood to preschool (Denham et al., 2000; Pihlakoski et al., 2006; Rose, Rose, & Feldman, 1989), preadolescence to adolescence (Costello et al., 2003; Hofstra & Verhulst, 2000), and even from toddlerhood to adulthood (Caspi, Moffitt, Newman, & Silva, 1996). These findings are worrisome because children who display a high rate of such problems later in childhood have a higher risk of adjustment problems in adulthood, including not graduating from high school, being unemployed and homeless, and being incarcerated

(Farrington & West, 1993; U.S. Department of Education, 2002). Given that serious levels of internalizing and externalizing problems currently affect as many as 20% of children in the United States (Anderson, 1994; Perou et al., 2013), they pose a serious public health issue.

Internalizing and Externalizing Problems in Toddlerhood. The development of healthy socioemotional skills during the early childhood years (birth to 3 years) is foundational for children's future success in all aspects of life (Belsky, Friedman, & Hsieh, 2001; Campos, Campos, & Barrett, 1989; Sroufe, 1996; Stifter, Spinrad, & Braungart-Rieker, 1999; Thompson, 1990). Young children who develop healthy emotional and behavioral functioning have fewer academic difficulties (Graziano, Reavis, Keane, & Calkins, 2007; Gumora & Arsenio, 2002; Schwartz & Proctor, 2000) and are less likely to suffer from health problems such as obesity (Graziano, Calkins, & Keane, 2010) than their age-peers with socioemotional difficulties. Other studies have found an association between emotional development and parenting quality (Martini, Root, & Jenkins, 2004; Samuelson, Krueger, & Wilson, 2012), job performance (Newman, Joseph, & MacCann, 2010), and physical health outcomes (Barker, 2013; Salovey, Rothman, Detweiler, & Steward, 2000).

Internalizing and externalizing behavior problems, especially separation anxiety and aggression, become increasingly evident during the toddler years (Tremblay & Nagin, 2005), as children struggle with autonomy, while having immature language skills that undermine their ability to communicate their goals and feelings clearly to caregivers (Egger & Angold, 2006). Often these problems are age-appropriate and transient during toddlerhood, subsiding as children grow older and more mature (Carter, Briggs-Gowan, & Davis, 2004). On the other hand, when high levels of internalizing and externalizing problems in toddlers persist, they can presage later behavior and adjustment problems, including psychopathology (Campbell, 1995; Bosquet &

Egeland, 2006; Fischer, Rolf, Hasazi, & Cummings, 1984; Keenan & Wakschlag, 2000; Kessler et al., 2005; Lavigne et al., 1998; Mathiesen & Sanson, 2000; Morgan, Farkas, & Wu, 2009; National Center for Toddlers and Families, 1994; Tandon, Cardeli, & Luby, 2009; Zeanah, 2000). A recent study by Basten and colleagues (2015) followed a population-based cohort of children from age 1.5 to 6 years. Although the ways in which these children expressed their internalizing and externalizing problems changed over the course of early childhood, those with a high level of co-occurring internalizing and externalizing problems were the most likely to show persisting problems. Other investigators have reported similar findings (Briggs-Gowan, Carter, Bosson-Heenan, Guyer, & Horwitz, 2006; Campbell, Spieker, Burchinal, & Poe, 2006; Pihlakoski et al., 2006).

Childhood Behavior Problems in Low SES Populations. Children from low SES backgrounds are at a higher risk for developing internalizing and externalizing problems than children from higher SES backgrounds (Morgan, Farkas, & Wu, 2009). Yeung, Linver, and Brooks-Gunn (2002) utilize the i*nvestment perspective* (Becker & Thomes, 1986) and the *family process model* (Conger & Elder, 1994; Elder & Caspi, 1988) to explain the underlying effects of poverty on young children's development. Direct contextual effects of poverty prohibit parents to be able to provide their children adequate educational and child-care resources and proper housing to support optimal cognitive development. Indirectly, poverty places a strain on children's socioemotional development through its negative effects on parents' mental health, parenting quality, and overall family interaction, which are widely known to undermine the well-being and functioning of low SES families (Leadbeater & Bishop, 1994; Myers et al., 1992).

Living in poverty, particularly with chronic stress and exposure to potentially traumatic events, can also have long-term consequences for individuals that are carried from one

generation to the next through negative parenting behaviors and maladaptive family interactions (Davis, Votruba-Drzal, & Silk, 2015; Edwards & Hans, 2015; Grant et al., 2003; Shaw et al., 1997). Low education, unemployment, and inadequate financial and social resources increase parental stress, which in turn is linked to a greater likelihood of psychopathology in parents (Bornstein & Bradley, 2014). This heightened risk of psychological disorders places low-income parents at risk for more maladaptive parenting practices, such as discipline that is less consistent and harsher, low emotional availability, and little expression of warmth (Goodman & Brand, 2012; Rosenblum, 2012). Such parenting practices lead to poor outcomes for children (Evans & Kim, 2013; Luby et al., 2013; Mosley & Thompson, 1995).

Taken together, this literature shows that the stress of poverty heightens children's risk for the emergence of emotional and behavior problems, mainly through parental risk for psychopathology and compromised parenting (Campbell, 1995; Garmezy, 1993; Shaw et al., 1998; Shaw, Gilliom, Ingoldsby, & Bagin, 2003). However, few studies have evaluated whether these links hold true for toddlers (Brophy-Herb et al., 2011; Brophy-Herb et al., 2013; Scaramella, Sohr-Preston, Callahan, & Mirabile, 2008). A better understanding of the pathways through which parental psychopathology places toddlers from low-income families at risk for behavior problems could facilitate more effective assessment, prevention, and intervention practices.

Posttraumatic Stress Disorder

PTSD is a psychological disorder that is contingent upon exposure to a traumatic experience, such as actual or threatened death to self or others, serious injury, or sexual violation that results from at least one of the following scenarios: direct experience of the event, witnessing the event in person, learning the event occurred to a close family member or close

friend, or having first-hand repeated or extreme exposure to aversive details of the event (American Psychiatric Association, 2013). PTSD is characterized by symptoms that include at least one intrusion related to undesired memory of trauma (e.g., recurrent and intrusive memories of the traumatic event, nightmares, flashbacks, intense physiological reactivity to reminders of the traumatic event), at least one characteristic avoidance of trauma-related things (e.g., efforts to avoid thoughts, feelings, and reminders of trauma-related stimuli), at least two adverse changes in mood and cognitions (e.g., difficulty recalling key features of the traumatic event, negative self-thoughts or beliefs about the world, distorted self-blame or blaming of others regarding the cause of the traumatic event, diminished interest in activities, feelings of alienation, and constricted affect), and at least two alterations in arousal (e.g., irritable, aggressive, or self-destructive behavior, hypervigilance, inattention, and sleep disturbance). Moreover, to achieve diagnostic status, the above symptoms have to persist for more than one month, and cannot be explained by medication, substance use, or other illnesses. Lastly, symptoms must cause significant distress and impairment in the person's functioning.

Approximately 10-20% of trauma-exposed individuals from non-military samples will develop PTSD, with higher rates observed in low SES, ethnic minority, and female populations (Alim, Charney, & Mellman, 2006; Cloitre, Miranda, Stovall-McClough, & Han, 2005; Gillespie et al., 2009; Parto, Evans, & Zonderman, 2011; Roberts et al., 2011; Seng, Low, Sperlich, Ronis, & Liberzon, 2009). The lifetime trauma exposure rate in low-income individuals residing in United States is estimated at 83% (Schwartz, Bradley, Sexton, Sherry, & Ressler, 2005), which is significantly higher than the rate of 50-60% in the general population (Kessler et al., 1995). The prevalence of PTSD in low-income populations is estimated at 43% (Schwartz et al., 2005), compared to 7.8% in the general population (Kessler et al., 1995). These rates make low-income

urban populations a vulnerable group in need of proper prevention and intervention strategies.

Theoretical frameworks focusing on macro-level factors of resilience and risk for psychopathology contribute to our understanding of PTSD in urban environments (Bronfenbrenner, 1979; Coulton & Korbin, 2007; Jones & Duncan, 1995; Ross & Mirowsky, 2001; Sampson & Groves, 1989). The community level factors in low-income, urban neighborhoods, such as chronic stress due to financial, residential, and social problems, high rates of community and interpersonal violence, and high levels of fear and anxiety for safety, put individuals at high risk for developing psychopathology, such as PTSD and depression, when they are exposed to potentially traumatic events (Aneshensel & Sucoff, 1996; Browning & Cagney, 2003; Gapen et al., 2011; Overstreet & Braun, 2000; Ross & Mirowsky, 2001; Silver, Mulvey, & Swanson, 2002; Weich et al., 2002). Also, the higher rate of PTSD among minorities could be explained by the fact that minorities in the United States are more likely to be of lower SES (Gradin, 2012; Iceland, 2013).

Furthermore, PTSD is more likely to develop in adults when the trauma is interpersonal and occurred during childhood (Herman, 1992; Roth, Newman, Pelcovitz, Van der Kolk, & Mandel, 1997; Van der Kolk, Pelcovitz, Roth, & Mandel, 1996). The social-interpersonal model of PTSD presented by Maercker and Hecker (2016) explains how traumatic stress is reduced or amplified by different layers of person–environment interactions: 1) social emotions such as shame, guilt, anger, revenge, etc.; 2) interpersonal relationships that involve trauma disclosure, social support, empathy, etc.; and 3) culture and society, which constitute the collective experience of trauma, social acknowledgment as victim or survivor, cultural value orientation, etc. Trauma that is repetitive, chronic, and complex in nature, and is caused by the action of a closely related person impacts all three layers of person-environment interactions. Such trauma

brings on intense social emotions that have been brought on by the interpersonal relationship, and it is often kept as a secret due to the social and cultural shame attached to it (Kim, Talbot, Cicchetti, 2009). This is significant in families from low SES backgrounds as they are more likely to experience interpersonal violence, especially in childhood, than those from higher SES backgrounds (Campbell & Schwarz, 1996).

PTSD, Parenting, and Child Behavior Problems. Previous research shows that PTSD in parents is linked to difficulties in their young children's socioemotional development (Briggs et al., 2014), such as externalizing problems (Ahmadzadeh & Malekian, 2004; Qouta, Punamaki, & Sarraj, 2008), depression (Muong, 2009; Scheeringa & Zeanah, 2008; Smith, Perrin, Yule, & Rabe-Hesketh, 2001), anxiety (Ahmadzadeh & Malekian, 2004; Kilic, Kilic, & Aydin, 2011; Leen-Feldner, Feldner, Bunaciu, & Blumenthal, 2011), PTSD (Davidson & Mellor, 2001; Jones, Ribbe, Cunningham, Weddle, & Langley, 2002; Roberts et al., 2012; Scheeringa & Zeanah, 2008), and psychopathology later in life (Galovski & Lyons, 2004; Scheeringa & Zeanah, 2001).

Research on parental PTSD has found a link to negative parenting behaviors, greater maternal prenatal attachment impairment, and distorted and negative mental representations of children (Bar-On et al., 1998; Davies, Slade,Wright, & Stewart, 2008; Levendosky, Leahy, Bogat, Davidson, & Von Eye, 2006; Lyons-Ruth & Block, 1996; Muller-Nix et al., 2004; Newcomb & Locke, 2001; Simons, Whitbeck, Conger, & Wu, 1991; Schechter et al., 2008, 2005, 2010; Schwerdtfeger & Goff, 2007). However, studies with samples of middle class women with a history of childhood abuse and neglect did not find an association between maternal PTSD and parenting quality (Martinez-Torteya et al., 2014; Muzik et al., 2017).

Several conceptual frameworks are available that aim to explain the relationship among parental exposure to trauma, parenting, and psychopathology in young children. The majority of

these frameworks are based on research with mothers, which may not apply as well to fathers' parenting. Current theories focused on the cycle of violence in families and children's behavior problems are largely derived from social learning theory, and assume that effects of trauma are transferred within a family across generations (Cole, Woolger, Power, & Smith, 1992; Downs, Miller, Testa, & Panek, 1992; Kashani, Daniel, Dandoy, & Holcomb, 1992; Miller, 1990; O'Keefe, 1994; Truscott, 1992; Widom, 1989). Such theory on intergenerational transmission of trauma asserts that transmission of trauma from parents to children (Dekel & Goldblatt, 2008; Rosenheck & Nathan, 1985) can occur in two different ways: (a) direct transmission; and (b) indirect transmission (Schwartz, Dohrenwend, & Levav, 1994). Direct transmission refers to instances in which parental PTSD symptoms has a direct effect on children's internalizing and externalizing problems. For example, a parent who is fearful and anxious as a result of previous traumatic experiences could send signals to the child that the world is an unsafe place, leading to increased anxiety within her child. Indirect transmission refers to instances in which parental PTSD is linked to children's internalizing and externalizing problems via their associations with parenting difficulties, such as having difficulty displaying warmth (Levendosky & Graham-Bermann, 2001), or behaving in an over-controlling, harsh, and inconsistent manner (Levendosky et al., 2006; Newcomb & Locke, 2001; Simons, Whitbeck, Conger, & Wu, 1991). The problematic caregiving behaviors of traumatized parents, such as abusive or dysregulated interactions with their children, are associated with negative effects on children's outcomes, rather than direct and specific parental trauma symptoms per se. Parenting that is inconsistent, low on warmth, and high on hostility, in turn, is robustly associated with children's maladaptation to their environment, including emotional and behavioral problems, which increase their children's risk for later psychopathology (Madigan, Wade, Plamondon, & Jenkins,

2015).

In their meta-analytic review, Lambert and colleagues (2014) observed that the correlations between parents' PTSD and children's emotional well-being are equally strong for parent–child dyads in which only one parent had been traumatized as for those where both had been traumatized. Younger children have been found to be particularly susceptible to maternal psychological functioning post-trauma exposure (Laor, Wolmer, & Cohen, 2001). Psychological distress of the children in families where the parents have been traumatized may stem from children's genetic predisposition to distress, secondary traumatization, difficulties in family functioning, or other challenges associated with having traumatized parents. In addition, the negative impact of trauma on parenting could be exacerbated by parental psychopathology (Banyard, Williams, Siegel, 2003; Heim, Newport, Mletzko, Miller, & Nemeroff, 2008; Ruscio, 2001; Wright, Fopma-Loy, & Fischer, 2005). This research sheds light on the powerful impact parents and their functioning have on the ways in which children cope with stress. Given that young children learn how to manage difficult emotions within the parent-child interactive system (Denham, 1998), factors that impair this system, such as symptoms of PTSD in parents, could lead to children's emotional and behavioral difficulties.

Results from research grounded in developmental and family systems theories and focused on populations in which both parents and children have simultaneously experienced trauma, such as family violence (Kimura, 1999; Panuzio et al., 2007), community violence (Linares et al., 2001; Self-Brown, LeBlanc, & Kelley, 2004), war (Qouta, Punamaki, & Sarraj, 2008), or natural disaster (Li et al., 2010) suggest that the associations between parental trauma and children's psychopathology occur through parents' mental health. Compared to traumatized parents without psychopathology, those parents exposed to potentially traumatic events and who

also suffer from psychopathology, such as depression or PTSD, find it more challenging to engage in positive parenting practices. They are less able to help their children regulate negative emotions, form meaningful narratives with their children regarding traumatic events, make them feel that the world is a safe place, or be emotionally and physically available to their children (Nygaard, Wentzel-Larsen, Hussain, & Heir, 2011l; Schwerdtfeger & Goff, 2007; Walker, 1999). Such poor parenting increases the likelihood that young children will display behavior difficulties such as internalizing and externalizing problems and subsequent psychopathology as they grow up (Ahlfs-Dunn & Huth-Bocks, 2014; Enlow et al., 2011; Lambert, Holzer, & Hasbun, 2014; Lieberman, Van Horn, & Ozer, 2005; Linares et al., 2001).

The transactional model of development states that parent-child relationships develop within a family system, in which children and parents influence each other in a dynamic way (Sameroff, 2009). Although child factors such as temperament and gender contribute to this system (Gallagher, 2002; Kiff, Lengua, & Zalewski, 2011; Stright, Gallagher, & Kelley, 2008), parental factors also play a significant role, such as parental mental health and their behavioral style during parent-child interactions (Kochanska & Kim, 2013). Parents who respond to their young children in a reliable, consistent, and empathic manner provide an atmosphere that fosters healthy socioemotional development in their offspring (Asok, Bernard, Roth, Rose, & Dozier, 2013; Feldman, 2007). Researchers refer to this as "positive parenting", which includes contingent and synchronous ("serve and return") interactions between young children and parents. Over time, these interactions give children a sense of trust in their caregiver's availability to be present and available during times of stress, thus providing support when children seek to explore their worlds. John Bowlby's attachment theory refers to this concept as parents being a "safe haven" and a "secure base" for their children, to foster optimal

development (Bowlby, 1973; Bowlby, 2008). These repeated positive interchanges develop a healthy attachment between a young child and his or her parent and build a sense of safety and security in children (Cassidy, 1999; Kobak, Cassidy, Lyons Ruth, & Ziv, 2005), which, over time, supports children's capacity to self-regulate emotions, explore their environment freely, and function more effectively in interpersonal relationships outside the family (Lamb, Thompson, Gardner, Charnov, & Estes, 1984; Rutter, 1995).

Unresolved traumatic experiences and subsequent psychopathology can disrupt the development of healthy parent-child attachment, by causing parents to have difficulty responding in a consistent and positive manner to their children (Banyard, 1997; Collin-Vézina, Cyr, Liotti, 2005; Putnam, 2003), reducing their children's sense of security and causing the children to rely on secondary coping processes to manage stressful events (Cohen, Hien, & Batchelder, 2008; Juul et al., 2015). This disruption to the development of healthy parent-child attachment results in what is referred to as insecure attachment. This insecurity increases socioemotional disturbances in infants and toddlers, especially if combined with a dysfunctional family context and other negative social experiences (Banyard, Williams, & Siegel, 2003; Bert, Guner, & Lanzi, 2009; Cohen, Hien, & Batchelder, 2008; Lyons-Ruth, Yellin, Melnick, & Atwood, 2003, 2005).

Insecure attachment has been further categorized into avoidant, ambivalent, and disorganized attachment (Ainsworth, Blehar, Waters, & Wall, 1978; Main & Solomon, 1990; Van IJzendoorn, 1995). Insecure avoidant attachment is associated with a history of parental hostility or rejection. Children with an avoidant attachment style do not appear distressed when separated from their parents and do not seek contact with their parent during reunion. Ambivalent insecure attachment is associated with a history of inconsistent parenting; children with an ambivalent attachment style struggle to use their parent as a secure base as they go back

and forth between seeking and resisting their parents for support when feeling distressed. Disorganized attachment is the least optimal pattern of insecure attachment and is associated with a frightened/frightening parenting style, which is thought to result from parents' unresolved traumatic experiences, or the presence of psychopathology (Bosquet et al., 2014; Fearon & Mansel, 2001; Hughes, Turton, McGauley, & Fonagy, 2006; Van IJzendoorn, Schuengel, & Bakermans-Kraneburg, 1999). Children with a disorganized attachment style do not have an organized parent-child strategy to rely on during times of distress. Their first impulse is to seek comfort from their parent, but then they pull away and appear disorganized for they fear their parent's response, which does not fit into a customary pattern for a child to depend on. Disorganized attachment can be passed from generation to generation, as parents who struggle with their own unresolved trauma find it difficult to tolerate their child's emotions, particularly their need for security (Alexander, 2014). In moments of stress, they react destructively toward their children based on fear or other primal emotions without the full awareness of how they are behaving. If these relational problems are not corrected, they can persist into later childhood and disrupt children's long-term emotional and behavioral outcomes (MacDonald et al., 2008).

Literature on the role of PTSD on parenting of toddlers in low-income populations, especially among fathers is scarce. Research on fatherhood supports the important role they play on children's socioemotional development (Phares, 1996), early in their lives (Easterbrooks, 1984). Fathers' mental health and parenting quality can help protect children or put them at risk for developing psychopathology (Connell & Goodman, 2002; Kane & Garber, 2004). These effects are evident at least as early as toddlerhood (Das Eiden, Leonard, & Morrisey, 2001; Fisher, Brock, O'Hara, Kopelman, & Stuart, 2015; Weinfield, Ingerski, & Moreau, 2009). A meta-analysis of studies on the correlates between parents' PTSD symptoms and children's

psychological status found no significant differences between studies that involved mothers versus those with fathers. The significant difference that was observed related to the type of trauma that led to symptoms of PTSD in the parents: the effect size was larger for studies in which PTSD was the result of interpersonal trauma compared to studies of combat veterans and their children and studies of parent–child dyads who were civilians during war (Lambert, Holzer, & Hasbun, 2014). This meta-analysis did not assess parenting specific to toddlers, as the children's age ranged from infancy to early adulthood. It also did not evaluate the pathways through which PTSD in fathers puts children at risk for behavior problems. In another project, focusing on of adult offspring of Holocaust survivors, intergenerational transmission of trauma was stronger among mother-child dyads than among father-child dyads in (Yehuda, Bell, Bierer, & Schmeidler, 2008), suggesting that maternal PTSD may have a stronger impact on child outcomes than paternal PTSD. That finding also suggested that both environmental and genetic factors, such as intrauterine environment during pregnancy, can contribute to parent–child PTSD concordance rates.

Theories about fatherhood offered in the late twentieth century described the associations among fathers' influences on children's development through 1) specific dimensions of father involvement, such as accessibility to the child, engagement with the child, and responsibility of various tasks pertaining to the child (Lamb, 2013; Palkovitz, 1997; Parke, 2000); 2) young children's emotional and behavioral outcomes (Amato & Rivera, 1999; Yogman, Kindlon, & Earls, 1995) and their ability to control their emotional responses (Gottman, Katz, & Hooven, 1997); and 3) the direct (e.g., parenting quality, father-child attachment) and indirect pathways (e.g., harmonious family contexts, mother's well-being) through which fathers influence their children (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000). Fathers have their own

unique ways of contributing to their young children's development that are different from mothers, such as having the tendency to encourage children to be competitive and independent and engaging more commonly in rough and tumble play (Craig, 2006; Parke, 2002). Therefore, negative external and internal factors, such as poverty and PTSD symptoms, may influence fathering differently from their effects on mothering.

Low-income fathers compared to higher SES fathers, are at a much higher risk for exposure to traumatic events, such as neighborhood or domestic violence, or a history of childhood trauma than fathers from higher SES backgrounds (Copeland et al., 2007; Gillespie et al., 2009; Parto, Evans, & Zonderman, 2011; Roberts et al., 2011). They are also at high risk for having symptoms of PTSD (Schwartz et al., 2005). Drawing from trauma theories and previous research on mothers and toddlers reviewed earlier in this section, it is possible that PTSD symptoms in fathers residing in poverty place their young children at risk for socioemotional difficulties through impaired parenting. Fathers high in symptoms of PTSD may also have difficulty parenting their children in a consistent manner, displaying greater harshness and disorganization. Prior research indicates that fathers from low SES backgrounds are likely to be present with their children at high rates, despite common but inaccurate assumptions otherwise, based on risk factors associated with poverty for men, such as multi-partner fertility, disproportionate minority incarceration, and unemployment (Cabrera et al., 2004; Coley & Hernandez, 2006). There is a large amount of research supporting the crucial role of parenting in young children's development among low SES populations, where parenting acts as an important protection against the effects of risk (Bornstein & Bradley, 2014). Therefore, paternal risk factors that hinder parenting quality in fathers and are disproportionately found among low SES individuals, such as PTSD, require further study, especially among fathers who are in regular and

consistent contact with their toddlers.

Emotion Regulation

Emotion regulation refers to the capacity to adapt the intensity and duration of emotional states and to manage the expression of emotions, including behavior, during social interactions (Sroufe, Egeland, Carlson, & Collins, 2009). Emotion dysregulation, on the other hand, is poor emotion regulation reactions to stressful stimuli in an emotionally exaggerated and over reactive manner (Cole, Michel, & Teti, 1994; Gratz & Roemer, 2008). Emotion dysregulation is associated with frequent bursts of anger and sadness, impulsive maladaptive behavior, and unstable interpersonal relationships (Gross & Thompson, 2007). Given that parenting during toddlerhood is a challenging task, even for those with adequate resources or those who have children without significant behavioral issues, parents' ability to regulate their own emotions is an essential ingredient in successful parenting and positive parent-child interaction during stressful moments (Coyne & Thompson, 2011; Dix, 1992). The ability to better regulate one's emotions allows parents to notice their children's engagement and disengagement cues, problem solve how best to respond, connect with their children's emotions, and appropriately address their needs (Feiyan, 2015).

Dix's 3-component model of parenting emphasizes that emotion regulation is the center of parenting competence (1992). The first component is the child, parent, and contextual factors that activate parents' emotions, such as child's gender or temperament, parent's mental health, and environmental effects of residing in poverty. The second component is orienting, organizing, and motivating effects that emotions have on parenting once aroused, such as making parents react in a harsh or frightening way towards the child. The third component is the processes parents use to understand and control emotions; unresolved trauma can impair these processes

and make parents misinterpret emotional cues or become dysregulated when certain emotions arise in stressful situations with their children. Dix emphasizes the negative effects of too weak, too strong, or improperly matched emotions to the childrearing tasks on parenting quality. His theory has been supported by findings from research on low-income families with toddlers and reflect the effects of parental emotion regulation on toddlers' emotional development (Emery, 2012; Ispa et al., 2004; Kochanska & Murray, 2000; Laible & Thompson, 2002; Martin, Clements, & Crnic, 2002; Wacharasin, Barnard, & Spieker, 2003).

PTSD and Emotion Regulation. PTSD disrupts the capacity for emotion regulation, and when severe or chronic, can lead to emotion dysregulation (Ehring & Quack, 2010). PTSD symptoms can include either under-regulation of emotions (e.g., mood lability) and over-regulation or deactivation of emotions (e.g., emotional numbing, avoidant coping, difficulty acknowledging emotion) (Benoit, Bouthillier, Moss, Rousseau, & Brunet, 2010; Frewen & Lanius, 2006; Litz, Orsillo, Kaloupek, & Weathers, 2000). Higher PTSD symptom severity is associated with lack of emotional acceptance, difficulty engaging in goal-directed behavior when upset, impulse-control difficulties, limited access to effective emotion regulation strategies, and lack of emotional clarity (Tull, Barrett, McMillan, & Roemer, 2007). Theories propose that emotion regulation difficulties put individuals at risk for psychopathology and underlie anxiety and mood disorders (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Kring & Werner, 2004; Sheppes, Suri, & Gross, 2015; Werner & Gross, 2010). However, a meta-analysis on functional neuroimaging of anxiety found hypoactivation in the brain structures associated with emotion regulation that were unique to PTSD, indicating a mechanism for the emotional dysregulation symptoms in PTSD that extend beyond an exaggerated fear response (Etkin & Wager, 2007).

The emotion dysregulation that is a symptom of PTSD may be an important factor

linking parental PTSD symptoms with negative parenting, especially during toddlerhood (Beck, Grant, Clapp, & Playo, 2009). Toddlerhood is a particularly stressful time for parents due to the high occurrence of challenging age-appropriate behavior, such as toddlers' temper tantrums (Carter, Briggs-Gowan, & Davis, 2004; Egger & Angold, 2006). Parents suffering from PTSD, especially those whose PTSD is as a result of a history of interpersonal trauma, could find their toddlers' temper tantrums and noncompliance particularly distressing, because they could trigger parents' memories of previous traumatic experiences (Lieberman, 2004; Pynoos, Steinberg, & Piacentini, 1999). Consequently, parents suffering from PTSD might be more likely than parents without PTSD to become dysregulated in response to parenting stress, fail to realize a need to regulate their emotions, have difficulty identifying and implementing a regulatory tactic, and therefore struggle to parent effectively.

Emotion Regulation and Parenting. Studies of parents with older children show that mothers with a history of trauma have a higher prevalence of authoritarian parenting (Rossman & Rea, 2005; Valentino, Nuttall, Comas, Borkowski, & Akai, 2012). Authoritarian parenting is characterized as a parenting style that involves high demandingness and high expectations for obedience with parental authority, in the absence of parental warmth, and is often associated with the use of physical punishment (Baumrind, 1978; Gershoff, 2002; Robinson, Mandleco, Olsen, & Hart, 1995). Some researchers show that authoritarian parenting is linked to early signs of psychopathology in children (Aunola & Nurmi, 2005). One reason that authoritarian tactics are higher among traumatized mothers is that maternal emotional dysregulation is more prevalent in this population (Kaitz, Levy, Ebstein, Faraone, & Mankuta, 2009). Parents affected by trauma have difficulty regulating their own emotions during stressful parent-child interactions (Samuelson, Krueger, & Wilson, 2012), which can diminish the effectiveness and enjoyment of

the parenting role. Jovanovic and colleagues (2009) report that adults with high levels of childhood physical and sexual abuse exhibit increased incidences of startle reactivity during laboratory paradigms. In contrast, in an observational study of sexually abused mothers and their 18-month-old infants, a maternal history of abuse was correlated with maternal over-regulation or deactivation of affect and decreased involvement with their infants (Lyons-Ruth & Block, 1996).

The emotion regulation difficulties of traumatized parents could also cause them to have difficulty understanding their children's emotional states (Gibb, Uhrlass, Grassia, Benas, & McGeary, 2009). In turn, this could interfere with their ability to respond aptly to their children's initiations for interaction (Gusella, Muir, & Tronick, 1988; Schechter, Kaminer, Grienenberger, & Amat, 2003; Schechter et al., 2005). This finding suggests that the hyper-reactivity and dissociation resulting from trauma could lead to lower stress tolerance in parents with trauma histories. Thus, such parents could become emotionally dysregulated when they face the stresses of parenting, leading to a greater likelihood of harsh or maladaptive parenting with their toddlers.

Emotion Regulation among Low SES Populations. It is important to study parental emotion regulation in the context of PTSD symptoms in a low SES sample, because individuals from disadvantaged backgrounds have a higher rate of exposure to early adversities and potentially traumatic events, compared to individuals in the general population (Copeland et al., 2007; Ford et al., 2009; Gillespie et al., 2009; Kessler et al., 1995; Parto, Evans, & Zonderman, 2011; Roberts et al., 2011; Seng et al., 2009). Early adversities are reported to proliferate over the life course and across generations, heightening risk for future psychopathology, perhaps via stress sensitization (Nurius, Uehara, & Zatzick, 2013; Pearlin, Schieman, Fazio, & Meersman, 2005; Shonkoff et al., 2012; Thoits, 2010). The continuous exposure and adjustment to early

adversity (also referred to as *allostatic load*) strain an individual's physiological stress response system. Dysregulation of the stress response system is linked to a higher incidence of a PTSD diagnosis (Evans & Kim, 2007; Lloyd & Turner, 2003; Milan, Zona, Acker, & Turcios-Cotto, 2013; Nurius et al., 2013). Although stressful life events can be non-interpersonal, such as natural disasters and motor vehicle accidents, stress often begins during early years of childhood for individuals from low-income backgrounds and tends to be interpersonal in nature (e.g., sexual abuse, domestic violence, neglect, emotional or verbal abuse, loss of a loved one) (Breslau et al., 1998). Previous research suggests that persons with a history of childhood interpersonal trauma are more likely to develop PTSD following a traumatic event in adulthood and have a higher rate of emotion dysregulation than those without a history of interpersonal trauma, even if they have experienced non-interpersonal trauma (e.g., natural disaster, car accident) (Cloitre, Miranda, Stovall-McClough, & Han, 2005; Cloitre, Scaryalone, & Difede, 1997; Zlotnick et al., 1996).

Although the current literature supports the notion that parents with PTSD have greater emotion dysregulation, and that parental emotion dysregulation posits risk for healthy development in children via negative parenting, it is unclear whether and how these patterns are manifested in families with young children and in populations who are economically disadvantaged. This study aims to address this gap by identifying whether and how the associations between parental PTSD symptoms, parenting, and toddlers' internalizing and externalizing problems are affected by parents' emotion regulation difficulties.

CHAPTER 3: METHOD

Participants

Analyses in the present study were based on data collected from 96 mother-father-toddler triads from low SES urban backgrounds who were participating in a larger study of the socioemotional development of toddlers. In the larger study, a total of 131 mother-secondary caregiver-toddler triads gave their consent to participate. The primary caregiver for all toddlers was each child's biological mother. For 96 families, the toddler's secondary caregiver was the biological father or father-figure (mother's romantic partner or child's grandfather). For the remaining 36 families, the secondary caregiver was a female adult (mother's sister, friend or cousin, or the child's maternal grandmother). Analyses were based on the subset of 96 families that included a father or father-figure, due to this study's aim to evaluate families with a father or father figure as secondary caregiver. All descriptive statistics and analyses that follow are based on data collected for this subsample of 96 mother-father-toddler triads. See Table 1 for details about the participants. Sixty percent of the toddlers were boys (n = 58), and 40% were girls (n = 38). At the time of the laboratory visit, children, on average, were 27.29 months old (min = 24; max = 31).

Study Design

Inclusion Criteria. The main inclusion criterion for the larger study was that each toddler's primary caregiver was his or her biological mother, who had legal custody of her participating child. Children had to be between the ages of 24-31 months, and every mother had to have a parenting partner who was involved in her child's care on a regular basis. The parenting partner was chosen by the mother and could be a male or female caregiver. The biological father qualified as a secondary caregiver if he either resided with the child or saw the

child consistently on at least a bi-weekly basis. If a biological father did not meet those criteria, the mother was asked to identify the secondary caregiver most involved in parenting and childcare. Biological fathers and father figures did not have to reside with the mothers or be in a romantic relationship with them in order to participate in the study.

Exclusion Criteria. Children were excluded from participating if they were outside the targeted age range (24-31 months) at intake. Children were also excluded if they had an identified developmental delay, as determined via maternal report.

Recruitment. Participants were mainly recruited through two centers of a public assistance program located in Detroit, Michigan: The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Research assistants approached parents seeking services at WIC centers to inform them about the study and screen them for eligibility, and flyers were posted inviting interested parents to call to learn more about the study. Research assistants gathered contact information from parents who expressed an interest in participating.

Procedure. All main study procedures took place during two laboratory visits at the Merrill Palmer Skillman Institute at Wayne State University. A research assistant contacted eligible families who had indicated an interest in participating in the study to determine the identity of the child's secondary caregiver and that person's willingness and eligibility to participate in the study. If the mother and secondary caregiver were willing to participate, the research assistant then scheduled the two lab appointments. Each parent was thanked for their participation with a $20 Meijer gift card for *Visit 1* and a $50 Meijer gift card for *Visit 2*. Families who indicated transportation difficulties were provided assistance in the form of an additional $20 Meijer gift card for each laboratory visit. All families received reminder phone calls and text messages about their appointments. To ease participant burden, families were

offered the choice to complete *Visit 1* and *Visit 2* in one day, or to break them up into two different days.

Visit 1 began with the collection of written informed consent from the parents and answering any questions they had about the study. Next, the family was assigned an ID number to protect their confidentiality. Mothers and the secondary caregivers separately completed the self-report questionnaires using Qualtrics online survey software. A research assistant read the questions to them to reduce any ambiguity about the content of the questions on the part of the parents and reduce possible worries some parents might have if they were illiterate, in order to increase the validity of the measures administered. Mothers and secondary caregivers also separately completed interviews about their own emotions and emotion socialization techniques during this visit, with a research assistant who was part of the broader study. *Visit 2* consisted of completion of the Family Drawing Task and engagement in other observational tasks administered in the broader study (not reported here).

Measures

Demographics. The background form requested parents to provide information about their age, gender, race/ethnicity, education, income, marital status, the secondary caregiver's residential status, family composition, and the age and sex of the targeted child and other children living in the home.

Toddler Behavior Problems. Child Behavior Checklist for Ages $1^{1/2}$ – 5 (CBCL) is a parent-report measure of children's behavioral, emotional and social behavior problems (Achenbach & Rescorla, 2001). In the present study, each parent was asked to complete the CBCL separately. Parents rated 99 items reflecting their children's behavior problems during the past six months using a 3-point scale: *Not True* (0), *Somewhat or Sometimes True* (1), or *Very*

True or Often True (2). Items are scored to yield seven syndrome scales (Emotionally Reactive, Anxious/ Depressed, Somatic Complaints, Withdrawn, Attention Problems, Aggressive Behavior, and Sleep Problems), which are further combined to yield three broad-band summary scaled scores: Internalizing, Externalizing, and Total Behavior Problems. Raw scores on each scale are age- and gender-referenced as T scores (population $M = 50$, $SD = 10$). Items may also be scored to yield five DSM-oriented scales (Affective Problems, Anxiety Problems, Pervasive Developmental Problems, Attention Deficit/Hyperactivity Problems, and Oppositional Defiant Problems). In the present study, the maternal-reported and paternal-reported T scores from the Internalizing and Externalizing scales were averaged to increase reliability. The Cronbach's alpha for the Internalizing scale was .85 for mothers and .81 for fathers, and for the Externalizing scale it was .88 for mother and .83 for fathers.

PTSD. The Posttraumatic Stress Diagnostic Scale (PDS**;** Foa, Cashman, Jaycox, & Perry, 1997) is a 49-item self-report measure of PTSD that is designed for use in both clinical and research settings. The items correspond to the criteria A to F of the DSM-IV (American Psychiatric Association, 1994). If all six criteria are met, a diagnosis of PTSD is very likely. The PDS was used to assess symptom severity and functioning in the parents. This instrument is divided into four sections: 1) trauma checklist, 2) description of the traumatic event, and 3) rating of symptom severity on a 4-point scale from *Not at All* (1) to *Almost Always* (4), and 4) interference of the symptoms. Seventy-one percent of the mothers ($n = 68$) and 78.13% of the fathers ($n = 75$) reported at least one traumatic experience in their lifetime. The Cronbach's alpha for this measure was .97 for mothers and .94 for fathers.

Emotion Regulation. The Emotional Dysregulation Scale (EDS) is a 24-item self-report measure of affective experiences. The EDS was adapted from the clinician-rated Affect

Regulation and Experiences Q-sort Questionnaire (Conklin et al., 2006; Westen et al., 1997; Zittel & Westen, 2005). Items are scored on a 7-point Likert scale ranging from *Not True* (1) to *Very True* (7). Items assess domains of emotional experiencing (e.g., "*My emotions sometimes spiral out of control*"), cognition (e.g., "*When I'm feeling bad, I have trouble remembering anything positive; everything just feels bad*"), and behavior (e.g., "*When my emotions are strong, I often make bad decisions*"). The Cronbach's alpha for this measure was .93 for mothers and .94 for fathers.

Parenting. The Family Interaction Drawing Task is an observational family-level task developed to measure 7 behavioral dimensions of parenting and family functioning (Sensitive/Child-Centered Parenting, Parental Facilitation of the Child's Understanding of the Story, Intrusiveness, Positive Affect, Negative Affect, Detachment, Cohesiveness, Emotional Support) (Cox, 1998; Lindahl & Malik, 2000; McHale, 1999). Families were asked to complete a drawing task together, which involved drawing a picture of the family during a happy time they have had, and another picture during a sad/hard time they have. Videotapes of the task were coded using family-level, parent-level, and child-level rating scales. Higher scores indicate a higher level of the dimensions in question. The present project focused on the seven parent-level dimensions of parenting (Sensitive/Child-Centered Parenting, Parental Facilitation of the Child Understands of the Story, Intrusiveness, Positive Affect, Negative Affect, Detachment, and Emotional Support).

Pearson correlations indicated significant and high correlations between all the maternal parenting and paternal parenting subscales of the Family Drawing Task, supporting the idea of creating a composite variable reflective positive parenting. For this composite, the negative scales were reverse coded (negativity, intrusiveness, detachment; see Table 2). The ICC for the

inter-rater coding reliability for these scales ranged from .77 to .85, indicating acceptable to good reliability. The Cronbach's alpha for the composite parenting score was .92 for mothers and .90 for fathers.

Covariates. Parental depression and demographic risk were evaluated as covariates in the multivariable models in this study, given research showing that these factors have negative effects on children's socioemotional development (Burt et al., 2005; Evans, Li, & Whipple, 2013; Frye & Garber, 2005; Goodman & Gotlib, 1999; Grant et al., 2003; McLoyd, 1998; Moreno, Silverman, Saavedra & Phares, 2008; Mulvaney, Mebert & Flint, 2007; Trentacosta et al., 2008).

The Center for Epidemiologic Studies-Depression Scale short form (CES-D short form) was used to measure the level of depressive symptoms that each parent had experienced during the previous week (Radloff, 1977). The instrument includes 11 items, with response options on a 2-point scale, ranging from *Hardly Ever or Never* (0) to *Much or Most of the Time* (2). The items include statements about feelings or behaviors related to depression, such as "*I felt sad*" and "*My sleep was restless*." Positive items are reversed scored and then the 11 items are summed to yield a total score, which reflects an index of depressive symptomatology. The possible range is 0 to 22, and a cut off score of 10 or higher indicates the presence of significant depressive symptoms. The Cronbach's alpha for this measure was .63 for mothers and .65 for fathers. Item-total statistics revealed that deleting item 3 "*I felt that everything I did was an effort*" increased alpha to .72 for mothers and .67 for fathers; therefore, this item was omitted in computations of the total scale score for each parent.

A cumulative demographic risk index was created based on Sameroff and colleagues' work (1993) and included as a covariate in the multivariable analyses. This index reflected the

presence/absence of five indicators of socio-demographic risk known to compromise parenting and child outcomes: (1) low income (family annual income less than $20,000, which falls at or below the federal poverty line for most families with young children); (2) young parental age (< 23 years; Berlin, Brady-Smith, & Brooks-Gunn, 2002; Lee & Goerge, 1999; Pinderhughes et al., 2001); (3) low education (high school graduate or less in education; Hooper et al., 1998; Liaw & Brooks-Gunn, 1994), (4) single parent status (not having a residential romantic partner; Bronstein, Clauson, Stoll, & Abrams, 1993; Klebanov et al., 1994; Pinderhughes, Nix, Foster, Jones, 2001), and (5) family size (> 4 children in the household; Evans, Maxwell, & Hart, 1999). Parents received a score of 1 for each indicator if present or a score of 0 if the indicator was absent.

Missing Data

The original study utilized a planned missing (PM) design, which was implemented by randomly assigning participants to have missing items (Graham, Hofer, & MacKinnon, 1996; Graham, Taylor, Olchowski, & Cumsille, 2006; Raghunathan & Grizzle, 1995; Thomas, Raghunathan, Schenker, Katzoff, & Johnson, 2006; Wacholder, Carroll, Pee, & Gail, 1994). Three forms were created, each containing a subset of the total items to be assessed. Participants were assigned one of the created forms. Each form was composed of an X block, which consisted of 25% of items from each measure that were considered critical items, plus one of the three remaining blocks (A, B, or C). Each participant completed a survey that was 50% shorter than the original. PM has the benefits of shortening surveys to reduce the burden on participants, leading to higher quality data (Little & Rhemtulla, 2013). Further, shortened surveys allow more items in a study, increasing the breadth of constructs.

Furthermore, among the 96 families included in these analyses, not all were able to

complete the demographic and self-report questionnaires. Among mothers, 95.8% completed the demographic questionnaire (n = 92), 100% completed the CBCL, EDS, and CES-D questionnaires (n = 96), and 92.7% completed the PDS questionnaire (n = 89). Among fathers, 90.6% completed the demographic questionnaire (n = 87), 84.4% completed the CBCL, EDS, CES-D questionnaires (n = 81), and 90.6% completed the PDS questionnaire (n = 87). Four families did not complete *Visit 2* due to being unable to attend their scheduled appointment, and therefore had missing data for the Family Drawing Task.

Missing data were imputed using the R package quark that implements the principal component auxiliary variable (pcAux) method introduced by Howard, Rhemtulla, and Little (2015). Professor Todd Little of Texas Tech University consulted on missing data issues, and he and his staff completed imputation of both planned and randomly missing data. Analyses described in this dissertation utilized a complete dataset based on the averages of 100 multiply imputed datasets.

Power and Sample Size

The targeted sample size for the current study was based on a power analysis (G power program; Faul, Erdfelder, Buchner, & Lang, 2009) with alpha (.05), effect size (.15) and power (.8), for a 1-group design using path analysis, which indicated a minimum sample of 70. This included parental depressive symptoms and cumulative risk index as covariates.

Analytic Plan

Distributional properties of the study variables were evaluated via histogram, normality plot, and diagnostic hypothesis tests of normality (e.g., skewness and kurtosis values must be between -1.0 and +1.0 for the normality to be established). Variables that were not normally distributed were transformed. Descriptive statistics were calculated for every central variable, for

mothers and fathers. Bivariate correlations were used to evaluate the associations between main study variables. The associations of parental depression and demographic risk with the main study variables were evaluated as covariates. Child sex was evaluated as a potential moderator using an independent sample *t*-test.

Primary analyses of the effects of parental PTSD symptoms on toddlers' internalizing and externalizing problems were conducted using Hayes PROCESS macro for multiple mediation (model 6; Hayes, 2013). Two separate models were run for toddler's internalizing problems as the dependent variable: one with mothers' PTSD (mothers' scores on PTSD symptom checklist of the PDS) as the independent variable, another with fathers' PTSD (fathers' scores on PTSD symptom checklist of the PDS) as the independent variable. Also, two separate models were run for toddlers' externalizing problems as the dependent variable: one with mothers' PTSD as the independent variable, another with fathers' PTSD as the independent variable.

The first mediation variable tested in the model was parental emotion dysregulation, which was based on parents' scores on the EDS. The second mediation variable in the model was the composite positive parenting variable, measured via coding of the videotaped Family Drawing Task. The estimated indirect effects were tested from a series of 10,000 bootstrap re-samples (Preacher, Rucker, & Hayes, 2007) in which the sampling distribution of the conditional indirect effect is not assumed to be normal. All analyses included parental depression and demographic risk as covariates.

CHAPTER 4: RESULTS

Preliminary Analyses

A set of preliminary analyses were carried out prior to conducting the primary analyses used to address the study's aims. Normality was established for all study variables due to kurtosis and skewness values being between -1.0 and +1.0. Assumptions of multiple linear regression were met through establishing linearity between the independent and the dependent variables, lack of outliers, multivariate normality established via the histogram and a fitted normal curve, the lack of multicollinearity via tolerance being >.2, variance inflation factor being < 10, and condition index being < 30 in all independent variables, and lack of homoscedasticity via the scatterplot.

Descriptive statistics for the key study variables (mean, SDs, min/max, and correlations) are presented in Table 3 and Table 4. A cutoff T score of 66 or higher is indicative of problematic behavior problems on the CBCL; 6.25% of the children had an Internalizing score of above 65 (n = 6) and 9.38% of the children had an Externalizing score of above 65 (n = 9).

The optimal cutoff score for identifying PTSD cases with the PDS is 27 and higher; 35.42% of the mothers (n = 34) and 42.71% of the fathers (n = 41) had a total score of 27 or higher. Among the mothers who reported any symptoms of PTSD, 27.1% had been experiencing these symptoms for less than one month (n = 26), 2.1% for 1-3 months (n = 2), and 40.6% for more than 3 months (n = 21). Among the fathers who reported any symptoms of PTSD, 20.8% had been experiencing these symptoms for less than one month (n = 20), 8.3% for 1-3 months (n = 8), and 49.5% for more than 3 months (n = 47). A cutoff score of 10 or higher is indicative of the presence of significant depressive symptoms on the CES-D short form; 22.92% of the mothers (n = 22) and 10.42% of the fathers (n = 10) has a total score of 10 or higher.

Results from correlation analyses between the main study variables are presented in Table 4. Higher toddler internalizing problems were significantly associated with higher toddler externalizing problems, higher maternal and paternal PTSD, higher maternal and paternal emotion dysregulation, less positive parenting in mothers, higher maternal and paternal depression, and higher maternal and paternal demographic risk. Higher toddler externalizing problems were significantly associated with higher maternal PTSD, higher maternal emotion dysregulation, and a higher maternal demographic risk. Positive parenting in mothers was significantly associated with positive parenting in fathers and less demographic risk in both mothers and fathers. Positive parenting in fathers was significantly associated with less demographic risk in both mothers and fathers. Higher emotion dysregulation in mothers was significantly associated with higher maternal depression. Higher emotion dysregulation in fathers was significantly associated with higher paternal PTSD, depression, and demographic risk. Higher PTSD in mothers was significantly associated with higher maternal depression. Higher PTSD in fathers was significantly associated with higher paternal depression. However, neither maternal nor paternal PTSD or depression were significantly associated with maternal or paternal positive parenting.

It was evaluated whether internalizing and externalizing behavior problems differed significantly between girls and boys, in order to assess whether child sex should be included in the analyses as a moderator or a covariate. Results indicated no significant sex differences on the scores of internalizing and externalizing behavior problems, t (94) = -.05, p = .234, t (94) = .59, p = .992, respectively.

Aim #1: Evaluate the associations between maternal PTSD, emotion dysregulation, and parenting.

It was hypothesized that higher numbers of PTSD symptoms in mothers would significantly predict higher maternal emotional dysregulation, controlling for maternal and paternal depression and maternal demographic risk. Findings revealed that mothers' PTSD was not significantly associated with maternal emotion dysregulation; however, higher maternal depression was significantly associated with higher maternal emotion dysregulation (see Table 5).

It was also hypothesized that both higher PTSD and emotion dysregulation in mothers would significantly predict less positive maternal parenting, controlling for maternal and paternal depression and maternal demographic risk. Maternal PTSD and emotion dysregulation were not significantly associated with mothers' positive parenting behavior; however, higher demographic risk was a significant predictor of less positive parenting in mothers (see Table 5).

Aim #2: Evaluate the associations between paternal PTSD, emotion dysregulation, and parenting.

It was hypothesized that a higher numbers of PTSD symptoms in fathers would significantly predict higher paternal emotional dysregulation, controlling for maternal and paternal depression and paternal demographic risk. Findings revealed that fathers' PTSD was not significantly associated with paternal emotion dysregulation; however, higher paternal depression was significantly associated with higher paternal emotion dysregulation (see Table 6).

It was also hypothesized that both higher PTSD and emotion dysregulation in fathers would significantly predict less positive paternal parenting, controlling for maternal and paternal depression and paternal demographic risk. Paternal PTSD and emotion dysregulation were not

significantly associated with fathers' parenting behavior; however, higher paternal demographic risk was a significant predictor of less positive parenting in fathers (see Table 6).

Aim #3: Evaluate the associations between maternal PTSD and toddler internalizing behavior problems, with emotion dysregulation and parenting as mediators.

It was hypothesized that greater maternal PTSD symptoms would significantly predict higher internalizing behavior problems in toddlers, controlling for maternal and paternal depression and maternal demographic risk. Results demonstrated that maternal PTSD was not significantly associated with toddler internalizing problems. However, paternal depression and mothers' demographic risk were significant predictors of toddler internalizing problems in this model (see Table 5).

It was also hypothesized that the relationship between maternal PTSD symptom and toddlers' internalizing problems would be mediated by maternal emotion dysregulation and parenting quality, controlling for maternal and paternal depression and maternal demographic risk. This hypothesis could not be tested because maternal PTSD was not significantly associated with toddler internalizing problems, after taking into account the effects of depression and demographic risk. The analyses were run nonetheless as part of the PROCESS analyses, and results demonstrated that higher maternal emotion dysregulation, higher paternal depression, and higher maternal demographic risk were the only variables that significantly predicted toddler internalizing problems (see Table 5).

Aim #4: Evaluate the associations between paternal PTSD and toddler internalizing behavior problems, with emotion dysregulation and parenting as mediators.

It was hypothesized that greater paternal PTSD symptoms would significantly predict higher internalizing behavior problems in toddlers, controlling for maternal and paternal

depression and paternal demographic risk. Results demonstrated that fathers' PTSD was not significantly associated with toddler's internalizing problems; however, maternal depression and paternal demographic risk were significant predictors of toddler's internalizing problems (see Table 6).

It was also hypothesized that the relationship between paternal PTSD symptoms and toddlers' internalizing problems would be mediated by paternal emotion dysregulation and parenting quality, controlling for maternal and paternal depression and paternal demographic risk. This hypothesis could not be tested because paternal PTSD was not significantly associated with toddler internalizing problems after taking into account the effects of depression and cumulative risk. The analyses were run nonetheless as part of the PROCESS analyses, and results revealed that higher emotion dysregulation in fathers, higher depression in mothers, and higher demographic risk were the only variables that significantly predicted toddler internalizing problems (see Table 6).

Aim #5: Evaluate the associations between maternal PTSD and toddler externalizing behavior problems with emotion dysregulation and parenting as mediators.

It was hypothesized that greater maternal PTSD symptoms would significantly predict higher externalizing behavior problems in toddlers, controlling for maternal and paternal depression and maternal demographic risk. Results demonstrated that maternal PTSD was not significantly associated with toddler externalizing problems. Mothers' demographic risk was the only significant predictor of toddler externalizing problems in this model (see Table 7).

It was also hypothesized that the relationship between maternal PTSD symptoms and toddlers' externalizing problems would be mediated by maternal emotion dysregulation and parenting quality, controlling for maternal and paternal depression and maternal demographic

risk. This hypothesis could not be tested because maternal PTSD was not significantly associated with toddler externalizing problems after taking into account the effects of depression and demographic risk. The analyses were run nonetheless as part of the PROCESS analyses, and results demonstrated that higher maternal emotion dysregulation and higher maternal demographic risk were the only variables that significantly predicted toddler externalizing problems (see Table 7).

Aim #6: Evaluate the associations between paternal PTSD and toddler externalizing behavior problems with emotion dysregulation and parenting as mediators.

It was hypothesized that greater PTSD symptoms in fathers would significantly predict higher externalizing behavior problems in toddlers, controlling for maternal and paternal depression and paternal demographic risk. Results demonstrated that fathers' PTSD was not significantly associated with toddlers' internalizing problems (see Table 8).

It was also hypothesized that the relationship between paternal PTSD symptom and toddlers' externalizing problems would be mediated by paternal emotion dysregulation and parenting quality, controlling for maternal and paternal depression and paternal demographic risk. This hypothesis could not be tested because paternal PTSD was not significantly associated with toddler externalizing problems after taking into account the effects of depression and cumulative risk. The analyses were run nonetheless as part of the PROCESS analyses, and results revealed that none of the variables significantly predicted toddler externalizing problems (see Table 8).

CHAPTER 5: DISCUSSION

The overarching goal of this study was to investigate associations between maternal and paternal PTSD and toddlers' internalizing and externalizing problems and identify whether these associations are mediated through parental emotion regulation and parenting. A large literature demonstrates that parental psychopathology has devastating effects on children's development (Connell & Goodman, 2002; Goodman et al., 2011). This study aimed to: (1) assess whether parental PTSD has a unique impact on toddler behavior problems beyond the effects of parental depression; (2) evaluate whether these effects occur through parental emotion regulation and parenting; (3) identify the unique contributions of fathers' PTSD and emotion regulation on toddlers' behavior problems, beyond the effects of maternal symptoms; (4) tease apart differences between internalizing and externalizing problems in toddlers; (5) and answer these questions utilizing an understudied economically disadvantaged urban sample of predominately African American mother-father-toddler triads. I also aimed to reduce shared method variance and the possibility of inflated responses due to parental psychopathology (e.g., Briggs-Gowan, Carter, & Schwab-Stone, 1996; McFarland & Sanders, 2003) by averaging the maternal and paternal report of toddler behavior problems.

Overall findings indicate that (1) both mothers' and fathers' emotion regulation and depression, but not PTSD and parenting, are the main parental factors linked to higher internalizing behavior problems in toddlers, and only mothers' cumulative demographic risk is significantly associated with toddlers' externalizing behavior problems; (2) the associations between parental PTSD and child internalizing and externalizing problems are not mediated through emotion regulation and parenting; (3) fathers' symptoms of emotion dysregulation and depression are as equally important in predicting toddler behavior problems as mothers' emotion

dysregulation and depression; (4) parental PTSD, emotion dysregulation, and depression are more strongly associated with toddlers' internalizing problems than their externalizing problems.

PTSD and Toddler Behavior Problems

The primary results from this study suggest that both maternal and paternal PTSD are related to toddlers' internalizing problems, and maternal PTSD is related to toddlers' externalizing problems. These findings are consistent with those reported in previous research (Ahmadzadeh & Malekian, 2004; Briggs et al., 2014; Kilic, Kilic, & Aydin, 2011; Leen-Feldne et al., 2011; Morris, Gabert-Quillen, & Delahanty, 2012; Scheeringa & Zeanah, 2008; Qouta, Punamaki, & Sarraj, 2008). However, these associations for PTSD and child outcomes are based on correlational analyses and do not remain significant after accounting for depression and demographic risk in the PROCESS analyses. In contrast, both depression and demographic risk in mothers and fathers predict internalizing behavior problems and only maternal demographic risk predicts externalizing behavior problems. These findings are partially consistent with previous literature documenting that maternal and paternal depression and cumulative demographic risk have negative effects on the social emotional outcomes of children during early years of life (Ashman, Dawson, & Panagiotides, 2008; Jacobs, Talati, Wickramaratne, & Warne, 2015).

Several possible explanations exist for the lack of specific associations between parental PTSD and child behavior problems in the present study. One explanation may be that parental PTSD symptoms influence toddler internalizing behavior problems indirectly through their effects on parental depression. There is a high degree of comorbidity in both women and men between PTSD and depression, and several symptoms overlap between these disorders, as well as other mental health problems (Campbell et al., 2007; Kilpatrick et al., 2003; O'Donnell,

Creamer, & Pattison, 2004; Seng et al., 2009). In this study, both mothers' and fathers' PTSD are significantly associated with their depression. Previous research on mothers supports the notion that co-occurring anxiety disorders and depression in parents are associated with more negative outcomes in children than a single disorder (Boyd & Tervo-Clemmens, 2013; Carter et al., 2001). Although this comorbidity may be partially due to genetic predispositions, it is also linked to more impaired parenting and subsequently to children's internalizing behavior problems (Boyd & Tervo-Clemmens, 2013; Carter et al., 2001). Co-occurring depression and PTSD may cause parents' overall functioning ability to be more impaired. It may also be indicative of contextual factors. For example, parents who have co-occurring depression and PTSD as opposed to a single disorder may have less social support or more relationship difficulties, more financial stress, or may have had more dysfunctional family interactions when growing up (Breslau, Davis, Peterson & Schultz, 2000; Keane & Wolfe, 1990; O'Donnell, Creamer, & Pattison, 2004; Söderquist, Wijma, Thorbert, & Wijma, 2009; Stein & Kennedy, 2001).

It is also possible that maternal demographic risk moderates the relationship between maternal PTSD symptoms and toddler externalizing behavior problems, such that toddlers who have mothers with high symptoms of PTSD and high demographic risk are at the greatest risk for developing externalizing behavior problems. Literature on resiliency and risk factors for PTSD indicates that high cumulative demographic risk plays a significant role in the development and maintenance of PTSD symptoms after experiencing a traumatic event (Bar-Shai & Klein, 2015; Horn, Charney, & Feder, 2016).

Another explanation may be that parental depression has a greater impact on toddler behavior problems than PTSD. In a study of mostly middle-class mothers with a history of childhood maltreatment, maternal depression was a stronger predictor of parenting quality than

PTSD (Martinez-Torteya et al., 2014). Authors in that study also concluded that the lack of associations they found between parental psychopathology (depressive and PTSD symptoms) and infant outcomes is due to the impact of parental pathology on children occurring indirectly via parenting quality. Given that PTSD symptoms are linked to one or more traumatic events, it may be useful for researchers to assess the severity of PTSD symptoms parents experience during their interactions with their children to evaluate the associations between this disorder and children's behavior problems. Parenting, or parent-child interactions, may trigger symptoms for one parent, but not for another. Further, some parents may be utilizing coping skills (e.g., mindfulness skills) to remain regulated and engaged with their children during difficult interactions. Identifying such protective factors can guide screening for at risk populations and providing proper interventions.

In addition, it is important to consider the present sample's unique characteristics. Parental PTSD in low SES samples is often the result of chronic interpersonal forms of trauma, such as domestic and neighborhood violence, which may be compounded with the effects of poverty (Carter et al., 2010; Monnin et al., 2012). This type of parental PTSD may manifest differently than PTSD in non-poverty samples in which parents experienced an acute form of trauma, or even chronic forms of interpersonal trauma but without the other demographic risk. Some parents may be able to rely on secondary coping methods to reduce the effects of PTSD on parenting and their children. Individuals in low-SES populations also have more direct and indirect exposure to witnessing and experiencing symptoms of PTSD due to high rates of trauma exposure (Parto, Evans, & Zonderman, 2011; Perkonigg, Kessler, Storz, & Wittchen, 2000), and may have identified ways of coping with such symptoms. It may also be that our current methods of assessment for PTSD needs modification depending on the population we are working with.

For example, hypervigilance may be necessary in response to persistent violence in neighborhoods or domestic violence to ensure safety. Lastly, it is essential to study whether the relationship between PTSD and toddler behavior problems may present itself differently in a clinical sample of parents who all meet criteria for PTSD, or in a sample of single-parents who lack the support of a parenting partner. Such parents may be experiencing higher levels of functional impairment, leading to greater parenting impairment and behavior problems in children.

PTSD, Depression, and Emotion Regulation

Overall, the results of the study do not provide support for the proposed multiple mediation models. Although the associations between PTSD and toddler outcomes are statistically significant in bivariate analyses, they are reduced to statistical non-significance in multivariable models controlling for parental depression and cumulative demographic risk. In addition, my findings show that both maternal and paternal depression, not PTSD, are significantly associated with parental emotion dysregulation. Among fathers, higher PTSD significantly predicts higher emotion dysregulation; however, these associations do not remain significant after accounting for paternal depression. Among mothers, only depression is a significant predictor of emotion dysregulation. These findings suggest that maternal depression is a stronger predictor of maternal emotion dysregulation than PTSD in a low SES, predominantly African American, sample of mother-father-toddler triads.

Previous studies indicate strong associations between depression and emotion regulation (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Gross & Muñoz, 1995). This finding may reflect the fact that depressed individuals tend to utilize greater maladaptive emotion regulation and have greater difficulties in implementing adaptive strategies. Cognitive theories of depression

state that the role of emotion regulation in depression occurs through deficits in cognitive control (Garnefski, & Kraaij, 2006; Joormann & Gotlib, 2010; Joorman & Vanderline, 2014), which can be even further hindered when individuals are dealing with the stress of poverty. The Conservation of Resource Theory (COR) by Steven Hobfoll states that resources are the key components that determine how an individual perceives and copes with a stressful event (Hobfoll, Freedy, Lane, & Geller, 1990). His research on trauma-impacted populations shows that psychosocial and material losses greatly impact the development of PTSD and depression after trauma exposure (Hobfoll, Tracy, & Galea, 2006; Tracy, Hobfoll, Canetti-Nasim, & Galea, 2008). Hobfoll also reports that cognitive losses (e.g., hope, self-esteem) are associated with material losses (e.g., job, housing) and that both have an equally strong effect on individuals. These theories are relevant to findings in the present low-income sample, because low-income populations not only have significantly lower material resources, but they are also at high risk for experiencing traumatic events that could cause cognitive losses.

PTSD and Parenting

Interestingly, neither PTSD nor depression are significantly associated with parenting quality among mothers or fathers in the present study. These findings contrast with previous research showing that parents with higher PTSD and depression symptoms engage in less positive parenting practices (Bar-On et al., 1998; Davies, Slade, Wright, & Stewart, 2008; Lyons-Ruth & Block, 1996; Muller-Nix et al., 2004; Ruscio et al., 2002; Schechter et al., 2008, 2005, 2010; Schwerdtfeger & Goff, 2007). Among low-income parents with a higher rate of trauma exposure than in the general population, parents' psychopathology might have less impact on the ways in which they behave with their young children during a relatively unstructured parent-child interaction task, such as the Family Drawing Task utilized in the

current study. A more structured or stressful task (e.g., teaching or clean-up task) may provide greater opportunities for toddlers to misbehave or become dysregulated, which in turn may place greater pressure on parents to use their cognitive and emotion regulation abilities, such as problem solving or self-soothing, to accomplish the task. Significant associations between parental PTSD and parenting may be more evident in more structured or stressful contexts, because mothers and fathers may find it more difficult to regulate themselves and their toddler in those settings (Samuelson, Krueger, & Wilson, 2012).

In addition, studies reporting a significant association between PTSD and parenting have mainly focused on negative aspects of parenting, such as over-controlling/intrusive behavior, hostility, or detachment. It may be that PTSD impacts different aspects of parenting differently, depending on the population, the task, the parent's age, the child's developmental level, the child's birth order, and the number of resources a parent might have. For instance, parental PTSD may increase parents' negative parenting practices, but may have a smaller effect on lowering the parent's ability to engage in positive parenting practices. The impact of parental PTSD on child outcomes may present itself as more prominent if assessed via moment-to-moment parent-child interactive behaviors as opposed to a global assessment of the parenting behavior during an entire task. PTSD induced parenting deficits may cause subtle difficulties in properly interpreting children's cues, while positive relational elements, such as warmth and child sensitivity, are conserved (Feldman et al., 2009).

Cumulative Demographic Risk. Maternal and paternal demographic risk are the only two variables that significantly predict parenting for both mothers and fathers in the present study, even after accounting for other variables. These findings are highly consistent with those in previous research, supporting the negative effects cumulative demographic risk has on

parenting young children (Buchinal, Vernon-Feagans, Cox, & Key Family Life Project Investigators, 2008; Trentacosta, Hyde, Shaw, Dishion, Gardner, & Wilson, 2008; Zalewski, Lengua, Kiff, & Fishe, 2012). However, this topic has been predominantly studied in mother-child dyads. The two studies that have evaluated this topic in father-child dyads report that higher paternal demographic risk is linked to compromises in both mothers' and fathers' parenting quality and poorer toddler and preschool cognitive and social outcomes (Cabrera, Fagan, Wright, & Schadler, 2011; Fagan & Lee, 2013). This is a particularly interesting finding in the current study since the entire sample is low-income, yet there was enough variation in cumulative risk to significantly predict outcomes.

The literature suggests that parents with higher demographic risk profiles have less access to resources that support parenting, such as job stability, adequate income for meeting familial needs, higher education and greater knowledge about parenting and child development, and greater social support (e.g., having a residential parenting partner) (Osofsky, Thompson, Shonkoff, & Meisels, 2000). Although each risk factor considered alone may not lead to clinical levels of behavior problems in young children, the accumulation of risk factors appears to have detrimental effects (Sameroff, 2009). These findings also provide support for the idea that providing greater resources for low-income families (such as those eligible for WIC) would likely have powerful effects on both parents' and toddlers' well-being.

Parental Emotion Regulation, Depression, and Toddler Behavior Problems

Results reveal two key findings. In the model predicting internalizing problems, only higher maternal and paternal emotion dysregulation, maternal and paternal depression, and maternal and paternal cumulative demographic risk are significant predictors. Maternal and paternal PTSD and parenting in both mothers and fathers are no longer statistically significant

predictors as they are in bivariate analyses. The findings regarding the negative effects of parental emotion dysregulation, depression, and cumulative demographic risk on children's social emotional outcomes during the early years of life are consistent with findings from prior research (Ashman, Dawson, & Panagiotides, 2008; Jacobs, Talati, Wickramaratne, & Warne, 2015).

Contrasting findings are seen in the model predicting externalizing problems. In that model, only higher maternal emotion dysregulation and maternal cumulative demographic risk are significant predictors. This finding is consistent with previous research (Denham et al., 2000; Eisenberg et al., 2001; Trentacosta et al., 2008). The effects of maternal and paternal PTSD, parenting, and depression, and paternal emotion dysregulation and paternal cumulative demographic risk are not statistically significant predictors, which is consistent with the results of the bivariate analyses.

Together, these two key findings underscore that including fathers' symptoms of depression and emotion regulation when assessing behavior problems in toddlers is as important as including mothers' symptoms, especially when predicting toddlers' internalizing behavior problems. Similar findings have been reported in other research (Breaux, Harvey, & Lugo-Candelas, 2013; Reeb & Conger, 2009). It also suggests that PTSD and depression are more important to assess when studying internalizing behavior problems than externalizing behavior problems in toddlers. While both PTSD and depression fall under the internalizing spectrum, it may be that disorders in parents that are categorized under the externalizing spectrum, such as antisocial personality disorder or substance use disorder, may better predict toddlers' externalizing behavior problems (Connell & Goodman, 2002; Krueger, Markon, Patrick, Benning, & Kramer, 2007).

Possible mechanisms may help explain the associations between parental depression, emotion dysregulation, and toddler behavior problems observed in the present study. Prior research shows that shared genetic diathesis (Koenen, Amstadter, & Nugent, 2009; Koenen et al., 2008), parental modeling and reinforcement of dysregulated behavior to cope with stressors, and positive parent-child interactions (Ewell-Foster, Garber, & Durlak, 2007; Ruscio et al., 2002) are all linked to positive child emotional and behavioral outcomes. In addition to sharing on average 50% of their genetic makeup with each parent, young children learn to regulate their own emotions and behaviors and cope with stressors by observing the ways in which their parents self-regulate their own emotions and engage in parent-parent and parent-child interactions. Finally, a dyadic or triadic interaction that involves a parent suffering from psychopathology may exhibit less effective parental self-regulation, which may undermine parent-child dyads' ability to co-regulate children's negative emotional states and stress. This can be problematic during toddlerhood as immature children must rely mainly on their parents for regulation of negative emotions and soothing to return to baseline stress levels and re-engage in learning and problem-solving.

Limitations

The results of this study should be interpreted in the context of several limitations. First, all psychopathology measures were based on parents' self-reports of symptoms, which could be impacted by bias, stigma, or lack of insight and awareness. Further, parents were not clinically diagnosed, and results from this community sample may therefore not generalize to families in clinically referred samples. Similarly, caution should be taken when attempting to generalize findings regarding toddler behavior problems in this sample to samples in which toddlers are diagnosed with clinical levels of behavior issues, as I did not use diagnostic criteria.

Second, other possible mediators and moderators that were not assessed in the present study may contribute to toddlers' behavior problems. For instance, the different dimensions of parental psychopathology may interact, or child sex may moderate associations between parental depression and child outcomes. Investigators should evaluate this and other mediators and moderators in future research with larger samples of mother-father-toddler triads.

Third, several limitations stem from the relatively small sample size. For instance, the subgroups of non-biological fathers and non-residential fathers in the present study were relatively small, which limits power to detect significant effects. There also was not sufficient power to analyze different ethnic groups separately, so it was not possible to evaluate potential moderating effect of ethnicity. Future research should examine effects of fathers' residential status and variations in ethnicity in greater depth. A related limitation is that the results of the present study may not generalize to low SES families in other racial/ethnic groups or in different demographic risk profiles, such as White families, or single parent vs. intact families.

Lastly, conclusions about the direction of effects and causality among the study variables (i.e., between parental psychopathology symptoms and child outcomes) cannot be made in the present cross-sectional study. In future research, investigators should utilize longitudinal and/or experimental designs, which would provide greater insight into causal relations.

Conclusions

In summary, findings from multivariable analyses indicate that both mothers and fathers from low SES backgrounds with higher depression, emotion dysregulation, and demographic risk have toddlers who exhibit more internalizing behavior problems, and mothers with high cumulative demographic risk profiles have toddlers who exhibit more externalizing behavior problems. Contrary to expectations, however, parental PTSD and parenting are not associated

with toddlers' behavior problems. Findings provide evidence for a link between early behavior issues and a set of parental and demographic factors that have been proposed to have an important role in the development of childhood psychopathology. This adds to current literature indicating that, although elevated behavior problems may be normative during toddlerhood, a high level of behavior problems may represent clinically significant disturbances even in children as young as 2 years old (Campbell, Shaw, Gilliom, 2000; Rinaldi & Howe, 2012; Visser et al., 2010). Further, differences in the associations between parental psychopathology and toddlers' internalizing versus externalizing behavior problems subtypes suggest that behavior subtypes may already be beginning to differentiate in the toddlerhood years, and provides some evidence supporting the validity of these subtypes. Although these differences do not establish direction of causality, they provide some further support for existing theoretical models that postulate specific etiological pathways that predict internalizing and externalizing behavior problems, and stress the impact of parental psychopathology on the emergence of psychopathology during early childhood.

Implications for Future Research and Practice

Research Implications. Regarding future research with low SES populations, it is important to assess whether PTSD among individuals who have experienced long-standing cumulative demographic stress and trauma as a result of growing up and residing in poverty presents itself differently than PTSD in other populations. For example, it would be important to identify whether such individuals have higher rates of co-occurring depression and other mental health difficulties. Second, future research should evaluate whether the associations between parental PTSD and toddler behavior problems is mediated through parental depression, and whether children who have parents with co-occurring PTSD and depression are at the greatest

risk for behavior problems. It is also important to evaluate the ways in which co-occurring PTSD and depression may impact parenting practices of young children among low SES families.

Moreover, findings from this study suggest that parental emotion dysregulation, which has received relatively little empirical attention, merits further study, especially among mother-father-toddler triads from low-income backgrounds who face higher number of stressors than the general population. Given the high comorbidity between PTSD and depression (Campbell et al., 2007; Shalev et al., 1998), investigators in future research should evaluate whether parents who are high on both depression and PTSD symptoms have the highest level of emotion dysregulation, and the ways in which these associations are linked to toddler behavior problems.

In regard to research on the associations between PTSD and parenting, investigators should aim to assess whether the type of parenting practices (e.g., positive versus negative) and the ways in which parenting is measured (e.g., structured versus unstructured tasks) are important factors to consider. Further, assessing whether there are differences observed between specific PTSD symptom clusters in parenting practices would shed greater light on this topic and advance clinical practice.

In the present study, findings highlight the importance of considering parental emotion regulation, in addition to parental depression, when studying behavior problems in toddlers. Although intriguing, my findings need replication in future research. Specifically, investigators should more closely investigate whether the associations between parental depression and toddler behavior problems in low-income populations can be explained at least partially through parents' ability to regulate their emotions. If this study's findings can be replicated, then investigators in future research should also investigate practical ways through which mental health professionals could intervene to reduce the impact of parental depression and emotional

dysregulation on children's development.

In addition, investigators in future research with mother-father-toddler triads should evaluate the role of possible moderator variables, such as child sex. As gender roles continue to develop throughout childhood, fathers', versus mothers', parents' psychopathology and emotion regulation abilities may have a different impact on their sons as opposed to their daughters, depending on the ways in which children are socialized. Although there are no significant child sex differences in child behavior problems in the current study, other recent studies suggest that boys appear to be more negatively impacted than girls by their parents' mental health difficulties and harsh parenting practices (Beeghly et al, 2017).

Clinical Implications. The current findings highlight a need to expand current assessment and intervention models of childhood psychopathology to include the influence of various types of parent psychopathology and overall emotion dysregulation. Failure to assess both maternal and paternal depression and emotion regulation in a single analysis, especially in populations with a history of trauma, may impede treatment efficacy in young children. Moreover, given the associations between parent symptomology and child symptomology evident even in longitudinal designs (Connell & Goodman, 2002; Goodman et al., 2011), it is essential to implement ongoing assessment of child and parent symptoms in therapeutic approaches.

It would also be advantageous for interventions that target toddlers with internalizing behavior problems to also target parental psychopathology and emotion regulation. The benefits of this expanded approach have been evident in interventions that show that targeting maternal depression alone (Weissman et al., 2006) or combining depression treatment with parent training (Chronis-Tuscano et al., 2010, 2013) improves child functioning. Unfortunately, the majority of

interventions for children with behavior problems focus mainly on teaching parenting techniques and do not directly address parental psychopathology. This is a common practice despite research showing that children of parents with symptoms of psychopathology show poorer outcomes following parenting programs than children with parents without psychopathology (Reyno & McGrath, 2006). Moreover, parent training often involves just one parent, typically the mother, which may be problematic given research showing the important role that both mothers and fathers play in toddlers' emergent behavior problems (Connell & Goodman, 2002).

Furthermore, we continue to utilize the same parenting interventions for young children with fathers as we use with mothers, even though such programs were often developed specifically in samples of mother-child dyads, or in families from middle to upper class backgrounds. Low-income urban fathers who have regular and consistent contact with their children, and those with depression and emotion regulation difficulties may greatly benefit from interventions that are tailored specifically to their needs as fathers of toddlers. It is important to identify effective and practical avenues through which low-income fathers with young children can be taught emotion regulation skills, such as through the primary care setting. Based on the result from this study, it is also essential to provide low-income fathers access to greater financial and social resources to improve fathers' overall well-being and reduce their young children's risk for internalizing problems.

Table 1

Demographic Information

Characteristics	Mothers		Fathers	
	Mean (SD)		Mean (SD)	
Age	27.78 (5.75)		31.65 (8.47)	
Number of Children	2.96 (1.89)		3.44 (2.52)	
	n	%	n	%
Race/Ethnicity				
African American	85	89.0	87	91.0
White	3	3.1	3	3.1
Hispanic/Latino	2	2.1	4	2.1
Asian	1	1.0	1	1.0
Multiracial	5	5.2	3	3.1
Language Spoken at Home				
English	90	94.0	93	97.0
English and Spanish	2	2.1	1	1.0
English and Arabic	3	3.1	1	1.0
English and Bangladeshi	1	1.0	1	1.0
Work Status				
Full Time	24	25.0	37	39.0
Part Time	23	24.0	19	19.8

Unemployed	40	41.7	21	21.9
Disabled	5	5.2	12	12.5
Student Status				
Full or part time status	14	15.0	5	5.0
Education				
No high school diploma	15	15.6	16	16.7
High school graduate or GED	29	30.2	41	42.7
Some college credit	37	38.5	29	30.2
Trade/vocational training	4	4.2	6	6.3
Associate degree	6	6.3	1	1.0
Bachelor's degree	4	4.2	2	2.1
Total Family Income				
No income	6	6.3	5	5.2
≤$10,000	40	42.7	29	30.2
$10,000-$20,000	27	28.1	33	34.4
≥$20,001	22	22.9	28	29.2
Marital Status				
Married	26	27.1	24	25.0
Cohabitating	26	27.1	28	29.2
In a serious relationship	24	25.0	31	32.3
Single	17	17.7	10	10.4
Separated	1	1.0	2	2.1
Divorced	1	1.0	1	1.0

Widow	1	1.0	0	0.0
Relationship with bio-father				
Married and living together	18	18.8		
Living together, not married	45	46.9		
In a relationship, not living together	5	5.2		
Not in a relationship	28	29.2		
Home with child during day	66	69.0	58	60.0
Home with child during night	83	86.5	60	62.5
Father Status				
Biological father			85	88.5
Stepfather			7	7.3
Mom's romantic partner			2	2.1
Grandfather			2	2.1
Residency Status				
Living with child full time			68	70.8
Living with child part-time			13	13.5
Not residential, but regularly in contact			5	5.2
Inconsistent contact with child			1	1.0

Note. SD = Standard Deviation

Table 2

Correlation of Family Drawing Task Subscales

	1	2	3	4	5	6	7
			Maternal Codes				
Child Centered	1						
Positivity	.79**	1					
Detachment	-.77**	-.75**	1				
Intrusiveness	-.61**	-.60**	.51**	1			
Negativity	-.57**	-.64**	.50**	.57**	1		
Story Facilitation	.75**	.64**	-.69**	-.45**	-.42**	1	
Emotional Support	.80**	.73**	-.72**	-.49**	-.45**	.74**	1
			Paternal Codes				
Child Centered	1						
Positivity	.79**	1					
Detachment	-.77**	-.74**	1				
Intrusiveness	-.42**	-.47**	.34**	1			
Negativity	-.51**	-.49**	.51**	.56**	1		
Story Facilitation	.73**	.58**	-.59**	-.28**	-.33**	1	
Emotional Support	.82**	.75**	-.79**	-.34**	-.43**	.67**	1

*$p < 0.05$; **$p < 0.01$

Table 3

Descriptive Statistics for Main Study Variables and Covariates

	Minimum	Maximum	Mean	SD
Internalizing Behavior Problems	31.00	74.00	56.22	7.215
Externalizing Behavior Problems	31.50	74.50	55.67	7.67
Maternal PTSD	.00	63.00	20.85	15.67
Paternal PTSD	.00	48.00	23.60	12.36
Maternal ED	28.86	151.87	76.05	23.99
Paternal ED	28.23	144.39	74.00	23.75
Maternal Parenting	9.00	46.00	26.44	8.23
Paternal Parenting	10.00	44.00	26.33	7.67
Maternal Depression	1.00	14.00	6.27	3.52
Paternal Depression	.00	17.00	5.19	3.21
Maternal Cumulative Risk	.00	5.00	2.22	1.07
Paternal Cumulative Risk	.00	5.00	2.28	1.05

Note. Internalizing Behavior Problems and Externalizing Behavior Problems = Child Behavior Checklist; PTSD = Post-Traumatic Diagnostic Scale; ED = Emotion Dysregulation Scale; Depression = Center for Epidemiologic Studies-Depression Scale; SD=Standard Deviation

Table 4

Correlation of Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Internalizing Behavior Problems	1											
2. Externalizing Behavior Problems	.58**	1										
3. Mom PTSD	.22*	.21	1									
4. Dad PTSD	.28**	.09	.09	1								
5. Mom ED	.32**	.29**	.02	.08	1							
6. Dad ED	.41**	.18	.02	.31**	-.05	1						
7. Mom Parenting	-.22*	-.06	.17	-.05	-.15	-.10	1					
8. Dad Parenting	-.20*	-.03	.10	-.05	-.13	-.10	.79**	1				
9. Mom Depression	.29*	.15	.34**	-.09	.43**	-.02	.05	.02	1			
10. Dad Depression	.37**	.11	.13	.51**	.08	.61**	-.07	-.10	.16	1		
11. Mom Demographic Risk	.30**	.25*	.05	.04	.07	.13	-.36**	-.23*	.11	.03	1	
12. Dad Demographic Risk	.31**	.18	-.13	.08	.09	.22*	-.40**	-.30**	-.12	.07	.46**	1

Note. PTSD = Posttraumatic Stress Disorder; ED = Emotion Dysregulation; *$p < 0.05$; **$p < 0.01$

Table 5

Multiple Mediation Model Looking at the Effects of Maternal PTSD Symptoms on Toddler Internalizing Behavior Problems

Outcome: Maternal Emotion Dysregulation						
Model Summary	***R***	***R^2***	***MSE***	***F***	***df***	***p***
	.45	.20	482.23	5.85	4	.0003
Model	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
Maternal PTSD	-.23	.15	-1.49	.140	-.54	.08
Maternal Depression	3.19	.68	4.72	.000	1.85	4.53
Paternal Depression	.13	.80	.16	.870	-1.46	1.73
Maternal Demographic Risk	.41	2.12	.19	.846	-3.81	4.63
Outcome: Maternal Parenting						
Model Summary	***R***	***R^2***	***MSE***	***F***	***df***	***p***
	.43	.18	58.10	3.95	5	.003
Model	**coeff**	**se**	***t***	***p***	**LLCI**	**ULCI**
Maternal ED	-.04	.04	-1.12	.267	-.11	.03
Maternal PTSD	.10	.05	1.88	.063	-.01	.21

Maternal Depression	-.02	.26	-.09	.926	-.54	.50
Paternal Depression	-.21	.28	-.77	.444	-.77	.34
Maternal Demographic Risk	-2.71	.74	-3.68	.000	-4.18	-1.25

Total Effect Model – Outcome: Toddler Internalizing Problems

Model Summary	***R***	***R^2***	**MSE**	**F**	***df***	***p***
	.52	.27	23.58	8.40	4	.000
Model	**coeff**	**se**	***t***	***p***	**LLCI**	**ULCI**
Maternal PTSD	.03	.03	1.02	.310	-.03	.10
Maternal Depression	.27	.15	1.79	.078	-.03	.56
Paternal Depression	.63	.18	3.52	.001	.27	.98
Maternal Demographic Risk	1.40	.47	2.98	.004	.46	2.33

Direct Effect Model – Outcome: Toddler Internalizing Problems

Model Summary	***R***	***R^2***	***MSE***	***F***	***df***	***p***
	.55	.31	38.52	6.56	6	.000
Model	**coeff**	**se**	***t***	***p***	**LLCI**	**ULCI**
Maternal ED	.06	.02	2.54	.013	.01	.10
Maternal Parenting	-.08	.07	-1.28	.204	-.21	.05

Maternal PTSD	.06	.03	1.69	.095	-.01	.12
Maternal Depression	.07	.16	.44	.660	-.25	.39
Paternal Depression	.60	.17	3.49	.000	.26	.94
Maternal Demographic Risk	1.15	.49	2.36	.020	-.18	2.11

Note. PTSD = Posttraumatic Stress Disorder; ED = Emotion Dysregulation

Table 6

Multiple Mediation Model Looking at the Effects of Paternal PTSD Symptoms on Toddler Internalizing Behavior Problems

Outcome: Paternal Emotion Dysregulation						
Model Summary	***R***	***R^2***	***MSE***	***F***	***df***	***p***
	.64	.41	352.43	15.50	4	.000
Model	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
Paternal PTSD	-.08	.19	-.41	.681	-.45	.29
Maternal Depression	-.73	.56	-1.31	.194	-1.85	.38
Paternal Depression	5.27	.82	6.46	.000	3.65	6.89
Paternal Demographic Risk	3.69	1.87	1.97	.051	-.02	7.40
Outcome: Paternal Parenting						
Model Summary	***R***	***R^2***	***MSE***	***F***	***df***	***p***
	.31	.10	56.50	1.90	5	.102
Model	**coeff**	**se**	***t***	***p***	**LLCI**	**ULCI**
Paternal ED	.00	.04	.07	.945	-.08	.09
Paternal PTSD	.01	.07	.12	.906	-.14	.16

Maternal Depression	-.09	.23	-.38	.703	-.54	.36
Paternal Depression	-.22	.39	-.56	.578	-1.00	.56
Paternal Demographic Risk	-2.20	.76	-2.88	.005	-3.72	.68

Total Effect Model – Outcome: Toddler Internalizing Problems

Model Summary	***R***	***R*²**	**MSE**	***F***	**df**	***p***
	.56	.31	22.33	10.13	4	.000
Model	**coeff**	**se**	***t***	***p***	**LLCI**	**ULCI**
Paternal PTSD	.08	.05	1.66	.100	-.02	.17
Maternal Depression	.48	.14	3.38	.001	.20	.76
Paternal Depression	.40	.21	1.97	.052	-.00	.81
Paternal Demographic Risk	1.66	.47	3.54	.001	.73	2.60

Direct Effect Model – Outcome: Toddler Internalizing Problems

Model Summary	***R***	***R*²**	**MSE**	***F***	**df**	***p***
	.61	.37	20.98	8.50	6	.000
Model	**coeff**	**se**	***t***	***p***	**LLCI**	**ULCI**
Paternal ED	.07	.03	2.61	.011	.02	.12
Paternal Parenting	-.07	.06	-1.01	.315	-.19	.06

Paternal PTSD	.08	.05	1.84	.070	-.01	.17
Maternal Depression	.52	.14	3.77	.000	.25	.79
Paternal Depression	.04	.24	.15	.879	-.44	.52
Paternal Demographic Risk	1.27	.49	2.62	.011	.31	2.24

Note. PTSD = Posttraumatic Stress Disorder; ED = Emotion Dysregulation

Table 7

Multiple Mediation Model Looking at the Effects of Maternal PTSD Symptoms on Toddler Externalizing Behavior Problems

Outcome: Maternal Emotion Dysregulation						
Model Summary	***R***	***R^2***	**MSE**	***F***	***df***	***p***
	.45	.20	482.23	5.85	4	.0003
Model	**coeff**	**se**	***t***	***p***	**LLCI**	**ULCI**
Maternal PTSD	-.23	.15	-1.49	.140	-.54	.08
Maternal Depression	3.19	.68	4.72	.000	1.85	4.53
Paternal Depression	.13	.80	.16	.870	-1.46	1.73
Maternal Demographic Risk	.41	2.12	.19	.846	-3.81	4.63
Outcome: Maternal Parenting						
Model Summary	***R***	***R^2***	**MSE**	***F***	***df***	***p***
	.43	.18	58.10	3.95	5	.003
Model	**coeff**	**se**	***t***	***p***	**LLCI**	**ULCI**
Maternal ED	-.04	.04	-1.12	.267	-.11	.03
Maternal PTSD	.10	.05	1.88	.063	-.01	.21
Maternal Depression	-.02	.26	-.09	.926	-.54	.50

Paternal Depression	-.21	.28	-.77	.444	-.77	.34
Maternal Demographic Risk	-2.71	.74	-3.68	.000	-4.18	-1.25

Total Effect Model – Outcome: Toddler Externalizing Problems

Model Summary	***R***	***R*²**	**MSE**	***F***	***df***	***p***
	.33	.11	37.58	2.73	4	.034
Model	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
Maternal PTSD	.07	.04	1.55	.124	-.02	.15
Maternal Depression	.10	.19	.53	.597	-.27	.47
Paternal Depression	.17	.22	.75	.453	-.28	.62
Maternal Demographic Risk	1.36	.59	2.30	.024	.18	2.54

Direct Effect Model – Outcome : Toddler Externalizing Problems

Model Summary	***R***	***R*²**	***MSE***	***F***	***df***	***p***
	.40	.16	52.74	2.82	6	.015
Model	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
Maternal ED	.08	.03	2.39	.006	.02	.14
Maternal Parenting	.02	.08	-.39	.766	-.14	.19
Maternal PTSD	.08	.04	1.10	.057	-.00	.17
Maternal Depression	-.16	.20	-.26	.446	-.56	.25

Paternal Depression	.16	.22	.26	.455	-.27	.60
Maternal Demographic Risk	1.39	.62	2.26	.026	.17	2.62

Note. PTSD = Posttraumatic Stress Disorder; ED = Emotion Dysregulation

Table 8

Multiple Mediation Model Looking at the Effects of Paternal PTSD Symptoms on Toddler Externalizing Behavior Problems

Outcome: Paternal Emotion Dysregulation						
Model Summary	***R***	***R^2***	***MSE***	***F***	***df***	***p***
	.64	.41	352.43	15.50	4	.000
Model	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
Paternal PTSD	-.08	.19	-.41	.681	-.45	.29
Maternal Depression	-.73	.56	-1.31	.194	-1.85	.38
Paternal Depression	5.27	.82	6.46	.000	3.65	6.89
Paternal Demographic Risk	3.69	1.87	1.97	.051	-.02	7.40
Outcome: Paternal Parenting						
Model Summary	***R***	***R^2***	***MSE***	***F***	***df***	***p***
	.31	.10	56.50	1.90	5	.102
Model	**coeff**	**se**	***t***	***p***	**LLCI**	**ULCI**
Paternal ER	.00	.04	.07	.945	-.08	.09
Paternal PTSD	.01	.07	.12	.906	-.14	.16
Maternal Depression	-.09	.23	-.38	.703	-.54	.36

Paternal Depression	-.22	.39	-.56	.578	-1.00	.56
Paternal Demographic Risk	-2.20	.76	-2.88	.005	-3.72	.68

Total Effect Model – Outcome: Toddler Externalizing Problems

Model Summary	***R***	***R^2***	***MSE***	***F***	***df***	***p***
	.31	.10	55.31	2.50	4	.048
Model	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
Paternal PTSD	.04	.06	.66	.514	-.08	.16
Maternal Depression	.31	.19	1.66	.100	-.-6	.68
Paternal Depression	.07	.27	.24	.810	-.47	.61
Paternal Demographic Risk	1.14	.62	1.82	.072	-.10	2.37

Direct Effect Model – Outcome : Toddler Externalizing Problems

Model Summary	***R***	***R^2***	***MSE***	***F***	***df***	***p***
	.30	.09	39.30	1.42	6	.218
Model	**coeff**	**se**	**t**	**p**	**LLCI**	**ULCI**
Paternal ER	.04	.04	1.26	.212	-.03	.11
Paternal Parenting	.03	.09	.34	.737	-.15	.21
Paternal PTSD	.04	.06	.70	.483	-.08	.17
Maternal Depression	.35	.19	1.83	.071	-.03	.72

Paternal Depression	-.16	.33	-.49	.627	-.82	.49
Paternal Demographic Risk	1.04	.67	1.56	.123	-.29	2.36

Note. PTSD = Posttraumatic Stress Disorder; ED = Emotion Dysregulation

APPENDIX

Demographic Information

1. Are you one of the primary caregivers for your child? That is, do you have or share legal custody of him/her? Or does your child currently live with you at least half of the time? ___YES ___ NO ___ DON'T KNOW ___ REFUSED TO ANSWER

2. What is your relationship to your child?

   ○ Biological Mother ○ Stepmother ○ Adoptive Mother

   ○ Grandmother ○ Biological Father ○ Stepfather

   ○ Adoptive Father ○ Mother's Romantic Partner ○ Grandfather

   ○ Other, Specify_____

3. What is your age? _____ years

4. Race: Your ethno racial Status Your Child's ethno racial Status

   ○ African American ○ Arab (Muslim)

   ○ American Indian ○ Chaldean

   ○ Asian (specify country:_____) ○ Hispanic/Latino

   ○ White, not Hispanic ○ Unknown race

   ○ Pacific islander ○ Other:_____

5. The country that you were born in:_____

6. Your Generation Status Your Child's Generation Status

   ○ Immigrant ○ Born in America ○ Second generation

   ○ Third generation ○ 4th generation and higher

7. The languages you speak at home with your children:_____

8. How many children do you have? _____

9. Please provide a COMPLETE list of all people over the age of 21 living in your home according to their relationship to you:_____

10. Please provide a COMPLETE list of all children/youth under the age of 21 living in your home according to their relationship to you; also, please provide their ages:_____

11. Please provide a COMPLETE list of all people who provide social support (such as babysitting or running errands) to you who do not live in your home according to their relationship to:_____

12. What is your work status? FILL IN ALL THAT APPLY

○ Full time ○ Part-time ○ Not employed

○Disabled/ unable to work ○ Student

13. What was your total family income in the past 12 months (before taxes and deductions)?

○ None ○ $1-$5,000 ○ $5001-$10,000 ○ $10,001-$15,000

○ $15,001-$20,000 ○ $20,001-$30,000 ○ More than $30,000

14. What is your marital status? FILL IN ALL THAT APPLY

○ Married ○ Divorced ○ Separated

○ Cohabiting/Unmarried ○ Engaged/Serious Relationship ○ Widower

○ Not in a Relationship Presently

15. What best describes your current housing?

○House you own ○House you rent

○Apartment or condo you own ○Apartment or condo you rent

○ Trailer or mobile home you own ○ Trailer or mobile home you own

○ Staying with family ○ Staying with friends

16. How long have you lived at current residence?_____years and ____months

17. Does child share a room? __YES ___NO If yes, with who?" _____

CHILD DEMOGRAPHICS

18. CHILD's biological father:

O Lives with child full-time O Lives with child part-time (i.e. shared custody)

O Doesn't live with child but has regular/consistent contact

O Has inconsistent contact with child O Has no contact with child

19. Child has father figure who is not child's biological father: ___YES ___NO

If yes (what is his relationship to you or your child?)_____

If yes, this father figure:

O Lives with child full-time O Lives with child part-time (i.e. shared custody)

O Does not live with child but has regular and consistent contact

O Has inconsistent contact with child O Has no contact with child

20. How many weeks along in pregnancy was your child born?

O 37-40 weeks gestation O 35-36 weeks gestation O 30-34 weeks gestation

O 24-29 weeks gestation O prior to 24 weeks gestation

21. Has your child been identified by a pediatrician or other health professional with a delay in development? ___YES ___NO ___DON'T KNOW

22. Does the child have a medical diagnosis? ___YES ___NO ___DON'T KNOW

23. Have you ever been separated from your child for more than 1 month (no in person contact)? ___YES ___NO ___DON'T KNOW

If yes, for how long? _____For what reason?_____

Post-Traumatic Stress Diagnostic Scale

INSTRUCTIONS: **Please read carefully before starting.**

Part 1: Many people have lived through or witnessed a very stressful and traumatic event at some point in their lives. Indicate whether or not you have experienced or witnessed each traumatic event listed below by marking Yes or No on the answer sheet, the age at the time of the event, your relationship to perpetrator, and your reaction to the traumatic event at the time it occurred, as well as now.

1. **Serious accident, fire, or explosion (for example, an industrial, farm, car, plane, or boating accident)**

   Age at time of event_____ How many times did this event occur? _____

   How upsetting was the event at the time it occurred? (Pick one)

   a. Not at all
   b. A little bit
   c. Moderately
   d. A lot

2. **Natural disaster (for example tornado, hurricane, flood, or major earthquake)**

   Age at time of event_____ How many times did this event occur? _____

   How upsetting was the event at the time it occurred? (Pick one)

   a. Not at all
   b. A little bit
   c. Moderately
   d. A lot

3. **Non-sexual assault by a family member or someone you know (for example, being**

mugged, physically attacked, witnessing domestic violence between parents, shot, stabbed, or held at gunpoint)

Age at time of event_____ How many times did this event occur? _____

How upsetting was the event at the time it occurred? (Pick one)

a. Not at all
b. A little bit
c. Moderately
d. A lot

Who was the person committing these actions? (Circle all that apply)

a. Family member (e.g. father, brother, step-father). # of times _____
b. Family Friend, neighbor, or an acquaintance. # of times _____

4. **Non-sexual assault by a stranger (for example, being mugged, physically attacked, shot, stabbed, or held at gunpoint)**

Age at time of event_____ How many times did this event occur? _____

How upsetting was the event at the time it occurred? (Pick one)

a. Not at all
b. A little bit
c. Moderately
d. A lot

5. **Sexual assault by a family member or someone you know (for example, rape or attempted rape).**

Age at time of event_____ How many times did this event occur? _____

How upsetting was the event at the time it occurred? (Pick one)

a. Not at all

b. A little bit

c. Moderately

d. A lot

Who was the person committing these actions? (Circle all that apply)

a. Family member (e.g. father, brother, step-father). # of times _____

b. Family Friend, neighbor, or an acquaintance. # of times _____

6. **Sexual assault by a stranger (for example rape or attempted rape)**

Age at time of event_____ How many times did this event occur? _____

How upsetting was the event at the time it occurred? (Pick one)

a. Not at all

b. A little bit

c. Moderately

d. A lot

Who was the person committing these actions? (Circle all that apply)

a. Family member (e.g. father, brother, step-father). # of times _____

b. Family Friend, neighbor, or an acquaintance. # of times _____

7. **Military combat or a war zone**

Age at time of event_____ How many times did this event occur? _____

How upsetting was the event at the time it occurred? (Pick one)

a. Not at all

b. A little bit

c. Moderately

d. A lot

8. **Sexual contact when you were younger than 18 with someone who was 5 or more years older than you (for example, contact with genitals or breasts)**

Age at time of event_____ How many times did this event occur? _____

How upsetting was the event at the time it occurred? (Pick one)

a. Not at all

b. A little bit

c. Moderately

d. A lot

Who was the person committing these actions? (Circle all that apply)

a. Family member (e.g. father, brother, step-father). # of times _____

b. Family Friend, neighbor, or an acquaintance. # of times _____

c. Stranger. # of times _____

9. **Imprisonment (for example, prison inmate, prisoner of war, hostage)**

Age at time of event_____ How many times did this event occur? _____

How upsetting was the event at the time it occurred? (Pick one)

a. Not at all

b. A little bit

c. Moderately

d. A lot

10. **Torture**

Age at time of event_____ How many times did this event occur? _____

How upsetting was the event at the time it occurred? (Pick one)

a. Not at all

b. A little bit

c. Moderately

d. A lot

11. **Life threatening illness (e.g. cancer, AIDS)**

Age at time of event_____ How many times did this event occur? _____

How upsetting was the event at the time it occurred? (Pick one)

a. Not at all

b. A little bit

c. Moderately

d. A lot

12. **Other traumatic event (Specify_____)**

Age at time of event_____ How many times did this event occur? _____

How upsetting was the event at the time it occurred? (Pick one)

a. Not at all

b. A little bit

c. Moderately

d. A lot

Who was the person committing these actions? (Circle all that apply)

a. Family member (e.g. father, brother, step-father). # of times _____

b. Family Friend, neighbor, or an acquaintance. # of times _____

c. Stranger. # of times _____

IF YOU MARKED YES TO ANY OF THE ITEMS ABOVE, CONTINUE. IF NOT,

PLEASE STOP HERE.

Part 2:

13. **If you marked Yes for more than one traumatic event in Part 1, indicate which one bothers you the most. If you marked Yes for only one traumatic event in Part 1, mark the same one on the answer sheet**

    a. Accident

    b. Disaster

    c. Non-sexual assault by a family member or someone you know

    d. Non-sexual assault by a stranger

    e. Sexual assault by a family member or someone you know

    f. Sexual assault by a stranger

    g. Military combat or a war zone

    h. Sexual contact under 18 with someone who was 5 or more years older than you

    i. Imprisonment

    j. Torture

    k. Life threatening illness

    l. Other traumatic event

During this traumatic event:

14. Were you physically injured?

15. Was someone else physically injured?

16. Did you think that your life was in danger?

17. Did you think that someone else's life was in danger?

18. Did you feel helpless?

19. Did you feel terrified?

Part 3: Below is a list of problems that people sometimes have after experiencing a traumatic event. Read each one carefully and choose the answer that best describes how often that problem has bothered you in the **past month**. Rate each problem with respect to the traumatic event you marked in **Item 13**.

	Not at all (only 1 time)	**Once in a while** (1 time a week or less)	**Half of the time** (2-4 times a week)	**Almost always** (5 or more times a week)
20. Having upsetting thoughts or images about the traumatic event that came into your head when you didn't want them to				
21. Having bad dreams or nightmares about the traumatic event				
22. Reliving the traumatic event, acting or feeling as if it was happening again				
23. Feeling emotionally upset when you were reminded of the traumatic event (for example feeling scared, angry, sad, guilty, etc.)				
24. Experiencing physical reactions when you were reminded of the traumatic event (for example, breaking out in a sweat, heart, beating fast)				
25. Trying not to think about, talk about, or have feelings about the traumatic event				
26. Trying to avoid activities, people, or places that remind you of the traumatic event				
27. Not being able to remember an important part of the traumatic event				

28. Having much less interest or participating much less often in important activities				
29. Feeling distant or cut off from people around you				
30. Feeling emotionally numb (for example, being unable to cry or unable to have loving feelings)				
31. Feeling as if your future plans or hopes will not come true (for example, you will not have a career, marriage, children, or a long life)				
32. Having trouble falling asleep				
33. Feeling irritable or having fits of anger				
34. Having trouble concentrating (for example, drifting in and out of conversations, losing track of a story on television, forgetting what you read)				
35. Being overly alert (for example, checking to see how is around you, being uncomfortable with your back to a door, etc.)				
36. Being jumpy or easily startled (for example when someone walks up behind you)				

37. How long have you experienced the problems that you reported above? (Mark only one)
    a. Less than 1 month
    b. 1 to 3 months
    c. More than 3 months
38. How long after the traumatic event did these problems begin? (Mark only one)
    a. Less than 6 months
    b. 6 or more months

Emotion Dysregulation Scale – Short Form

INSTRUCTIONS: **Please read carefully before starting.** Please rate the extent to which the following items describe you, where ***1= not true at all***, ***4= somewhat true***, and ***7= very true***.

1)	My emotions seem unpredictable, even to me.	1,2,3,4,5,6,7
2)	It is often hard for me to calm down when I am upset.	1,2,3,4,5,6,7
3)	My emotions seem to just come out of the blue.	1,2,3,4,5,6,7
4)	When I am upset, I have trouble knowing exactly what I am feeling; I just feel bad.	1,2,3,4,5,6,7
5)	When I am feeling bad, I have trouble remembering anything positive; everything just seems bad.	1,2,3,4,5,6,7
6)	When I feel sad, I feel *really* sad.	1,2,3,4,5,6,7
7)	Emotions overwhelm me.	1,2,3,4,5,6,7
8)	When I am upset, I feel all alone in the world.	1,2,3,4,5,6,7
9)	When I am upset, I have trouble seeing things from the other person's point of view.	1,2,3,4,5,6,7
10)	When I am upset, I have trouble solving problems.	1,2,3,4,5,6,7
11)	When I am upset, I have trouble remembering that people care about me.	1,2,3,4,5,6,7
12)	When I'm upset, everything feels like a disaster or crisis.	1,2,3,4,5,6,7

13) My emotions can change suddenly, almost without warning. 1,2,3,4,5,6,7

14) When I'm upset I have trouble seeing or remembering anything good about myself. 1,2,3,4,5,6,7

15) Sometimes my emotions seem so strong that people might think I'm acting or exaggerating, but its how I really feel. 1,2,3,4,5,6,7

16) I have trouble soothing myself when I'm upset. 1,2,3,4,5,6,7

17) When I'm upset, I often need help from another person to calm me down. 1,2,3,4,5,6,7

18) When I'm anxious, I feel really anxious. 1,2,3,4,5,6,7

19) When my emotions are stirred up, I have trouble thinking clearly. 1,2,3,4,5,6,7

20) When I feel angry, I get really angry. 1,2,3,4,5,6,7

21) When my emotions are strong, I often make bad decisions. 1,2,3,4,5,6,7

22) My emotions sometimes spiral out of control. 1,2,3,4,5,6,7

23) I'm a person of extremes. 1,2,3,4,5,6,7

24) When I'm upset, I sometimes become needy or clingy. 1,2,3,4,5,6,7

The Center for Epidemiologic Studies-Depression Scale (CES-D Short Form)

INSTRUCTIONS: **Please read carefully before starting.** You are going to read statements that describe feelings some people have. Please decide how much each statement is true for you **during the last 7 days (week)** by answering **(1) hardly ever or never felt that way, (2) some of the time felt that way, or (3) much or most of the time.**

	Hardly Ever or Never	Some of the Time	Much or Most of the Time
1. I did not feel like eating; my appetite was poor.	1	2	3
2. I felt depressed.	1	2	3
3. I felt that everything I did was effort.	1	2	3
4. My sleep was restless.	1	2	3
5. I was happy. (R)	1	2	3
6. I felt lonely.	1	2	3
7. People were unfriendly.	1	2	3
8. I enjoyed life. (R)	1	2	3
9. I felt sad.	1	2	3
10. I felt that people dislike me.	1	2	3
11. I could not get “going”.	1	2	3

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ABSTRACT

PARENTAL PTSD, EMOTION REGULATION, AND BEHAVIOR PROBLEMS IN TODDLERHOOD: UNIQUE ASSOCIATIONS AMONG FAMILIES IN URBAN POVERTY

by

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Parental posttraumatic stress disorder (PTSD) has been shown to negatively impact children's socioemotional development (Schwerdtfeger et al., 2014) and increase children's risk for later psychopathology (Scheeringa & Zeanah, 2008; Yehuda, Halligan, & Bierer, 2001). Less is known about this topic among minority and poor mothers and fathers of toddlers, and the critical role parents' emotion regulation may play in mediating the associations between PTSD and toddlers' socioemotional problems (Beck et al., 2009). Parental emotion dysregulation has been linked with children's socioemotional problems (Coyne & Thompson, 2011), especially during toddlerhood when children are beginning to learn how to regulate their own emotions (Kopp, 1989). Evaluating both mothers' and fathers' PTSD, emotion regulation, and child behavior problems during toddlerhood is particularly important among urban populations due to high risk of trauma exposure (Evans & English, 2002). The current study aimed to examine internalizing and externalizing behavior problems in toddlers from low-income families, evaluating whether and how mothers' and fathers' PTSD, emotion regulation, and parenting are associated with toddler behavioral problems. It was hypothesized that the relationship between

parents' PTSD and toddlers' internalizing and externalizing problems will be mediated by parents' emotion regulation and parenting quality.

The current study describes data from a broader study of socioemotional development of toddlerhood among urban families (N=96). Mothers and fathers reported on their own PTSD symptoms (PDS; Foa et al., 1997), depression (CES-D; Radloff, 1977), emotion regulation (EDS, Conklin et al., 2006), and their toddlers' behavior problems (CBCL; Achenbach & Rescorla, 2001). Parenting quality was coded based on observational data from a family drawing task, during which families drew pictures of happy and sad times they have had as a family. Children's internalizing and externalizing problems were calculated by averaging the CBCL scores reported by both parents.

Primary analyses were conducted using Hayes PROCESS macro for multiple mediation (model 6; Hayes, 2013), controlling for maternal and paternal depression, and cumulative demographic risk. Findings indicated that (1) both mothers' and fathers' emotion regulation and depression, but not PTSD and parenting, were the main parental factors linked to higher internalizing behavior problems in toddlers, and only mothers' cumulative demographic risk was significantly associated with toddlers' externalizing behavior problems; (2) the associations between parental PTSD and child behavior problems was not mediated through emotion regulation and parenting; (3) fathers' symptoms of emotion dysregulation and depression were as equally important in predicting toddler behavior problems as mothers' emotion dysregulation and depression; (4) parental PTSD, emotion dysregulation, and depression were more strongly associated with toddlers' internalizing problems than their externalizing problems.

Findings provide support for the negative impact of maternal and paternal emotion dysregulation, depression, and cumulative demographic risk on toddler internalizing and

externalizing problems among low-income families and offer insight into essential avenues to implement interventions. Although parents' PTSD symptoms may have an impact on toddlers' behavior problems, their emotional dysregulation plays a more significant role. The focus mediator, paternal emotion regulation, appears to be a concrete target for clinical assessment and treatment.

AUTOBIOGRAPHICAL STATEMENT

Hasti Raveau was born in Tehran, Iran. She immigrated to America at age 13 with her parents and younger brother, and has resided in Michigan ever since. Hasti attended Wayne State University for undergraduate training, where she studied the effects of mother-infant social interaction and joint attention on child development in preterm infants under the mentorship of Dr. Marjorie Beeghly and the effects of romantic relationships on chronic pain under the mentorship of Dr. Annmarie Cano. She graduated Summa Cum Laude in 2011, with a Bachelor of Arts in Honors Psychology, and was fortunate to be accepted to Wayne State University's graduate program in Clinical Psychology.

As a graduate student, Hasti continued to develop her interests in research and clinical work. She participated in research in Dr. Rita Casey's Emotion Development Laboratory, but also expanded her interests, working with Dr. Katherine Rosenblum from University of Michigan on an intervention project for military families with young children, and working very closely with Dr. Erika Bocknek from the Merrill Palmer Skillman Institute on a project investigating the effects of family systemic factors on the socioemotional development of toddlers from urban backgrounds. Hasti worked as a practicum student at the Children's Hospital of Michigan's Sickle Cell Clinic and General Pediatrics and Adolescent Medicine Primary Care/Psychology Clinic and at the Department of Psychiatry at the University of Michigan, in the Infant and Early Childhood Clinic and the Women and Infant Mental Health Clinic. Hasti is currently completing her pre-doctoral internship at University of Michigan's Mary A. Rackham Institute. She resides in the city of Northville with Brian, and they are expecting their first child in April of 2017. Hasti looks forward to a career in helping to advance the science and practice of mental health of children and families.