Young Mothers, Infant Neglect, and Discontinuities in Intergenerational Cycles of Maltreatment

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Abstract

Infant neglect is the form of child maltreatment that occurs most often, yet has been the least amenable to prevention. With the aim of informing prevention efforts, this dissertation study examined moderators and mediators of the relation between a maternal childhood history of maltreatment and risk for infant neglect among young mothers (n = 447). Neglect risk was assessed using four parenting measures: reports of neglect substantiated by state child protective services, maternal self-reports of neglect, maternal sensitivity, and maternal empathy. The study results supported the theory of intergenerational transmission, but affirmed the hypothesis that most mothers who were victims of maltreatment break the cycle with their children. Specific patterns of maltreatment in the sample differed by type (neglect, physical abuse, multiple type maltreatment) and measurement methodology (substantiated reports, maternal self-reports). Substantiated reports suggested that infants were neglected most often (16% of the sample), but self-reports indicated that physical abuse was more common (21% of the sample). Discontinuity was higher for substantiated reports than self-reports (77% versus 67%). Maternal age moderated the relation between mothers' childhood history of neglect and infant neglect, and between mothers' childhood history of multiple maltreatment and maternal sensitivity. Social support moderated the relation between childhood neglect and maternal empathy. Racial/ethnic differences emerged for three of the four parenting outcomes. Significant mediation effects were not found. Study findings highlight resilience in parenting despite risk for infant neglect, but underscore the context specificity of protective processes.

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Chapter 1: Introduction

Child neglect is the most common form of child maltreatment and arguably poses the greatest threat to children's well-being, yet it has received limited public attention (Dubowitz, 2007). In 2009, Child Protective Services (CPS) identified 763,000 children who were victims of abuse and neglect, jointly referred to as "child maltreatment." Over three-quarters (78.3%) of these children suffered neglect, a figure that far exceeded physical abuse (17.8%), sexual abuse (9.5%), and psychological abuse (7.6%) combined (U.S. Department of Health and Human Services [USDHHS], 2009). Actual incidence is undoubtedly higher, as numerous instances never come to the attention of authorities. Moreover, the rate of neglect has increased in recent years despite an overall decline in the rate of child maltreatment (Sedlak et al., 2010; USDHHS, 2010), suggesting that efforts to prevent neglect have been relatively ineffective (Sedlak et al., 2010).

Children are most likely to experience neglect during infancy (USDHHS, 2010), when they are most vulnerable to its effects (DePanfilis, 2006; Gaudin, 1999). Mounting research demonstrates that early exposure to neglect, especially when severe and prolonged, has adverse and long lasting consequences for children's cognitive, socioemotional, and physical development in ways that are distinct from other forms of maltreatment (De Bellis, 2005; Erikson, Egeland, & Pianta, 1989; Erikson & Egeland, 2002). It can also be fatal; neglect is the cause of the majority of maltreatment related deaths and almost half (46.2%) occur within a year of a child's birth (USDHHS, 2010).

The perpetrators of infant neglect are most often their primary caretakers, typically mothers (Sedlak et al., 2010; USDHHS, 2010), and the younger a mother is at childbirth the greater the likelihood that she will neglect her child (Goerge & Lee, 1997; Haskett, Johnson, & Miller, 1994; Lee & Goerge, 1999; Slack, Holl, McDaniel, Yoo, & Bolger, 2004). In fact, of all forms of maltreatment, neglect has the strongest association with maternal age (DePanfilis, 2006; Erickson et al., 1989; Hildyard & Wolfe, 2002). Studies suggest that a number of risk factors are linked to neglect by young parents, including cognitive and emotional immaturity, single parenting status, social isolation, and limited access to financial resources (Coley & Chase-Lansdale, 1998; East & Felice, 1996; Furstenberg, Brooks-Gunn, & Morgan, 1987; Sedlak & Broadhurst, 1996; Whitman, Borkowski, Keogh, & Weed, 2001). However, it is not always clear whether these conditions precede a birth in adolescence, result from it, or both (Oxford et al., 2005).

Young mothers tend to experience more adversity within their proximal relationships than do older mothers, including abuse and neglect in childhood (Coley & Chase-Lansdale, 1998; Herrenkohl, Herrenkohl, Egolf, & Russo, 1998). A maternal history of childhood maltreatment is a well-established risk factor for child neglect (Ertem, Leventhal, & Dobbs, 2000; Kaufman & Zigler, 1987), and given the associations among a maternal history of maltreatment, adolescent parenthood, and infant maltreatment, these intergenerational transmission processes appear to have particular salience to the etiology of infant neglect. Specifically, heterogeneity in adolescent parenting, ranging from highly sensitive

interactions with infants to extreme neglect of infants' basic needs, may be the direct result of intervening factors that either buffer against or increase the likelihood of transmitting maltreatment from one generation to the next (Dixon, Browne, & Hamilton-Giachritsis, 2009; Crockenberg, 1987; Way & Leadbeater, 1999; Whitman et al., 2001).

Intergenerational cycles of child maltreatment associated with infant neglect have not been thoroughly researched in relation to maternal age, despite the prevalence of neglect during infancy, links to early childbearing age, and heightened risk among parents with a childhood history of maltreatment. This oversight is not altogether surprising given the pervasive "neglect of neglect" in the empirical literature (Dubowitz, 2007). Most researchers focus on child abuse or aggregate abuse and neglect into a single construct as if they constitute a monolithic experience. The conflation of disparate forms of maltreatment is especially concerning in light of mounting evidence that the causes and consequences of neglect are distinct from abuse (Manly, Kim, Rogosch, & Cicchetti, 2001; Pianta et al., 1989), and studies that combine the two miss opportunities to identify unique antecedents. On the other hand, the shortfall in the literature presents an important opportunity for researchers, who can advance the scientific evidence base that policymakers and practitioners need to develop successful strategies to prevent neglect. In recognition of this potential, the current study seeks to improve understanding of the etiology of infant neglect in a high-risk population: adolescent mothers with a childhood history of abuse and neglect.

To provide further background and rationale for the study design, this paper begins by summarizing three somewhat distinct literatures on infant neglect, adolescent parenting, and intergenerational transmission of child maltreatment. Two key perspectives inform the literature review, methods, and discussion of results: (a) an ecological perspective, which views child maltreatment as a consequence of dynamic transactions among children, parents, and the environments in which they live (Belsky, 1993; Cicchetti & Lynch, 1993), and (b) a resilience perspective, which highlights conditions that allow young mothers to adapt positively to the parental role (Masten & Powell, 2003), such as when they break cycles of child maltreatment (Egeland, Bosquet, & Levy Chung, 2002).

An Ecological Perspective on Adolescent Parenting and Infant Neglect

Historically, etiologic research on child abuse and neglect has focused on parental attributes. This approach is understandable because parents comprise the child's "immediate interactional context" (Belsky, 1993). Indeed, the perpetrators of neglect are usually children's biological parents—often mothers, who typically fill the role of primary caregiver in a family (USDHHS, 2010). However, studies that focus exclusively on parental characteristics tend to overemphasize maternal deficits as determinants of family dysfunction, obscuring more comprehensive explanations that account for the influence of developmental contexts (Belsky, 1984, 1993).

Ecological perspectives on neglect emphasize ongoing transactions among parents, children, and different layers of their environment over time (Belsky,

1984, 1993; Bronfenbrenner, 1977; Cicchetti & Lynch, 1993). An ecological approach to research on neglect lessens the likelihood that studies will generate reductionist explanations of parent-child relationships because they presume that focus on a single aspect of the problem is not sufficient (Belsky, 1993; Cicchetti & Lynch, 1993; Cicchetti & Valentino, 2006), and that problematic family interactions are as much a function of extrinsic circumstances as parental deficits (Conger, Belsky, & Capaldi, 2009). As a result, ecological models have distinct advantages over traditional models for research on the etiology of neglect, in that they obviate parental blame for a phenomenon that is multiply determined while enhancing descriptions of the processes that lead to parenting diversity under similar risk conditions (Belsky, 1984, 1993).

Ecological models of maltreatment are derived from Bronfenbrenner's ecological systems theory (Bronfenbrenner, 1977; Bronfenbrenner & Morris, 2005), which asserts that ontogenetic development is shaped through transactions between an individual and his or her many developmental contexts, which exist in varying proximity to the individual. Several maltreatment researchers have applied this approach using different but analogous terms: *socio-ecological* (DePanfilis, 2006), *ecological-transactional* (Cicchetti & Lynch, 1993), and *developmental-ecological* (Belsky, 1993), but the implications are the same—many interacting forces contribute to neglect. Similarly, researchers have demonstrated that ecological exploration of parent-child relations is essential to understanding positive adaptation to adversity, such as when parents with a history of childhood maltreatment discontinue negative patterns of childrearing

with their own children (Egeland et al., 2002).

A Resilience Perspective on Adolescent Parenting and Infant Neglect

Scientists' long-standing fascination with pathology has yielded a literature on child neglect replete with studies that accentuate problems and overlook opportunities to identify the processes underlying amelioration of risk (de Paúl & Domenech, 2000; Lee & Goerge, 1999; Lounds, Borkowski, & Whitman, 2006; Schatz & Lounds, 2007; Stier, Leventhal, Berg, Johnson, & Mezger, 1993). As a result, we know more about pathways of maladaptive parenting in high-risk contexts than effective parenting under similar conditions. This trend is notable in current literature on adolescent parenting as well, many studies portraying early childbearing as an inevitable path to poor life outcomes for young parents and their children (Flanagan, 1998). Likewise, research on intergenerational transmission of child maltreatment underemphasizes discontinuity, despite the fact that most parents do not repeat the patterns of punitive and neglectful caregiving they experienced as children (Kaufman & Zigler, 1987).

Exclusive focus on risk factors, or conditions that increase the likelihood of negative outcomes (Masten & Powell, 2003), gives the false impression that they are deterministic. It also reinforces a public discourse that oversimplifies the nature of teen parenting and pathologizes young mothers (Flanagan, 1998; Leadbeater & Way, 2001). In contrast, a resilience perspective stresses the role of protective factors, or characteristics and conditions that reduce the odds of poor parenting and increase the odds of positive adaptation to adversity (Easterbrooks,

Chaudhuri, Bartlett, & Copeman, 2011; Horton, 2003; Luthar & Cicchetti, 2000; Masten & Powell, 2003). A resilience perspective not only provides a more optimistic framework for developmental research than traditional models, it is also pragmatic. By highlighting pathways of competence, researchers can guide prevention policy and practice by directing interventionists to "empirical knowledge regarding the salience of particular vulnerability and protective processes within the context of specific adversities" (Luthar & Cicchetti, 2000, p. 860).

In line with a resilience perspective, a new wave of research suggests that protective factors are key catalysts in mitigating risk for child neglect and promoting resilience among high-risk families (Borkowski, Whitman, & Farris, 2007; Children's Bureau (HHS), Child Welfare Information Gateway, FRIENDS National Resource Center for Community-Based Child Abuse Prevention, & Center for the Study of Social Policy-Strengthening Families, 2011; Horton, 2003). These studies assist interventionists in pinpointing optimal foci for interventions aimed at strengthening families before dysfunctional patterns of interactions become fixed.

A fundamental conclusion from several decades of research on protective factors is that positive relationships with caregivers, family members, and other members of social support networks increase the odds that individuals interact with their offspring in sensitive and empathetic ways (for review see Werner, 2000). A reasonable inference from this literature is that relationship-based protective factors play a key role in intergenerational transmission processes and

help to explain why a maternal history of childhood maltreatment increases the chances, yet does not guarantee maltreatment in the next generation (Ertem et al., 2000; Kaufman & Zigler, 1987). Additional research is needed to determine if this is truly the case and, if so, to explain *how* relational mechanisms of protection operate to support optimal parenting and child well being.

Study Overview

The main objective of this dissertation study was to explore the etiology of adolescent parenting heterogeneity and risk for infant neglect. The study design was based on ecological and resilience perspectives, which extend the focus of inquiry beyond maternal attributes, support investigation of both risk and protective factors, and underscore discontinuity in intergenerational cycles of maltreatment. A small number of researchers already have begun the important work of investigating transmission in the young parent population (e.g., Borkowski et al., 2007; de Paúl & Domenech, 2000; Lounds et al., 2006; SmithBattle, 2006; Whitman et al., 2001; Zuravin & DiBlasio, 1992) but, to my knowledge, no other study concurrently distinguishes findings for child neglect from child abuse, focuses on the period of infancy, and emphasizes resilience processes associated with discontinuity. Thus, this study makes a unique contribution to a literature with direct applications for the prevention of child neglect.

In addition to an empirical contribution, this study addressed several limitations of prior research on child maltreatment. First, it minimized measurement errors and improved the validity of findings by testing hypotheses

on both self-report data and state agency data on substantiated cases of child abuse and neglect. Second, the study isolated results for neglect from abuse by separating out cases in which infants were exposed to maltreatment other than neglect alone (i.e., physical abuse, sexual abuse, multiple type maltreatment). Finally, it examined "type-to-type" transmission (Kim, 2009) by exploring outcomes of disparate forms of childhood maltreatment (i.e., physical abuse, sexual abuse, multiple type maltreatment) independently from one another. Measurement issues that impede robust research on child neglect are discussed in more detail later in the paper, providing a precise rationale for this analytic strategy.

To provide a strong foundation for the study's hypotheses and analytic plan, I begin with a review of the empirical literature on adolescent parenting, infant neglect, and intergenerational transmission of maltreatment, respectively. In each section of the review, I highlight studies that draw from ecological and resilience perspectives, as well as note important gaps in the research.

Chapter 2: Literature Review

Research on Adolescent Parenting

Young women who give birth in their teen years are simultaneously in need of parenting and becoming parents (Lerner, Noh, & Wilson, 2001), navigating the complicated transition from adolescence to adulthood while confronting the challenges of adjusting to motherhood (Noria, Weed, & Keogh, 2007). Many encounter additional hardships along the way (e.g., family discord, social isolation, poverty), some of which may have led to an early pregnancy to begin with and then placed their families at risk for future adversity (Coley & Chase-Lansdale, 1998; Moore & Brooks-Gunn, 2002). Given the many difficulties young mothers face, it is not surprising that numerous studies demonstrate short- and long-term costs of parenting in adolescence to adolescent parents, their children, and society (Furstenberg et al., 1987; Haveman, Wolfe, & Peterson, 1997; Leadbeater & Way, 2001; Moore, Morrison, & Green, 1997; Nathanson, 1991; Osofsky, Hann, & Peebles, 1993; Whitman et al., 2001).

Despite clear disadvantages of early childbearing, the life trajectories of adolescent mothers are highly variable and manifest a range of parenting outcomes, including resilience (Carey, Ratliff, & Lyle, 1998; Farris, Smith, & Weed, 2007; Noria et al., 2007; Whitman et al., 2001). But what accounts for heterogeneity specific to teen parenting? Developmental contextualism, a concept introduced by Lerner (1991), highlights “changing relations” between the developing individual and her social, physical, and historical context (p. 61), with parent-child relations set in the context of multiple ecologies (Bronfenbrenner,

1977), including family systems (Minuchin, 1974), and culture (Carey et al., 1998; Deater-Deckard & Dodge, 1997; Driscoll, Brindis, Biggs, & Valderrama, 2004; Parke, & Buriel, 1998; Pinderhughes, Dodge, Bates, Pettit, & Zelli, 2000). From this vantage point, a holistic view of early childbearing requires attention to developmental contexts and to multi-level risk and protective factors, many of which are context specific. That is, whether any one condition exacerbates or attenuates adversity in teen parenting depends on the unique features of the given situation (Wright & Masten, 2005). Consequently, a concise review of the research findings on risk and protective factors associated with adolescent parenting is somewhat challenging because it tends to oversimplify the matter. Therefore, I provide an overview of this literature for the purpose of explicating diversity in adolescent parenting, but with the stipulation that parenting at any age is multiply determined (Belsky, 1984).

Risk factors associated with adolescent parenting. Adolescent mothers tend to experience more adversity than older mothers, which places them at higher risk for poor parenting (Whitman et al., 2001). In response to concern for their welfare and the welfare of their children, researchers have attempted to identify factors that increase the probability of suboptimal early childbearing outcomes. Major findings are reported below and organized into three categories: individual level risk factors, family level risk factors, and environmental risk factors.

Individual risk factors. Researchers have devoted much attention to elucidating associations between negative maternal characteristics and

problematic life trajectories for young mothers and their children (Moore & Brooks-Gunn, 2002; Wakschlag & Hans, 2005). Individual attributes implicated in these studies include cognitive immaturity, limited knowledge of child development (Tamis-Lamonda, Shannon, & Spellman, 2002), low intelligence (East & Felice, 1996; Luster & Dubow, 1990; Mylod, Whitman, & Borkowski, 1997; O'Callaghan & Dukewich, 2001), and poor mental health (e.g., depression, anxiety) (Leadbeater & Linares, 1992; O'Callaghan & Dukewich, 2001; Osofsky, et al., 1993; Whitman et al., 2001). According to this research, individual limitations impair parental functioning and, in turn, jeopardize children's development (Jaffee, Caspi, Moffitt, Belsky, & Silva, 2001)

The "off-time" nature of adolescent parenthood itself also may present a challenge to healthy family functioning. Generally, life transitions that are out-of-sync with typical development cause increased stress (Elder & Rockwell, 1976). Early parenting is especially difficult in the context of balancing motherhood with other developmental tasks, such as going to school, exploring issues of identity, and establishing relationships with peers and intimate partners. The role changes necessitated by a birth (e.g., redefinition of the self as parent, realignment of family relationships, psychological preparation for parenthood) may be in direct conflict with individuation and autonomy seeking inherent to the developmental period of adolescence (Moore & Brooks-Gunn, 2002). For instance, a mother may need to withdraw from her peer group in order to spend time at home with a new infant, generating internal conflict as well as friction with family and friends.

Such stressful conditions may lead to adolescent maladjustment and diminish parenting quality (Farris et al., 2007). Generally, teen mothers who exhibit depression, high levels of parenting stress, and Post Traumatic Stress Disorder (PTSD) are less responsive to their infants than are their asymptomatic peers (Brooks-Gunn & Furstenberg, 1986; East & Felice, 1996; Leadbeater & Linares, 1992; O'Callaghan & Dukewich, 2001; Osofsky et al., 1993; Passino et al., 1993). For example, Leadbeater and Linares (1992) investigated parenting among African-American and Puerto Rican adolescents and found that maternal depression diminished the mothers' capacity to cope with stressful life events and eventually led to rejection of the parenting role. In another study, Lyons-Ruth and Block (1996) found that mothers with a history of childhood trauma felt hyperaroused in challenging parenting situations and avoided distress by becoming distant, unresponsive, and neglectful of their children. The researchers hypothesized that "…disruption of the responsiveness is one outgrowth of the mother's use of a variety of psychological mechanisms to guard against re-experiencing the fear, helplessness, and rage associated with earlier trauma" (p. 272).

Many of the individual risk factors associated with teen parenthood have links to child neglect (Chalk & King, 1998; Tolan, Gorman-Smith, & Henry, 2006; Williamson, Bourdin, & Howe, 1991; Wolfe & Garrido, 2006). Poor maternal mental health, a childhood history of maltreatment, unrealistic expectations for children, and inaccurate knowledge about child development are all correlates of both child neglect and adolescent parenthood, occurring less often

among adult and nonmaltreating mothers than young neglectful mothers (Ethier, Lacharite, & Couture, 1995; Gauthier, Stolak, Messe, & Aranoff, 1996; Herrenkohl et al., 1998; Whitman et al., 2001). Furthermore, family and ecological risk factors usually accompany these individual challenges (Schatz & Lounds, 2007).

Family and environmental risk factors. Young mothers tend to live and raise their families in more stressful environments than do older mothers (Moore & Brooks-Gunn, 2002; O'Callaghan & Dukewich, 2001). A disproportionate number live in impoverished neighborhoods, have insufficient financial resources, and are socially isolated (Meade, Kershaw, & Ickovics, 2008; Passino et al., 1993; Sedlak & Broadhurst, 1996). Many social stressors begin in pregnancy or beforehand, as adolescents who become pregnant have difficulty maintaining stability in intimate relationship and experience family disorder. The lack of social stability may be a consequence of social disruption caused by these challenging environments, by an early pregnancy and birth, or it may be an outcome of a teen's limited social skills or poor mental health. Regardless, young mothers frequently begin parenting without sufficient resources, without a strong social network on which to rely, and without social and physical environments that buffer them against stress. These conditions place their offspring at risk, whether through direct exposure or indirectly through parental stress that leads to insensitive parenting (East & Felice, 1996; Furstenberg et al., 1989; Herrenkohl et al., 1998; Kaufman & Zigler, 1987; Krpan, Coombs, Zinga, Steiner, & Fleming,

2005; Leadbeater &Way, 2001; Lounds et al., 2006; Sidebotham & Heron, 2006; Zuravin & DiBlasio, 1992).

Because normative social networks of adolescence (i.e., peers and intimate partners) are not necessarily available to teen mothers, families of origin often become the primary base of support for teenage parents, whether or not the family has provided a safe environment for them in the past. Research has only begun to illuminate the impact of young parents' relationships with family members on their childrearing practices. Insensitive interactions between adolescent parents and their caregivers appear to decrease the odds of healthy teen parenting (Lounds et al., 2006; Milan, Lewis, Ethier, Kershaw, & Ickovics, 2004; Zuravin & DiBlasio, 1992) and increase the likelihood that mothers engage in neglectful parenting behaviors (Lounds et al., 2006; Stier et al., 1993). However, the extent to which the children of young mothers experience negative consequences is mediated by their sociocultural context in general, and by their families of origin in particular (Chase-Lansdale, Gordon, Coley, Wakschlag, & Brooks-Gunn 1999; East & Felice, 1996; Leadbeater & Way, 2001). For instance, beliefs about the optimal timing for parenthood and whether a birth during adolescence is asynchronous with healthy development varies by cultural context. East (1998) found that African American and Latina girls believe the optimal age for motherhood is earlier than their European American and Asian American peers. Moreover, adolescents from low-income backgrounds tend to have a number of peers who are pregnant and parenting and may view teen motherhood as a normative route to adulthood (Furstenberg, Levine, & Brooks-Gunn, 1990; Moore

& Brooks-Gunn, 2002; Sucoff & Upchurch, 1998). In these contexts, family members provide extensive support to young parents (Hess, Papas, & Black, 2002; McLoyd, & Wilson, 1990), staving off the low self-esteem, anxiety, and depression that may overwhelm teenage parents who do not have such support systems in place (de Anda, Darroch, Davidson, Gilly, & Morejon, 1990; Whitman et al., 2001). Early childbearing under these conditions may shield young women and their children from risks they would otherwise have experienced had they raised their children in environments in which adolescent motherhood is non-normative (Geronimus & Korenman, 1992). Accordingly, a culturally sensitive approach is essential to assessing risk processes in adolescent parenting, and the same is true for examining protective processes.

Protective factors associated with adolescent parenting. Studies detailing the adversities associated with early childbearing reflect real human experience only insofar as they include explanations of protective processes (Chaudhuri, Easterbrooks, & Davis, 2009; Easterbrooks, Chaudhuri, & Gestsdottir, 2005), yet the precise role of protective factors in early parenting remains largely unresolved. A small number of researchers have identified protective factors that are statistically predictive of successful adaptation to teen parenthood (Brophy-Herb & Honig, 1999; Carey et al., 1998; Werner & Smith, 1992; Whitman et al., 2001). For instance, young mothers seem to negotiate the struggles of early parenting in healthier ways when they receive emotional support and concrete assistance (e.g., child care, financial support, information about childrearing) from family and friends (Luster & Haddow, 2005). Extensive

research demonstrates that the availability of an emotionally supportive adult protects individuals against vulnerability (Dubow & Luster, 1990; Emde, 1980; Emde & Easterbrooks, 1985; Osofsky & Thompson, 2000; Werner & Smith, 1992) and, naturally, the "effect of relationships on relationships" (Emde, 1991) has import for adolescent parenthood as well (Wakschlag & Hans, 2005). In their seminal study in Kauai, Werner and Smith (1992) noted that 50% of teen mothers whose lives improved over a decade of study had "less anxious, insecure relationships with their caregivers as infants and a stronger feeling of security as part of their families in adolescence than had teenage mothers whose lot had not improved by their mid-twenties" (p. 88).

Although an abundance of studies focus on the problems of early childrearing, most individuals who make a transition to parenthood during adolescence adapt fairly well to the parental role (Borkowski et al., 2007; Leadbeater & Way, 2001; Weed, Keogh, & Borkowski, 2006; Werner & Smith, 1992; Whitman et al., 2001). A recent surge of interest in researching resilience in this population has led to important advances in our understanding of which life paths lead to positive outcomes for teenagers and their children. Investigations of factors that mediate and moderate relations between early childbearing and family outcomes have been especially successful in this regard (Borkowski et al., 2007; Brophy-Herb & Honig, 1999; Carey et al., 1998; East & Felice, 1996; Leadbeater & Way, 2001; Shapiro & Mangelsdorf, 1994; Whitman et al., 2001), and this research has important implications for prevention. Masten

and Powell (2003) describe the relevance of such studies to preventive intervention:

> These models are important, not only to test hypothesized protective factors, but also because they can serve as models of intervention. For example, additive or compensatory models suggest that more resources, such as better parenting, intellectual skills, or social support, can offset the negative effects or risks or adversity so that children have better outcomes. Thus, increasing key assets in quality or number could theoretically improve the competence of children at risk. Moderating models, on the other hand, test for interaction effects in which a variable functions to alter the impact of risk or adversity on the outcome, increasing or decreasing individual susceptibility to the harmfulness of the stressor or protecting the child in some way from the full effects of the threat. (p. 10)

Despite the potential of this type of research to advance neglect prevention, only a handful of studies have used a resilience perspective to study adolescent mothers (e.g., Lounds et al., 2006; Schatz & Lounds, 2007). To my knowledge, this is the first study to consider intergenerational mechanisms of resilience to maltreatment in this population. However, protective factors are gaining prominence in the literature based on the pioneering work of resilience researchers over the past four decades (e.g., Bonnie Benard, George Bonanno, Dante Cicchetti, Byron Egeland,

Martha Ferrell Erickson, Norman Garmezy, Suniya Luthar, Ann Masten, Lois Murphy, Michael Rutter, Michael Ungar, Emmy Werner).

According to the triarchic framework proposed by Masten and Garmezy (1985), protective factors that promote resilience originate from three sources: (a) individual attributes; (b) family characteristics; and (c) characteristics of the social environment. This is because resilience is not a personal attribute, nor a stable pattern of functioning across developmental domains (Luthar, 2006), but a product of the developing, bidirectional, person-in-context system resulting in mutually beneficial exchanges between the person and context (Lerner, 2006). Factors that support competent adolescent parenting therefore are found within an individual mother as well as within her many developmental contexts.

Individual protective factors. At the individual level, dispositional attributes of adolescent mothers, such as intelligence and academic achievement, have been found to attenuate negative sequelae of early parenting and promote positive development in young families (Jaffee et al., 2001). Adolescents who are more emotionally and cognitively mature than their peers may perceive their maternal roles as less stressful and have an easier time adjusting to motherhood at an early age (Mylod et al., 1997; Whitman et al., 2001). In a study assessing development trajectories of children as mothers entered their 20s, Mylod and colleagues (1997) found that young mothers with higher IQs were cognitively more prepared for parenting, demonstrated less anxiety and depression, were more responsive with their children, and were less likely to maltreat their children by the time they reached three years of age. In the Notre Dame Parenting Project,

Whitman and colleagues (2001) discovered that resilient mothers of resilient children had completed more education at the time of pregnancy, were cognitively ready to parent, had appropriate expectations of their infants, received substantial support from partners, and exhibited social competence.

Child outcomes are directly linked to the individual well-being of their adolescent parents, and therefore resilience in infancy is best understood in the context of relationships (Easterbrooks, Driscoll, & Bartlett, 2008). Easterbrooks and colleagues (2008) conducted a study of young mothers and found that when they were emotionally available to their children, their children demonstrated more optimal emotional availability with them. A parent's strengths generally protect his or her progeny, enhancing children's internal resources and shielding them from the effects of negative life circumstances (Whitman et al., 2001). However, not all parents who provide good quality care to their children fare well themselves. In fact, Whitman and colleagues (2001) discovered a "trade-off between the resiliency of mothers and that of their children" (p. 175) for a number of dyads in their study when mothers overlooked their own needs and goals while attending to their children's well-being. Luthar and Zelazo (2003) postulated that the potential "costs" of resilience are minimized in the presence of ecological protective factors, which increase the likelihood of resilient developmental trajectories for both young mothers and their children (Howard, Carothers, Smith, & Akai, 2007).

Family and environmental protective factors. Supportive social relationships and surroundings protect adolescent mothers against the

disadvantages of early childbearing and enhance resilience in their families (Thompson & Peebles-Wilkins, 1992). Family characteristics and features of the larger ecology associated with successful adjustment include close positive relationships with family and kith and kin networks, financial stability, and access to enough resources to fulfill a family's basic needs (Apfel & Seitz, 1996; Moore & Brooks-Gunn, 2002; Schilmoeller, Baranowski, & Higgins, 1991; Wakschlag, Chase-Lansdale, & Brooks-Gunn, 1996; Way & Leadbeater, 1999). Unfortunately, the adolescent parenting literature is largely devoid of studies using cumulative models of protection, which allow for discovery of specific groups of protective factors that work well in combination to improve teen parenting outcomes (Howard et al., 2007). Nevertheless, a common conclusion from extant literature on specific protective factors is that young mothers' capacity to cope with the challenges of early parenting depends, in part, on the quality of social support they receive (Luster & Haddow, 2005).

Social support. Beginning at birth, and perhaps even before, individuals are embedded in social and caregiving systems (Winnicott, 1965). Consequently, relationships with others in these systems exert influence on ontogenetic development (Cabrera, Tamis-LaMonda, Bradley, Hofferth, & Lamb, 2000; Chase-Lansdale et al., 1999; Chase-Lansdale & Brooks-Gunn, 1994; Crockenberg, 1987) and impact parenting in the next generation (Vondra & Belsky, 1993). Support received in the context of healthy relationships clearly enhances young mothers' overall well-being and maternal functioning (Leadbeater & Linares, 1992). Studies have repeatedly shown that adequate

social support is associated with less parental stress and depression, more parental sensitivity, and is a key factor in counteracting risk for neglect. Good quality social support also distinguishes mothers who break cycles of maltreatment from those who do not (Crockenberg, 1987; DePanfilis, 2006; Way & Leadbeater, 1999; Whitman et al., 2001).

Young parents receive social support from a variety of sources (e.g., relatives, friends, neighbors, schools, employers, religious institutions, community organizations) and in many different forms (e.g., companionship, emotional, instrumental, informational support). Some sources have received more attention in the literature on adolescent parenting than others. For instance, the role of fathers has been largely overlooked (Tamis-LeMonda & Cabrera, 2002), but grandmother involvement is an increasingly common focus. Research on the role of grandmothers reveals that they often become influential figures after an adolescent gives birth, offering shelter, financial assistance, advice, and caregiving support that lessens parenting stress and allows young mothers to pursue educational and vocational goals (Black et al., 2002; Hess et al., 2002).

Despite a shift toward independence during the teen years, adolescents' relationships with their mothers may continue to be fundamental to self and social development (Moore & Brooks-Gunn, 2002). According to intrapsychic perspectives, which stress identification with others as a route to role definition, mother-daughter relations facilitate adolescent girls' development of a maternal sense of self (Deutsch, Ruble, Fleming, Brooks-Gunn, & Stangor, 1988; Moore &

Brooks-Gunn, 2002). These bonds assume considerable importance for young parents after birth, as they increasingly rely on their mothers for emotional, informational, and instrumental assistance (Cooley & Unger; 1991; Furstenberg et al., 1989; Kalil, Spencer, Spieker, & Gilchris, 1998; Hernandez & Myers, 1993; Moore & Brooks-Gunn, 2002). These relationships may be further intensified by the instability of immature romantic relationships (Furman, 2002; Furman, & Schaffer, 2003). In fact, many teen parents consider their mothers to be a more important resource than any other member of their support networks (Burke & Liston, 1994).

Close contact and co-residence with grandmothers are common among young parents (Hernandez & Myers, 1993), particularly among very young mothers (i.e., under age 17 at childbirth) (East & Felice, 1996). In fact, recent U.S. policy began to promote co-residence with grandmothers when welfare reform in the 1990s introduced a requirement that teen mothers ($\leq$ 18 years) live in an approved adult-supervised setting (e.g., the child's grandmother) in order to qualify for Temporary Assistance for Needy Families (TANF). In a post-reform analysis of TANF and the status of teen mothers, Acs and Coball (2003) reported that three-fourths of teen mothers who live with their children reside with their own parents.

The nature of the bond between adolescent mothers and their children's maternal grandmothers strongly influences the quality of care they receive (East & Felice, 1996; Wakschlag et al., 1996). However, conclusions about the nature of this influence have been inconsistent. Some researchers have found that a

grandmother's presence leads to more responsive parenting (Crockenberg, 1987; Davis, Rhodes, & Hamilton-Leaks, 1997) and better educational and financial outcomes for teen mothers (for review see Eshbaugh, 2008). Others have concluded that co-residence negatively affects the adolescent-child relationship (East & Felice, 1996; Wakschlag et al., 1996). In particular, their research suggests that struggles for autonomy and control, along with blurred parent and grandparent roles, leads to tension in the household, decreases self-confidence in parenting, reinforces prolonged emotional and financial dependence of the adolescent mother on her parents, and promotes negative parenting attitudes, resulting in less sensitive and stimulating caregiving with children (Apfel & Seitz, 1996; Black & Nitz, 1995; Chase-Landale et al., 1999; Chase-Lansdale, Brooks-Gunn, & Zamsky, 1994; East & Felice, 1996; Eshbaugh, 2008; Letourneau, Stewart, & Barnfather, 2004; Spieker & Bensley, 1994; Way & Leadbeater, 1999). Overall, more positive effects of grandmother involvement have been found when boundaries are clear and separate living arrangements are maintained (East & Felice, 1996; Spieker & Bensley, 1994; Wakschlag et al., 1996). Cultural beliefs about the grandmother role when daughters become parents at an early age also impact family outcomes (García Coll, 1993; Leadbeater & Way, 2001).

Cultural context of adolescent parenting. Multigenerational relationships are embedded in cultural values and norms, and thus early parenting contexts should be conceived of broadly and investigated specifically (García Coll & Magnuson, 2000; Harkness & Super, 1996; Super & Harkness, 1997). For instance, mother-daughter relationships are more central to adolescent parents

within African-American and Latino communities, in which reliance on kith and kin networks is quite common (García Coll, 1993; Wakschlag et al., 1996). Moreover, the cultural nature of family environments affects early childbearing outcomes. García Coll (1993) reported that low-SES mothers living in Puerto Rico planned early pregnancies and were surrounded by many other teen mothers and supportive family members. Consequently, the negative effects of parenting at a young age were less pronounced for mothers who lived in Puerto Rico than for mothers who lived in the United States.

The idea that teenagers need unconditional support from their families in order to thrive as parents also is a culturally based assumption. In a 6-year longitudinal mixed-methods study, Leadbeater and Way (2001) reported that successful urban teen parents (ages 14-19) spoke of the importance of *conditional* support from their mothers. That is, they felt bolstered by the care they received but also motivated by their families' concerns about them. The authors concluded that "it was not simply support that helped them move forward, but also the experience of challenge, constraint, and doubt" (p. 43). Their findings suggest that teen mothers' perceptions can be especially useful in obtaining culturally relevant explanations of mother-daughter relationships, and that use of a culturally sensitive, multigenerational perspective is essential for assessing adaptive aspects of these relationships (Wakschlag et al., 1996).

Wakschlag and Hans (2005) asserted that "It is important to go beyond whether or not grandmothers provide support to examine multigenerational relationship processes as contributors to young mothers' parenting competence"

(p. 133). A recent study of over 300 low-income Latina adolescent mothers by Nadeem, Whaley, and Anthony (2006) affirms this view. The investigators found that listening to the perceptions that Latina adolescents had about their relationships with their mothers was especially important to identifying protective factors in early parenting (i.e., lower maternal depression and higher self-esteem). Unfortunately, there are few studies of that consider cultural differences in mechanisms of protection for young parents, and this is an important area for future research.

Summary of research on adolescent parenting. Certain characteristics of young mothers and their social ecologies (e.g., cognitive maturity, educational achievement, financial self-sufficiency, high self-esteem, social support) protect against the risks of early childbearing and support resilient trajectories for adolescents and their families (Furstenberg et al., 1987; Leadbeater & Way, 2001; Mylod et al., 1997; Borkowski et al., 2007). On the other hand, individual and environmental risks linked with early childbearing (e.g., cognitive immaturity, childhood maltreatment, social isolation, poverty) can take a serious toll on young mothers' psychological well being and lead to child harm (Borkowski et al., 2007; Moore & Brooks-Gunn, 2002; Whitman et al., 2001). Some of these challenges precede the transition to parenthood, making it difficult to discern which conditions lead to early pregnancy and which result from parenting at a young age.

Given the cumulative nature of stress in the lives of many adolescent mothers, it is understandable that pregnant and parenting teens are more

depressed, anxious, and aggressive than their adult counterparts (Passino et al., 1993; Noria et al., 2007). It is also not surprising that teen mothers report more negative parenting attitudes, are less sensitive, affectionate, verbal, and interactive with their infants, and neglect their children more often than do older mothers (Brooks-Gunn & Chase-Lansdale, 1995; Krpan et al., 2005; Wolfe, 1985; Pomerleau, Scuccimarri, & Malcuit, 2003). By recognizing the potential accumulation of environmental risk and protective factors that impact parental functioning and therefore family well being (Belsky, 1984; Bronfenbrenner, 1977), researchers can avoid the propensity to limit explanations of adolescent parenting to maternal behavior (Luthar, Cicchetti, & Becker, 2000; Masten, Best, & Garmezy, 1990; Sameroff, 1993; Schatz & Lounds, 2007; Zuravin, 1987).

In particular, relationships with family members have a powerful influence on teen parenting outcomes. These relationships help to mitigate risk and strengthen maternal functioning in some cases, but may exacerbate stress and conflict in others (Whitman, Borkowski, Schellenbach, & Nath, 1987). The specific nature of relationships with family members (e.g., nurturance, abuse and neglect) and social support (e.g., quantity, quality, type) are as consequential as the presence or absence of those relationships (Coley & Chase-Lansdale, 1998; Voight, Hans, & Bernstein, 1996).

Although a detailed review is beyond the scope of this paper, it is important to note that children, too, have a role in teen parenting outcomes. Child characteristics (e.g., temperament), particularly in relation to the “goodness-of-fit” between children and their parents, factor into family adjustment (Lerner et al.,

2001; Lewis & Rosenblum, 1974; Thomas & Chess, 1977). Taken altogether, transactions among children, young mothers, their families, and their broader environments together contribute to the quality of caregiving that children receive (Lerner et al., 2001) and to risk for infant neglect.

Research on Infant Neglect

Child protective services (CPS) received an estimated 3.3 million reports of child abuse and neglect in 2009, alleging maltreatment of about 6 million children. From these reports, approximately 763,00 children were determined to have been victims, and more than three-quarters (78.3%) suffered neglect (USDHHS, 2010). Certain child and family characteristics have an especially strong link to the incidence of child neglect. For example, the Fourth National Incidence Study of Child Abuse and Neglect (NIS–4) (Sedlak et al., 2010), a congressionally mandated study of the incidence and prevalence of child maltreatment in the U.S., determined that low socioeconomic status, single parent status, and racial background were associated with neglect. Children from low socioeconomic status families were victimized more than five times as often as children from higher income families and were more than seven times as likely to be neglected. Rates of maltreatment were higher for children living with a single parent than children in two-parent families and, compared to children living with married biological parents, children whose single parent had a live-in partner had more than six times the rate of neglect.

An encouraging finding from NIS-4 (Sedlack et al., 2010) was that the rates of maltreatment have declined in recent years, but the decrease in abuse was

offset partially by an increase in the incidence of emotional neglect. Also, declines were more common among White children than Black and Hispanic children. The study noted racial and ethnic differences that had not been evident in previous cycles, with rates of maltreatment higher for Black children than for White and Hispanic children. Child abuse and neglect are most common among children of African-American (15.1 per 1,000), Indian or Alaska Native (11.6 per 1,000) or multi-racial (12.4 per 1,000) descent (USDHHS, 2010).

Infants experience maltreatment more frequently than any other age group. Children under one year of age are maltreated at over twice the rate of all children combined (20.6 per 1,000 versus 9.3 per 1,000 of that age group in the national population) (USDHHS, 2010). Re-reporting (a report to child protective services made after the child's first exposure to the child welfare system) also is more common among infants and toddlers (Waldfogel, 2009), as are fatalities; 80.8% of the children who died as a result of being maltreated were younger than four years old, and over 35 percent (35.8%) of child fatalities were caused by neglect alone (USDHHS, 2010). Most children survive neglect by their caregivers, but many incur serious harm.

Consequences of infant neglect. Studies on the consequences of neglect for children's growth and well being suggest that multiple developmental domains (e.g., physical, neurobiological, cognitive, and socioemotional) are adversely affected in ways that are distinct from other forms of maltreatment (Erickson & Egeland, 2002; Gaudin, 1999; Hildyard & Wolfe, 2002; Jones & Gupta, 2003; Kim & Cicchetti, 2006). Some researchers have proposed that the deleterious

effects of neglect exceed those of abuse, and most agree that early onset intensifies the negative impact neglect has on development over the life course (De Bellis, 2005; Egeland, Sroufe, & Erickson, 1983; Erickson & Egeland, 2002; Fantuzzo, Perlman, & Dobbins, 2011; Scannapieco & Connell-Carrick, 2001).

Outcomes for neglected children are diverse, and the specific impact of neglect depends on factors such as developmental timing, type, severity, chronicity, exposure to other risk factors, the presence of protective factors, the quality of the relationship between the child and caregiver, and a family's experiences in the child welfare system (DePanfilis, 2006). The effect of neglect in any one domain of development also varies in relation to a child's other capacities. Skills in different areas (e.g., cognitive capacities, social skills, physical abilities) develop somewhat independently, but they also are integrated and mutually influential (Fischer, 1980; Fischer & Bidell, 2006). For instance, emotions play a fundamental role in shaping cognition and vice versa (Ayoub, et al., 2006; Fischer, Knight, & Van Parys, 1993). Accordingly, the following discussion recognizes differential effects of neglect based on qualitative progression of multiple domains.

Although infants are not affected by neglect in the same way, nor are their developmental trajectories identical, ample research identifies common sequelae among neglected children, including impairments in health and physical well being, and deficits in neurological, cognitive, and socioemotional development. A review of current literature on the consequences of neglect follows, but with two caveats: (a) development in any one domain does not represent truly separate

functions from other domains (Fischer, 1980), and (b) person and situation together affect development (Bronfenbrenner & Morris, 2006).

Impact on physical health. Infant neglect can have severe physical consequences for child victims including malnutrition, failure to thrive, and death. When a caregiver fails to provide an infant with basic necessities (e.g., food, clothing, shelter, emotional care), or denies/delays the infant necessary medical care, there are a wide variety of health issues that may arise (e.g., malnutrition, infection, illness, asthma attacks, stunted growth, cognitive and motor delays) (Depanfilis, 2006; Smyke et al., 2007). One serious manifestation of infant neglect is failure to thrive (FTT), a medical condition in which there is "a significantly prolonged cessation of appropriate weight gain compared with recognized norms for age and gender after having achieved a stable pattern" (Block, Krebs, & the American Academy of Pediatrics Committee on Child Abuse and Neglect and Committee on Nutrition, 2005, p. 1234). FTT typically occurs within the first two years of life and may result from physical neglect (e.g., when a caregiver fails to supply adequate food and nutrition) or emotional neglect (e.g., when a caregiver does not provide sufficient stimulation) (DePanfilis, 2006; Kempe & Goldbloom, 1987). The science of early childhood not only demonstrates a considerable potential for physical sequelae, but also for exposure during sensitive periods of development to become biologically embedded in the human brain, leading to adverse health and mental health consequences that may last a lifetime (Shonkoff, Boyce, & McEwan, 2009).

Impact on the brain. Research on the effects of neglect on individual neurobiology is in the beginning stages, but increasing scientific evidence shows that "impoverished early experience can have severe and long-lasting detrimental effects on later brain capabilities" (National Scientific Council on the Developing Child, 2007, p. 4). Neglect in humans is a relatively new area of research, but the study of animal deprivation has been of significant interest to researchers for decades, dating back to Harlow and colleague's (Harlow, Harlow, & Suomi, 1971) pioneering work on social deprivation among rhesus monkeys. In recent years, investigators have identified important parallels between human and animal studies, chief among them the notion that enriched environments are necessary to healthy functioning and, conversely, that environmental deprivation can have grave neurodevelopmental costs (Perry, 2000).

Generally, life experiences during key developmental periods (i.e., sensitive periods) shape the architecture of the brain and enhance or inhibit neural connectivity (for review see Fox, Levitt, & Nelson, 2010). Given the malleability of the infant brain and the sequential nature of neurodevelopment (i.e., higher level functions build on lower level functions), neglect that occurs very early in life is an especially pernicious threat to neurodevelopment (Fox et al., 2010; Perry, 2002). Recent advances in brain imaging (e.g., functional magnetic resonance imaging [fMRI]) have allowed neuroscientists to explicate the specific neurobiological processes involved in neglect, and researchers have consistently found that environments that fail to provide adequate physical and emotional care early in life jeopardize young children's development by undermining neuronal

development and limiting overall brain growth (De Bellis, 2005; Shonkoff & Phillips, 2000; Teicher et al., 2004).

Investigations of children reared in orphanages provide some of the most compelling evidence of the neurodevelopmental costs of neglect. These studies reveal that institutionalized children have marked deficits in visual memory and attention, reduced brain activity, and small brain size compared with non-institutionalized children (Chugani et al., 2001; Eluvanthingal et al., 2006; Perry, 2002; Pollak et al., 2010). Sensory deprivation appears to be the core mechanism explaining the link between neglect and brain functioning. The human cortex grows in size and forms increasingly complex synaptic connections "as a function of the quality and quantity of sensory experience," and thus the lack of adequate sensory-motor and cognitive input leads to underdevelopment of the cortex (Perry, 2000, p. 18). Diminished brain growth in turn may lead to long-term problems with memory, attention, socioemotional functioning, and mental health (Child Welfare Information Gateway, 2009; Teicher, 2000).

In addition to denying children the stimulation necessary for healthy neurological development, neglect comprises a toxic form of stress that may exceed the infant's internal and external resources and lead to maladaptive responses to stress (Shonkoff et al., 2009). A number of scientists have reported deleterious effects of neglect on the sympathetic nervous system ([SNS]; De Bellis, 2005), specifically the functions of the hypothalamic-pituitary-adrenal (HPA) axis, the principal system responsible for stress regulation (Hostinar & Gunnar, 2009; National Scientific Council on the Developing Child, 2005).

Gunnar and colleagues (Gunnar, Fisher, & the Early Experience, Stress, and Prevention Network, 2006; Gunnar & Vasquez, 2006) contend that the absence of sensitive care from primary caregivers increases young children's susceptibility to chronic activation of the HPA axis, which in turn leads to blunted levels of morning cortisol, a key hormone released by the body to manage stress (Gunnar, Brodersen, Nachmias, Buss, & Rigatuso, 1996). While the exact mechanism underlying hypocortisolism is not yet known, several researchers have observed low morning cortisol levels among neglected children in foster care and institutions (Bruce, Fisher, Pears, & Levine, 2009; Carlson & Earls, 1997; Dozier et al., 2006), supporting the hypothesis that child neglect is associated with hyporesponsiveness to stress.

Accumulating evidence also suggests that the effects of neglect on the HPA axis and other neurobiologic systems are contingent upon a multitude of factors, including characteristics of the child's maltreatment experience (e.g., developmental timing, severity, chronicity, subtype), individual attributes, and environmental factors (e.g., health and mental health, presence or absence of a nurturing adult) (Ayoub et al., 2006; Bruce et al., 2009; Dozier et al., 2006; Manly, Kim, Rogosch, & Cicchetti, 2001). Thus, neglect is associated with diverse neurodevelopmental outcomes and is likely to affect the brain differently when experienced in infancy than in subsequent stages of development (Cicchetti & Rogosch, 2001; De Bellis, 2001). Characteristics of the infant and his environment may exacerbate a specific neurological deficit (e.g., cortisol

dysregulation) associated with neglect, support resilience, or affect functioning in a different way altogether (Haskett, Nears, Sabourin Ward, & McPherson, 2006).

Neurological alterations do not necessarily represent developmental immaturity, delay or dysfunction, but may in fact reflect positive adaptations to the maltreating context that are maladaptive in other situations (Ayoub et al., 2006; Cicchetti & Curtis, 2005; Cicchetti & Rogosch, 2007; Curtis & Cicchetti, 2011; Fisher et al., 1997; Pollak & Kistler, 2002; Shipman & Zeman, 2001; Tarullo & Gunnar, 2006). For example, a young child may devote the majority of her neural resources to detecting negative social cues from a maltreating caregiver to facilitate rapid identification of threat, but have few remaining resources to attend to positive social cues. A growing body of research on young maltreated children's cognitive functioning likewise reveals both salutary and pathological aspects of developmental differences between neglected children and their non-maltreated peers (Ayoub et al., 2006; Cicchetti & Curtis, 2005; Curtis & Cicchetti, 2011; Pollak & Kistler, 2002).

Impact on cognitive and academic development. Studies on the effects of neglect on children's cognitive development are scarce and very few directly address the period of infancy specifically. Nevertheless, there is some evidence to suggest negative effects on cognitive and academic functioning (Erickson et al., 1989; Hildyard & Wolfe, 2002; Jones & Gupta, 2003). Some of the most persuasive findings have emerged from early observations of maltreated infants and toddlers in The Minnesota Mother-Child Project, revealing that neglected children have severe cognitive delays and academic difficulties occurring at

earlier stages of development than either non-maltreated or abused children (Erickson et al., 1989). These include deficits in problem-solving and work habits, an inability to work independently, and low reading skills by the time the children reached kindergarten (Egeland et al., 1983; Erickson et al., 1989). In a more recent publication, Erickson and Egeland (2002) reported that children who were victims of physical neglect had lower scores on IQ tests and overall school performance, as well as poor scores on standardized tests, than either children who were victims of abuse or who were not exposed to maltreatment.

Other studies have established a link between neglect in infancy and language difficulties (Allen & Oliver, 1982; Culp et al., 1991). Young children with a history of neglect manifest greater delays in expressive and receptive language than their nonmaltreated, abused, or multiply maltreated peers (Allen & Oliver, 1982; Gaudin, 1999). This association appears be an artifact of the neglectful caregiver's limited participation in behaviors that are critical to language development (e.g., repetition of sounds, consistent engagement with infants) (DePanfilis, 2006).

Some experts question the validity of findings linking neglect to language and other cognitive difficulties on the grounds that maltreated children often face other adversities that impede development (e.g., poverty), and a few studies have found no differences between the cognitive development of maltreated and nonmaltreated children (for review see Ayoub, et al., 2006; Hildyard & Wolfe, 2002). These discrepancies may be due to methodological differences (e.g., definition of neglect, measures, cross-sectional versus longitudinal data),

differential exposure to risk and protective factors, and/or the developmental timing of the study. For instance, the impact of early neglect is not always evident until subsequent stages of development, when children display difficulty achieving milestones that are contingent upon the successful negotiation of earlier developmental tasks (DePanfilis, 2006; Manly et al., 2001).

Taken together, scientific evidence suggests that neglect leads to perturbations in children's cognitive development, but that further research would help to clarify what disturbances occur under what circumstances and what factors buffer against cognitive dysfunction. In comparison, the literature on the social, emotional, and behavioral consequences of neglect is more conclusive.

Impact on social, emotional, and behavioral development. Infants rely on adults to meet their extensive social and emotional needs. When they receive sensitive and responsive care, infants learn critical skills such as self-regulation, differentiation of self and other, rules of social engagement, cultural norms for emotional and behavioral displays, and expectations of relationships (for review see Easterbrooks, Bartlett, Beeghly, & Thompson, in press). On the other hand, young children who do not have an emotionally available caregiver, who experience chronic stress, or who are exposed to severe deprivation, are at risk for serious disturbances in psychosocial functioning (Easterbrooks et al., in press; Hildyard & Wolfe, 2002; Smyke, Dumitrescu, & Zeanah, 2002; Zeanah & Smyke, 2008).

Some experts posit that neglect interferes with the development of critical emotion management skills (e.g., emotional understanding, emotion regulation)

(Shipman, Edwards, Brown, Swisher, & Jennings, 2005), placing children at risk for poor attachments, peer rejection, internalizing problems, externalizing problems, global impairments in the development of self-system processes, and mental illness (Cicchetti & Rogosch, 2001; Cyr, Euser, Bakermans-Kranenburg, & van IJzendoorn, 2010; Erickson & Egeland, 1996; Erickson et al., 1989; Gaudin, Polansky, Kilpatrick, & Shilton, 1993; Kim & Cicchetti, 2006; Hildyard & Wolfe, 2002; Manly, Kim, Rogosch, & Cicchetti, 2001; Stronach et al., 2011). Viewed from an attachment perspective, neglected children may develop negative "internal working models" of relationships (Bowlby, 1958), such as mistrust of others, difficulty interpreting others' emotional states, limited empathy for others, and impaired social cognition (Goldman & Salus, 2003; Erickson & Egeland, 2002; Dubowitz, Papas, Black, & Starr, 2002).

Neglected children generally manifest more socioemotional problems overall than their physically abused and non-maltreated peers. An early study from The Minnesota Mother-Child Project (Egeland et al., 1983) assessed the developmental consequences of different patterns of maltreatment from infancy to preschool. The researchers found that children of psychologically unavailable mothers were avoidant of their mothers, angry, noncompliant, negativistic, highly dependent on other adults, less persistent and enthusiastic on tasks, and less creative than children who had been physically abused. Several years later, a study conducted by the same research group found that neglected preschoolers demonstrated poor impulse control, extreme dependence on teachers for support and nurturance, and general adjustment problems in school (Erikson et al., 1989).

The social, emotional, and behavioral impact of child neglect appears to be unique from other forms of maltreatment. Maltreated children hold poor views of themselves and others compared to nonmaltreated children, but neglected children have a particularly negative valence; they are more likely to see themselves as angry and oppositional, less likely to display positive affect, and more disposed to perceiving others as sad and anxious than their physically abused, sexually abused, and nonmaltreated peers (Egeland et al., 1983; Koenig, Cicchetti, & Rogosch, 2000; Toth, Cicchetti, Macfie, & Emde, 1997; Waldinger, Toth, & Gerber, 2001). Both abused and neglected children are hyperresponsive to anger, perhaps because it is the most familiar and salient affect in maltreating homes (Cicchetti & Curtis, 2005; Curtis & Cicchetti, 2011; Pollak, Klorman, Thatcher, & Cicchetti, 2001; Pollak & Tolley-Schell, 2003). Similar to abusive environments, homes in which neglect occurs are characterized by high levels of interpersonal conflict and aggression (Connell-Carrick & Scannapieco, 2006).

Neglected children also have difficulty discriminating and managing emotions (Pollack, Cicchetti, Hornung, & Reed, 2000; Gaudin, Kilpatrick, & Shilton, 1996), whereas abused children have a highly refined capacity for accurate recognition of affective states (Pollak et al., 2000; Pollak & Sinha, 2002). Neglected children's inability to discern emotional states may be a natural bi-product of limited emotional support and socialization opportunities available in their environments (Edwards, Shipman, & Brown, 2005).

Given the lack of emotional competency that often characterizes neglected children, it makes sense that they frequently have difficulties in social settings.

Egeland & Sroufe (1981) observed declines in play and feeding skills as early as three to six months in emotionally neglected infants. Studies of neglected preschoolers found them to be passive, socially isolated, withdrawn in the presence of caregivers and peers, and to expect less support and more conflict in response to their own emotional displays (Camras & Rappaport, 1993; Crittenden, 1992; Erickson et al., 1989; Shipman et al., 2005). Neglected children also exhibit more aggression and uncooperativeness than nonmaltreated preschoolers, but to a lesser degree than physically abused children (Bousha & Twentyman, 1984; Crittenden, 1992; Egeland et al., 1983; Erickson et al., 1989).

Overall, research findings on the impact of neglect on children's social and emotional development suggest that neglect places them at risk for insecure attachments, negative representations of self and others, emotional dysregulation, social isolation, and long-term mental health problems (Cyr et al., 2010; Hildyard & Wolfe, 2002). In combination with the negative effects of neglect on their physical, cognitive, and neurological functioning, these deficits put neglected children at a severe developmental disadvantage in comparison to their nonmaltreated peers.

Summary of the consequences of infant neglect. A preponderance of scientific evidence points to deleterious effects of infant neglect. Whether consequences are immediately evident or manifest later in life, neglect can have severe and long-lasting consequences for a victim's physical health, neurological functioning, cognitive development, and socioemotional well being (DePanfilis, 2006). Onset of maltreatment in infancy increases the potential for harm

(Cicchetti & Barnett, 1991) and reduces the odds of children's resilient functioning (Bolger & Patterson, 2003). Overall, more negative outcomes have been associated with early and chronic exposure to maltreatment beginning in infancy and continuing through the school years (Bolger & Patterson, 2003; Cicchetti, Toth, and Rogosch, 2000; Scannapieco & Connell-Carrick, 2005). However, not all children are affected in the same way, nor are profiles of all neglected children identical (Cicchetti & Barnett, 1991). Mitigating factors, such as the presence of an emotionally supportive adult or social support system, may improve a child's odds of positive adaptation (DePanfilis, 2006). Conversely, neglect can be especially devastating when perpetrated by a parent, who is the child's main source of comfort and protection (Belsky, 1984, 1993).

Perpetrators of infant neglect. Most often, the perpetrators of neglect are a child's parents (80%): two-fifths of child victims are maltreated by their mothers acting alone, one-fifth by their fathers acting alone, and just under one-fifth are maltreated by both parents (USDHHS, 2010). Maltreatment by a parent is more common in cases of neglect than abuse. In 2009, 92% of neglected children were victimized by at least one biological parent, compared to 64% of abused children (Sedlak et al., 2010). Neglect by teenage parents also occurs more frequently than neglect by adult mothers (Coley & Chase-Lansdale, 1998; East & Felice, 1996; Flanagan, García Coll, Andreozzi, & Riggs, 1995; Goerge & Lee, 1997; Lee & Goerge, 1999; Sidebotham & Golding, 2001; Whitman et al., 2001), and the percentage of maltreated children who live in a household with an adolescent mother has been estimated to be as much as 50% (Bolton, 1990).

Young parents as perpetrators of infant neglect. The relation between maternal age and neglect is especially strong when compared with other forms of maltreatment (Brown, Cohen, Johnson, & Salzinger 1998; Lounds et al., 2006; Stier et al., 1993; USDHHS, 2010; Zuravin & DiBlasio, 1992), especially during infancy (Wu et al., 2004). Several studies have challenged this conclusion, but most have employed less rigorous research methods (e.g., cross-sectional, lack of a comparison group) (for review see Stier et al., 1993). Stier and colleagues (1993) conducted a longitudinal study with 219 urban adolescent parents and found that the rate of neglect was 2.4 times as high for parents under age 18 than for mothers between the ages of 19 and 34. In a smaller study of low-income single parents, Zuravin and DiBlasio (1992) compared 22 neglectful adolescent mothers to 80 nonmaltreating mothers and concluded that very young age at first birth led to neglect. However, the relation between very young age and neglect was indirect. The association was explained by the added risk that mothers incurred as a result of having additional children during the teen years.

Young age at birth may result in unrealistic or limited parenting orientations that lead to neglect, including little knowledge of child development and rigid expectations for children's behavior (Dukewich, Borkowski, & Whitman, 1996; Whitman et al., 2001). In some cases, neglect may occur as an unintended consequence of these parental limitations (Schatz & Lounds, 2007). For instance, a mother may be unaware of the fact that a small object is a choking hazard, or that excessive crying may be a sign of illness. In addition, many young mothers are affected by a number of other risk factors that can play a causal role,

including depression, cognitive immaturity, poor education, single parenthood, poverty, and social isolation (Brown et al., 1998; Ethier et al., 1995; Gauthier et al., 1996; Passino et al., 1993; Scanniepieco & Connell-Carrick, 2005; Schatz & Lounds, 2007; Sedlak & Broadhurst, 1996; Twentyman & Plotkin, 1982).

Adolescent mothers are most at risk for neglecting their children within their children's first three years of life (Stier et al., 1993; USDHHS, 2010). For this reason, characteristics existing prior to parenting onset warrant particular consideration for prevention. In the Notre Dame Adolescent Parenting Project (NDAPP), Schatz & Lounds (2007) found that mothers' childhood histories of neglect predicted their neglect potential (defined as low levels of emotional, cognitive, supervisory, and physical neglect). Moreover, the relation remained significant after controlling for maternal intelligence and depression. The authors concluded that identification of at-risk mothers (i.e., adolescents with histories of maltreatment) "will help to ensure the delivery of needed services as early as possible, often before the birth of a child at risk for later maltreatment" (Schatz & Lounds, 2007, p. 146). The specific mechanisms underlying neglectful parenting are still unclear, making it difficult to determine which parents to target for prevention.

Etiology of infant neglect. The exact causes of neglect are not known, but contemporary maltreatment experts generally agree that neglect is the product of many interacting forces originating from the child, parents, family, and larger environment (Belsky, 1993; Cicchetti & Lynch, 1993). Because there is no single factor that guarantees an outcome of neglect, most researchers refer instead to *risk*

factors. Here, an ecological review of the literature on the etiology of child neglect considers four categories of risk factors: (a) child characteristics; (b) parent/caregiver characteristics; (c) family characteristics; and (d) broader environmental characteristics. A detailed review of this research is beyond the scope of this paper, but a brief summary of key findings in each category underscores the multidimensional origins of neglect.

Child risk factors. Particular characteristics of the child (e.g., age, race/ethnicity, sociobehavioral attributes) are associated with his or her risk of being neglected (Connell-Carrick, 2003; Hibbard & Desch, 2007; Sidebotham & Heron, 2006). The chances that maltreatment occurs decreases with age, and children under one year of age have the highest rate of victimization. Children of African American, Indian or Alaska Native, and multiple racial decent are at elevated risk for neglect compared to Caucasian children (USDHHS, 2010; Sedlak et al., 2010), and ethnic minority children are overrepresented at every level of the child welfare system (e.g., investigation, substantiation, out-of-home placement) (Fluke, Yuan, Hedderson, & Curtis, 2003; Wuczlyn, Barth, Yuan, Jones-Harden, & Landsverk, 2005). It is unclear whether the disproportionality reflects higher rates of poverty among minority families or a greater likelihood that minority families are reported to authorities.

Child maltreatment researchers also report that having a "difficult" temperament, special needs, and certain prenatal or postnatal complications (e.g., prematurity, low birth weight, exposure to toxins in utero) are antecedents of neglect (DePanfilis, 2006; Goldman & Salus, 2003; Hibbard & Desch, 2007;

Harrington, Black, Dubowitz, & Starr, 1998). The majority of research on the etiology of neglect, however, has focused on attributes of parents.

Parent risk factors. Certain parent/caregiver characteristics increase their children's risk of being victimized. For example, the present study's focus on adolescent mothers is based on research demonstrating that young maternal age (e.g., Stier et al., 1993; Erickson et al., 1989; Hildyard & Wolfe, 2002; Slack et al., 2004) and a maternal history of maltreatment (e.g., Kaufman & Zigler, 1987, 1989; Ertem et al., 2000) are significant risk factors for neglect. In addition, child neglect is more common among parents who are depressed, anxious, have low self-esteem, exhibit low levels of sensitivity and empathy, abuse substances, and experience high levels of stress compared to parents without these characteristics (Brown et al., 1998; Chaffin, Kelleher, & Hollenberg, 1996; Coohey, 1998; Dubowitz, Pitts, Litrownik, Cox, Runyan, & Black, 2005; Kotch, Browne, Dufort, Winsor, & Catelllier, 1999; Smith & Fong, 2004; Zuravin & DiBlasio, 1992). Mothers who neglect their children also tend to have lower levels of educational achievement, higher rates of unemployment, limited knowledge about child development, and less cognitive and emotional maturity than nonmaltreating mothers (Borkowski et al., 2007; Brown et al., 1998; Jones & McCurdy, 1992; Whitman et al., 2001; Zuravin & DiBlasio, 1992). In addition to individual attributes, family interaction patterns influence the quality of care young parents offer their children (Belsky, 1984, 1993).

Family risk factors. Children who are neglected often grow up in families experiencing multiple adversities (Sedlack & Broadhurst, 1996). In aggregate,

problems in the family may compromise parents' personal resources and therefore their ability to meet their children's basic needs. In fact, intimate partner violence (IPV) and neglect often co-occur (Bragg, 2003). In some cases IPV is considered a form of neglect, in others it is not, because child welfare statutes and policies have inconsistent standards for whether a child's exposure to violence in the household warrants involvement by child protective services (Weithorn, 2002).

As a group, neglectful families express fewer positive emotions, have difficulties communicating effectively, lack emotional closeness, exhibit problematic interactional patterns and family discord, and have a higher incidence of parental mental illness than nonmaltreating families (Connell-Carrick, 2003). Moreover, environmental challenges may contribute to or intensify problematic family dynamics (Goldman & Salus, 2003).

Environmental risk factors. Some of the most widely reported ecological risk factors for child neglect are low socioeconomic status, unsafe and resource-poor neighborhoods, and a lack of reliable, good quality social support (for review see Goldman & Salus, 2003). Poverty, in particular, has an inextricable link with child neglect, and the association between income and involvement with the child welfare system is one of the most frequently cited findings in the literature on child maltreatment (DePanfilis, 2006; Sedlak et al., 2010). Many states make exceptions for poverty in statutes on child maltreatment by differentiating between a lack of access to resources and a purposeful denial of care. However, there are no uniform standards with regard to how child welfare agencies address the link between poverty and child neglect.

The Third National Incidence Study (NIS-3) (Sedlak et al., 1996) determined that children from families with annual incomes below $15,000 were more than 22 times more likely to experience child abuse and neglect compared with children from families with annual incomes above $30,000. One theory on the connection between poverty and neglect is that low income elevates family stress, which increases the chances that parents do not adequately attend to their children's needs. An alternative theory posits that parents who do not have sufficient material resources are unable to provide for their children's basic needs or offer sufficient care because they literally do not have the resources to do so. Yet another explanation for the poverty-neglect link is that some risk factors simultaneously increase the odds of poverty and neglect (for review see Plotnik, 2000). For instance, both neglect and poverty are associated with neighborhood violence, inadequate housing, high juvenile arrest rates, and high teen birth rates (Coulton, Korbin, Su, & Chow, 1995; DePanfilis, 2006). Still, poverty is not a reliable indicator of neglect in and of itself, and the majority of poor families do not neglect their children (Frank et al., 2010).

Neglectful parents often have limited social support, small social networks, experience high levels of isolation and loneliness, and perceive their social networks and communities as less dependable than non-maltreating parents (Beeman, 1997; Connell-Carrick, 2003). A possible explanation for this connection is that healthy parenting depends, in part, upon a caregiver's well of emotional resources being replenished by positive and supportive connections with family and friends. If this emotional "refueling" does not occur, the risk of

neglect increases (Pianta, Egeland, & Erickson, 1989). Social isolation also limits children's opportunities to develop secure attachments to other adults when their own caregivers are unable to meet their needs (Widom, 2000).

Summary of risk factors for neglect. A number of studies have produced robust findings on specific risk factors associated with neglect (e.g., poverty, maternal age, parental childhood history of maltreatment, social support; for review see Connell-Carrick, 2003 and DePanfilis, 2006), but in reality they rarely occur in isolation from one another. Risks tend to aggregate in the lives of children and their families and, generally speaking, the more risk factors that accumulate, the more substantial the threat to a child's well-being (Sameroff, 2000; Sameroff, Seifer, & Zax, 1982). Further research is needed, however, to ascertain which constellations of risk are most likely to lead to neglect and which are most amenable to intervention (Ross & Vandivere, 2009).

Of course, most children whose families encounter risk do not become victims of neglect. Exactly why neglect occurs in some at-risk families and not others is a question of great relevance to the field of child maltreatment prevention. Accordingly, an understanding of how individuals parent effectively in situations of high risk can inform strategies to improve other parents' chances of doing the same.

Protective factors associated with infant neglect. The current literature on protective factors and child maltreatment focuses almost entirely on characteristics that contribute to positive outcomes for children following abuse or neglect, rather than on how families avert risk for maltreatment in the first place.

A few researchers have begun to make important inroads into the study of protective processes that lessen the odds that children will be maltreated, but their studies mostly focus on older children and tend to conflate abuse and neglect (Horton, 2003; Li, Godinet, & Arnsberger, 2010).

A recent cross-study comparison study by Slack and colleagues (2011) identifying predictors of neglect across and within three longitudinal studies (Fragile Families and Child Wellbeing [FFCS], see Reichman, Teitler, Garfinkel, & McLanahan, 2001; Healthy Families New York [HFNY], Mitchell-Herzfeld, Izzo, Greene, Lee, & Lowenfells, 2005; Illinois Families Study-Child Wellbeing [IFS], Slack et al., 2004) highlighted protective factors for neglect in early childhood (prenatally to age seven). The authors noted that parental self-efficacy decreased odds of both self-reported (Parent-child Conflict Tactics Scale [CTS-PC], Straus, Hamby, Finkelhor, Moore, & Runyan, 1998) and CPS investigated neglect in two of the studies (the FFCW and IFS-CWB). In the IFS-CWB, parental involvement with a child's activities and caregiver employment also reduced the odds of child neglect.

Several other studies have explored protection from early childhood maltreatment but without distinguishing neglect from abuse. For example, Li and colleagues (Li et al., 2011) followed 405 preschool and school-age children (ages four to eight) using data from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) and found that two conditions lessened the children's chances of having a CPS report (both substantiated and unsubstantiated reports): (a) when their mothers were married; and (b) when they had high levels of social

support. Adequate social support was particularly important for mothers who did not receive a high school degree, decreasing their risk of child maltreatment by a factor of two.

Social support may offer teen parents refuge and relief under stressful conditions, provide children with additional opportunities to form positive relationships, and buffer the risk of child neglect (Gaudin, 2001; Polansky, Ammons, & Gaudin, 1985; Zolotor & Runyan, 2006). Social support has been found to distinguish young mothers who break cycles of maltreatment from those who do not (Dixon et al., 2009) and mediate the association between childhood maltreatment and an adolescent's psychosocial well being (Pepin & Banyard, 2006). It is not clear, however, if there are differential effects of social networks on neglectful versus abusive families (Thompson, 1995).

Few papers have been published on protective factors that help to prevent child maltreatment, but at least two federal agencies have conducted reviews of the existing empirical literature. A review by the Children's Bureau identified five protective factors purported to reduce the likelihood of child abuse and neglect based on a commissioned literature review (Horton, 2003) and ongoing work by the Strengthening Families initiative at the Center for the Study of Social Policy to embed protective factors into existing programs and systems: (1) nurturing and healthy attachments among family members, (2) parental knowledge of childrearing and development, (3) parental resilience, (4) parental social connections, and (5) concrete supports (e.g., food, housing, transportation, access to services) (Children's Bureau (HHS), Child Welfare Information

Gateway, FRIENDS National Resource Center for Community-Based Child Abuse Prevention, & Center for the Study of Social Policy-Strengthening Families, 2011).

The Centers for Disease Control Prevention□National Center for Injury Prevention and Control ([NCICP], 2011) also distilled the current research and classified protective factors for maltreatment into two broad categories: (1) family protective factors (i.e., supportive family environments and social networks, nurturing parenting skills, stable family relationships, household rules and child monitoring, parental employment, adequate housing, access to health care and social services, caring adults outside the family who can serve as role models or mentors), and (2) community protective factors (i.e., supporting parents, taking responsibility for prevention of child maltreatment). Both agencies noted the need for more extensive research on protective factors in the context of child maltreatment prevention. The gap is especially pronounced with regard to neglect (DePanfilis & Dubowitz, 2005), in part due to definitional and conceptual problems that have impeded more extensive research (Dubowitz et al., 2002).

Definition and Measurement of Infant Neglect

Researchers do not yet have conceptual clarity with regard to definition and operationalization of child neglect (Dubowitz et al., 2002; McSherry, 2007; Wolock & Horowitz, 1984; Zuravin, 2001). Inconsistent methods of defining and measuring the construct have made research and cross-study comparison difficult (DePanfilis, 2006; Dubowitz, 2007). Neglect is a dynamic and diverse phenomenon that varies by cause, type, severity, and chronicity (Dubowitz,

Black, Starr, & Zuravin, 1993), but most studies do not address this variation or the contextual factors that lead to different forms (Dubowitz, Pitts, & Black, 2004). In an attempt to resolve some of these issues, Dubowitz and colleagues (1993) proposed a broad definition: "Child neglect occurs when a basic need of a child is not met, regardless of the cause(s)" (pp. 22-23). However, such an inclusive definition poses serious challenges to operationalizing neglect for research purposes.

Developing definitional consensus among investigators has been especially challenging for several reasons. First, just what constitutes neglect is perhaps more vague than for other forms of maltreatment. Neglect is hard to detect, as it is frequently evidenced by a lack of action—an act of omission—rather than a prominent parental behavior or visible injury. As a result, neglect is greatly underreported and not well examined (DePanfilis, 2006). Second, the common practice of collapsing all forms of maltreatment into a single phenomenon is in direct contradiction with measurement approaches that distinguish neglect from abuse. Although there is a growing consensus that the causes and consequences of neglect are different from those of abuse (DePanfilis, 2006; Dubowitz, 2007), the majority of research to date has not delineated findings for different forms of maltreatment. For instance, sexual abuse does not seem likely to originate from identical processes as emotional neglect, but a paucity of studies explains their divergent etiology. A third issue leading to disagreement about how to define and measure neglect is whether or not to use child protective service data (CPS), which is widely available but misses a

considerable number of victims (Dubowitz et al., 2005). Finally, definitions vary widely by perspective and discipline (e.g., legal, medical, psychological, and social service).

The Federal Child Abuse Prevention and Treatment Act (CAPTA) of 1974 (42 U.S.C.A. § 5106g) originally defined abuse and neglect jointly as: "Any recent act or failure to act on the part of a parent or caretaker, which results in death, serious physical or emotional harm, sexual abuse or exploitation, or an act or failure to act which presents an imminent risk of serious harm." When CAPTA was reauthorized in 1996 (P.L. 104-235) the definition of maltreatment was narrowed to include only cases in which there has been actual harm or imminent risk of serious harm. Recently, CAPTA was reauthorized in the Keeping Children and Families Safe Act of 2003 (P.L. 108-36), to provide mandatory minimum standards to be incorporated into state statutory definitions in order to receive Federal funds. Under these standards, neglect is classified as *mild*, *moderate*, or *severe*. *Mild* neglect does not warrant intervention by child protective services (CPS), but might require community-based intervention (e.g., a parent fails to put a child in a car seat and is caught by police); *moderate* neglect occurs when community interventions have failed or some moderate harm has occurred (e.g., a parent fails to provide a coat for the child all winter long); and *severe* neglect occurs when long-term or severe harm to the child has been done (e.g., child with diabetes has not received prescribed medications and has been admitted to the hospital).

Each state has its own legal definition of neglect and discrepancies remain among them (DePanfilis, 2006). Most state child welfare agencies recognize different categories of neglect. Commonly identified subtypes include: physical neglect (e.g., abandonment, lack of food and clothing), medical neglect (e.g., denial of medical or mental health care), environmental neglect (e.g., lack of neighborhood safety and resources), emotional neglect (e.g., lack of nurturing/affection, exposure to intimate partner violence), educational neglect (e.g., permitted truancy, inattention to special needs), inadequate supervision (e.g., lack of supervision, exposure to safety hazards), and in some cases, newborn exposure to drugs. Although child welfare experts tend to agree on these larger categories of neglect, precise interpretations vary considerably.

Legal definitions, out of necessity, are the most precise. They tend to use descriptions of "neglectful" behaviors and conditions, such as inadequate nutrition, clothing or hygiene, inadequate medical, dental, or mental health care, unsafe environments, inadequate supervision, abandonment or expulsion from home, or denial of education. Child maltreatment researchers also have developed their own classification systems, such as the Fourth National Incidence Study of Child Abuse and Neglect (NIS-4) (Sedlak et al., 2010) and the Maltreatment Classification System ([MCS], Barnett, Manly, & Cicchetti, 1993), which address issues of chronicity, severity, and timing. The MCS conducts a thorough analysis but still relies on CPS data. NIS data are gathered partly from CPS agencies, but annual studies obtain further detail by surveying community professionals called "sentinels" who work in other agencies (e.g., police, public

schools, day care centers, hospitals, mental health agencies, courts, pubic housing, shelters) working with children and families. The NIS method also applies two different definitional standards: the *harm standard*, which requires demonstrable harm of abuse or neglect, and the *endangerment standard*, which also includes any child identified by a sentinel to be in danger of maltreatment. Such classification systems have advanced maltreatment research by developing more comprehensive and nuanced definitions of abuse and neglect, but they rely extensively on CPS data.

Maltreatment experts continue to debate key questions concerning the operationalization of neglect, including: What are the minimum requirements of caring for a child? What action or lack of action constitutes neglectful parenting? Must there be intentionality behind the parent's action or inaction? How are the health, safety, and well being of the child impacted by parental behavior or inaction? How is "failure to provide" food, clothing, shelter, protection, and basic care defined? Should "failure to protect" be included in definitions of neglect? Is poverty the cause of a parent's action or omission? (DePanfilis, 2006). In addition, child protective service agencies revise their operational definitions of neglect based on shifting trends in the field that, in turn, affect how we view the nature of the problem. For instance, intimate partner violence and exposure to parental drug use are increasingly seen as reportable forms of neglect. This emerging viewpoint may account for the higher rates of neglect reported in NIS-4 (Sedlak et al., 2010) and reflect an increased awareness of the danger to children rather than an increase in actual victimization. Definitional shifts and

inconsistencies among CPS agencies have led to additional controversy regarding the use of these data. Nevertheless, use of CPS data for research on neglect has its merits, and a detailed discussion of the pros and cons of this and other methods follows.

Measuring neglect using child protective services (CPS) data. Most maltreatment researchers obtain data from CPS records (usually substantiation status). Key advantages of this method of data collection are that it is widely available and that it identifies cases in which neglect is highly likely to have occurred, since maltreatment is more often reported when it is most visible or severe (English, 1997). However, experts have noted important limitations of using CPS records, and particularly substantiation status alone, as a true measure of child maltreatment (Cross & Casanueva, 2009; Yuan, Schene, English, & Johnson, 2005).

Among the chief concerns about CPS data is that child welfare agencies fail to detect an estimated half of cases of child abuse and neglect that actually occur (Dubowitz et al., 2005). CPS reports are more common among children who have extensive support systems or who are in frequent contact with state protective and law enforcement agencies but do not necessarily represent the families at highest risk (Heller, Larrieu, D'Imperio, & Boris, 1999). Maltreatment classification systems (Barnett et al., 1993; Sedlak et al., 2010) moderately improve upon prediction of maltreatment by CPS (Runyan et al., 2005) by adding descriptive information on the nature of maltreatment, but they do not address the problem of unreported cases. Further, when a report is made to a CPS and the

allegation is not supported, it is not necessarily an indication of the absence of maltreatment, but rather a judgment made by a child protection worker or team about the validity of the report. While such judgments are based on legal definitions of abuse and neglect, additional factors influence substantiation, including child demographic factors (e.g., child gender and age, caregiver and child race/ethnicity, family income, prior involvement with the child welfare system), circumstances of the investigation (e.g., referral source, agency resources, caseload, quality of supervision), and caseworker characteristics (e.g., experience and training, relationships with co-workers) (Child Welfare Information Gateway, 2003; Cross & Casanueva, 2009; Eckenrode, Powers, Doris, Munsch, & Bolger, 1988; English, Marshall, Coghlan, Brummel, & Orme, 2002; Trocmé, Knoke, Fallon, & MacLaurin, 2006; Zuravin, Orme, & Heger, 1995). Substantiation status also does not precisely depict the nature of a child's maltreatment experience (Cross & Casanueva, 2009; Dubowitz et al., 2005; Yuan et al., 2005)

That most incidents of neglect do not come to the attention of CPS may be particularly problematic in relation to protecting infants and toddlers. Young children have limited contact with adults in their communities who might observe and report maltreatment (Mitchell-Herzfeld et al., 2005). For this reason, as well as other limitations mentioned above, it is advantageous to identify infant neglect using other methods, such as maternal self-report (Shaffer, Huston, & Egeland, 2008).

Measuring neglect using maternal self-report. Subjective methods of measuring maltreatment, such as maternal self-report, typically produce different results than state-derived or research-derived reports (McGee, Wolfe, Yuen, Wilson, & Carnochan, 1995). In a comparison of approaches to measuring maltreatment, McGee et al. (1995) gathered data from three sources: adolescents (ages 11-17 years) who were randomly selected from an open caseload of a child protection agency, protection agency case files, and protection agency social workers. They discovered large discrepancies between substantiated maltreatment and adolescent self-ratings. Concordance between the adolescents and official sources was poorest for neglect (approximately 60%), and disagreements between reporting sources were especially pronounced on the dimension of severity. Adolescents in the study reported greater and more severe physical maltreatment, but less family violence, emotional maltreatment, and neglect than the official sources. The authors commented that frequent disagreements among sources regarding the occurrence of neglect "illustrates the nebulous nature of this maltreatment type" (p. 245).

Several researchers have found that self-report surveys, such as the widely used Parent-Child Conflict Tactics Scale (CTS-PC) (Straus et al., 1998) and Adult Adolescent Parenting Inventory (Bavolek, 1984), offer access to maltreatment information not reported to state agencies. Prevalence studies indicate that this method identifies considerably more cases than does research based on CPS reports (Straus et al., 1998). Self-report of parenting practices also may be an especially useful indicator of child outcomes. For instance, studies on self-

reported neglect have shown significant predictive power for child behavior problems (Harrington, Zuravin, DePanfilis, Ting, & Dubowitz, 2002).

Self-report measures also have limitations. Retrospective self-report (e.g., reporting on one's own childhood history of neglect) is complicated by participant memory distortions, bias, and underreporting (Miller-Perrin & Perrin, 2007). Self-report on current parenting behavior is also subject to bias and may elicit socially desirable responses. Some instruments incorporate techniques to minimize these limitations. For instance, the CTS-PC uses explicit behavioral criteria that are less open to interpretation than definitions used by CPS agencies, and the measure curbs socially desirable responding by beginning with positive behaviors and randomizing subsequent items as to their level of harshness or inappropriateness (Straus & Hamby, 1997). However, the neglect subscale utilizes few items that are grouped together, and the physical assault subscale includes behaviors that are not universally perceived as maltreatment, such as corporal punishment.

Self-report instruments are considered an effective way to capture unreported and non-observable dimensions of neglect (DeVoe & Kantor, 2002). They can be especially useful when augmented by other methods of measurement. Observational measures, for example, may help to compensate for some of the limitations of self-report instruments and state agency data.

Measuring neglect using parent-child observation. Direct observation has distinct advantages over other methods of measuring neglect (Dubowitz et al., 2002). Observational measures can offer a vivid picture of parent, child, and

family functioning (DeVoe & Kantor, 2002) and record parent-child behavior, which may be less subject to differing interpretations than are answers to self-report questionnaires when observers are well-trained and reliability is high (Gardner, 2000). Researchers using observational techniques to assess maternal-child interactions have found consistent results on intergenerational maltreatment (i.e., mothers who were abused or neglected in childhood engage in less positive behavior with their children) (Alessandri, 1992; Bennett, Sullivan, & Lewis, 2006; Bousha & Twentyman, 1984; Burgess & Conger, 1978; Dadds, Mullins, McAllister, & Atkinson, 2003; Kavanagh, Youngblade, Reid, & Fagot, 1988).

Moehler, Biringen, and Poustka (2007) used observation in their study of interactions between infants and mothers with a history of abuse. The researchers noted more intrusive parenting styles among these mothers compared to control mothers. They concluded that, "Observation and analysis of mother–infant interaction in critical dyads can and should be applied as a useful tool to identify early risk factors" (pp. 624-625). Still, the efficacy of this type of measurement may be influenced by the tendency of participants to behave in socially acceptable ways (Bennett et al., 2006). Furthermore, observational measures are used within a restricted time frame, and cannot detect fluctuations in interactional style that occur over longer periods. These limitations suggest the need for more than one source of data in order to gain an accurate "picture" of neglect.

Measuring neglect using multiple sources. Research reveals substantial differences in child neglect rates depending on the methodology employed to detect its occurrence (Shaffer et al., 2008), and no single measure of maltreatment

perfectly captures prevalence in a population or accurately depicts the nature of an individual's neglect experience. Clear definition and operationalization of the construct is an essential component of any study, as imprecise definitions thwart researchers' opportunities to make inferences about its nature (Besharov, 1981; Dubowitz et al., 2005; Zuravin, 1999). The use of several methods of measurement and sources of data may increase validity by offsetting some of the deficiencies of individual measures, and therefore is preferable to any single method (Finkelhor, 1986; Shaffer et al., 2008).

One complication of using multiple methods to assess child neglect is that there are often low correlations between sources of maltreatment data, making it difficult to interpret findings and to provide a consistent explanation of results. Slack and colleague's (2011) cross-study comparison of risk and protective factors for child neglect, for example, revealed discrepant findings between predictors of maternal self-reported neglect using the Parent-Child Conflict Tactics Scale (Straus et al., 1998) and CPS investigated neglect. There are many possible explanations for the low correlations between reporting sources, but discrepancies most likely result from different types of error within each source: CPS agencies undercount maltreatment and official case files often do not contain complete information; observations may cause participants to limit negative behaviors with their children; and, surveys may underreport punitive or neglectful behavior or provide biased information (McGee et al., 1995; Sedlak & Broadhurst, 1996). Unless and until a higher concordance rate is reached among measures, it seems advisable to examine data separately for each source rather

than developing an overall measure of child neglect, which may limit internal reliability (Straus & Kantor, 2005). Unfortunately, this does not solve the issue of divergent findings with different measures.

The potential pitfalls involved in measuring neglect for empirical research prompted one group of researchers to state that "The conduct of research in the area of child abuse and neglect may well be one of the most difficult tasks in social science research" (Knight et al., 2000, p. 760). Moreover, measuring early risk for neglectful parenting may be an even more difficult undertaking than identifying neglect once it manifests. Even so, detection of early risk for neglect is vital to protecting infants and young children, with whom there is a restricted time frame in which to intervene.

Measuring risk for neglect. Waiting to measure neglect until children are older and have come to the attention of authorities is not a viable option when prevention is the central goal. Consequently, it is important to pinpoint early indicators of risk. Several studies suggest that parental insensitivity and lack of empathy are suitable early proxies (Bousha & Twentyman, 1984; Brems & Sohl, 1995; de Paúl & Guibert, 2008; Gaudin et al., 1993; Shahar, 2001).

Maltreating mothers display lower levels of maternal sensitivity in comparison to other high-risk mothers (Cicchetti et al., 2006; Lyons-Ruth et al., 1987). Neglectful mothers, in particular, are less able to "read" and respond to their babies' emotional cues or engage in emotional perspective taking (Dubowitz et al., 2005; Gaudin, 1999; Shipman et al., 2005). The reasons for these parenting deficits are not entirely clear, but neglectful parents may not have the capacity to

differentiate among infant signals, may have difficulty interpreting the meaning of their infants' displays, may lack a sense of urgency to respond to their babies' cues, or may manifest other problems that hamper the provision of adequate care (Rodrigo et al., 2011). Regardless of the reason, sensitive and emotionally responsive care has been found to be "woefully lacking in the caregiving environments of maltreated infants" (Cicchetti, Rogosch, Toth, & Sturge-Apple, 2011, p. 789), and both insensitive parenting and a parental lack of empathy are strong correlates of child neglect (Bousha & Twentyman, 1984; Brems & Sohl, 1995; Gaudin et al., 1993; Lounds et al., 2006; Schatz & Lounds, 2007; Shahar, 2001; Whitman et al., 2001). Although research suggest that these two constructs are appropriate for use as early indicators of neglect risk (de Paúl & Guibert, 2008; Lounds et al., 2006), much of this evidence is based on investigations with older mothers. However, over the past decade a small body of research has emerged that reinforces the notion that adolescent mothers lack sensitivity and empathy in interactions with their babies (Baranowski, Schilmoeller, & Higgins, 1990; Black & Nitz, 1996; Schatz & Lounds, 2007; Shahar, 2001; Shapiro & Mangelsdorf, 1994; Whitman et al., 2001).

Maternal sensitivity and risk for neglect. Mary Ainsworth and colleagues (Ainsworth, 1968; Ainsworth, Blehar, Waters, & Wall, 1978; Bell & Ainsworth, 1972) have been credited with developing the concept of maternal sensitivity, defining it as a mother's availability and alertness in responding to her child's signals consistently and appropriately. A mother's sensitivity to her infant's behaviors and emotional cues is a central component to the development of a

secure attachment (De Wolff & van IJzendoorn, 1997; Shonkoff & Phillips, 2000), and securely attached children are less fearful of novel or challenging situations, better able to develop positive relationships with others, have a better self-concept, show greater conscience development, and manage stress more adaptively than insecurely attached children (Ainsworth et al., 1978; Cassidy, 1988; Emde & Easterbrooks, 1985; Gunnar, Brodersen, Nachmias, Buss, & Rigatuso, 1996; Kochanska, 1997).

The stress associated with early parenthood may diminish a young mother's capacity for sensitive caregiving (Baranowski et al., 1990; Borkowski et al., 2007; Field, 1980; Levine, García Coll, & Oh, 1985; McAnarney, Lawrence, Ricciuti, Polley, & Szilagyi, 1986; Whitman et al., 2001). A number of risk factors may be involved in this process: impulsivity (Polansky, Gaudin, & Kilpatrick, 1992; Rohrbeck & Twentyman, 1986), rigidity (Milner & Robertson, 1990), single parenthood (Drake & Pandey, 1996), family stress (Gaines, Sandgrund, Green, & Power, 1978; Williamson et al., 1991), substance abuse (Chaffin et al., 1996; Williamson et al., 1991), psychopathology (Chaffin et al., 1996; Polansky et al., 1992), and history of maltreatment (Lounds et al., 2006; Whitman et al., 2001). These attributes may interfere, either directly or indirectly, with a mother's responsiveness to her infant (Bousha & Twentyman, 1984; Crockenberg, 1987; Field, Healy, Goldstein, & Guthertz, 1990; Leadbeater & Linares, 1992; Polansky et al., 1992).

Adolescent parents who have been exposed to adversity as children may be especially imperceptive about infants' cues and bids for attention, and also

emotionally incapable of mounting an appropriate response (Leerkes, Crockenberg, & Burrous, 2004). Teen parents with a history of neglect have been found to exhibit less positivity, warmth, affection, and responsiveness to their infants, and are more likely ignore infants' signals for attention than adult mothers (Bousha & Twentyman, 1984; Burgess & Conger, 1978; Polansky et al., 1992). These findings, though not as well documented with young mothers as older mothers, suggest that insensitivity and neglect are closely related (Crittenden & Bonvillian, 1984). Researchers have discovered similar links between a lack of maternal empathy and neglect (de Paúl & Guibert, 2008).

Maternal empathy and risk for neglect. The social perspective taking necessary for empathy continues to develop throughout the teen years and does not usually reach maturity until adulthood (Santrock, 1987). It is not surprising, then, that some adolescents demonstrate lower levels of maternal empathy with their infants when compared to adult mothers (Baranowski et al., 1990). Maternal empathy connotes a mother's ability to experience, understand, and attend to her child's signals and cues (Kilpatrick & Hine, 2005). Infants thrive in the presence of empathetic response from caregivers and suffer in its absence (Crittenden, 1999; Stern, 1985; Tronick, 1989). Empathy also begets empathy—empathic mothers tend to have children and adolescents who are empathic (Eisenberg & McNally, 1993; Feshbach, 1978), and empathy is most likely to manifest in individuals who were raised in family environments that fulfilled their emotional needs, encouraged emotional expression, and provided models of sensitivity and responsiveness toward others (Barnett, 1987). Conversely, a history of family

violence (e.g., childhood history of abuse, domestic violence) may decrease parental empathy (Cierpka & Cierpka, 1997).

Parental empathy can be viewed as the converse of particular forms of neglect (e.g., emotional neglect) (Feshbach, 1989), and the lack of empathy as a core component of neglectful parenting (Crittenden, Lang, Claussen, & Partridge, 2000; Rodrigo et al., 2011; Shahar, 2001). However, a lack of maternal empathy is not an adequate proxy for neglectful parenting, nor is it the only antecedent. A mother who refuses traditional medical treatment for her child in favor of a holistic approach does not necessarily lack empathy, though her actions might meet the criteria for medical neglect. Furthermore, one could not assume that assessing maternal empathy would predict the risk for medical neglect, as a mother may be empathic with her child yet have different beliefs about health care than her child's physician.

Although a lack of parental empathy is not an analog of neglect, it is a useful early indicator of risk. Neglectful mothers show low levels of expressiveness, offer little exchange of emotional information, and acknowledge their children less than non-neglectful mothers (Aragona & Eyeberg, 1981; Bousha & Twentyman, 1984; Gaudin et al., 1996), which may reflect an inability to empathize with their children. De Paúl and Guibert (2008) proposed a theoretical model linking parental empathy to neglect, asserting that neglectful parents do not respond empathically to their children, either because they do not experience the emotions that motivate them to help, or because certain cognitive processes inhibit their response. Whether or not this is actually the case, a

number of studies have identified significant associations between the two constructs (Letourneau, 1981; Miller & Eisenberg, 1988; Perez-Albeniz, & de Paúl, 2003; Wiehe, 1985). For instance, in a longitudinal study of psychologically unavailable caregivers, Egeland and Erickson (1987) observed that a common characteristic of maltreating mothers was the inability to attend to and interpret their children's behaviors as distinct from their own needs. Other researchers have observed "ignoring" strategies employed by parents who lack empathy with their children, which is considered an indicator of neglect (Bousha & Twentyman, 1984; Brems & Sohl, 1995).

Kempe and colleagues (Kempe, Silverman, Steele, Droegmueller, & Silver, 1962), known for coining the term "battered child syndrome," made a more direct connection, asserting that "Abuse and neglect are the outward behavioral evidences of a caretaker's inadequate empathy for the child…" (Kempe & Helfer, 1980, pp. 52-53). Several years later, Bavolek (1984) reported significant associations between maltreatment and empathy as part of the validation process of the Adult-Adolescent Parenting Inventory (AAPI). Bavolek compared the AAPI scores of 1,239 nonmaltreating parents to 782 abusive parents and found that maltreating parents scored significantly lower on empathy. In a smaller but comparable study, Rosenstein (1995) assessed parental empathy using the AAPI and reported that empathy was significantly related to risk of child physical abuse, even after controlling for parent-child stress. Rosenstein concluded that comprehensive parental risk assessment "must include a measure of parental empathy" (p. 1349).

In one of the few longitudinal investigations of parental empathy and neglect using a control group, Gaudin and colleagues (1993) examined family functioning in 103 neglectful and 102 non-neglectful low-income families and found that families of neglectful mothers demonstrated lower empathy scores than comparison families. Similarly, a cross-sectional study of 94 neglectful and 101 non-neglectful low-income families conducted by Shahar (2001) determined that empathic capacity inversely predicted child neglect. The relation was still statistically significant when controlling for maternal depression and loneliness.

In contrast to the findings from the above studies, investigations by de Paúl and colleagues (de Paúl, Perez□Albeniz, Guibert, Asla, & Ormaechea, 2008) found no differences between neglectful and nonmaltreating mothers in levels of empathy. The conflicting results may reflect different methods of measurement, or, they may represent different conceptualizations of what constitutes empathetic or sensitive parenting. Since the context in which empathy is evaluated can influence how parents are characterized, parenting quality is best viewed through a socioculturally sensitive lens.

Sociocultural context of risk for neglect. Community context, individual beliefs, and cultural values influence how neglect is defined and evaluated (Tanner & Turney, 2003; Wotherspoon et al. 2010). Identifying infant neglect is not possible without forming judgments about what constitutes “good” and “bad” parenting, or at least “adequate” parenting, yet what may appear to be a sign of neglect to one individual may seem an acceptable form of caregiving to another. Answers to questions such as “What level of supervision do babies need?” or

"How should parents handle the discipline of infants?" vary by culture and community and often conflict with one another and with the values of White, middle-class, European Americans. For instance, whereas infants are placed in the care of child relatives in many countries, the majority of families in the U.S. do not condone the use of babysitters younger than twelve-years-old. On the other hand, East Africans believe that the U.S. custom of allowing babies to cry themselves to sleep is neglectful (Harkness & Super, 1992; Rogoff, 2003).

Barbara Rogoff (2003) proclaimed that "There is not likely to be one best way" (p. 12) for child development to unfold. In this vein, many child maltreatment experts emphasize the importance of considering sociocultural context in assessing a family's risk and deciding upon appropriate interventions. In addition, the overrepresentation of families from minority backgrounds in the child protective system suggests that even broader influences are at play, such as poverty and discrimination (DePanfilis, 2006; Fluke et al., 2003; Sedlak et al., 2010). Maternal style is clearly a product of multiple overlapping sociocultural contexts throughout the lifespan.

The role of a parent's child-rearing history is perhaps the most firmly established factor in shaping parenting behaviors and attitudes (Afifi, 2007; Belsky, 1984, 1993; Bowlby, 1977). A maternal childhood history of maltreatment, in particular, influences parental sensitivity, maternal empathy, and child neglect in the next generation, and intergenerational transmission processes have garnered much scientific attention (Kaufman & Zigler, 1987, 1989, 1993; Pianta et al., 1989).

Research on Intergenerational Cycles of Maltreatment

Over thirty years of research suggests that having a history of childhood abuse or neglect is more common among parents who maltreat their children than among nonmaltreating parents (Bert, Guner, & Lanzi, 2009; de Paúl & Domenech, 2000; Egeland, Jacobvitz, & Papatola, 1987; Kaufman & Zigler, 1987, 1989; Pears & Capaldi, 2001; Pianta et al., 1989; Scanniepieco & Connell-Carrick, 2005). The term *intergenerational cycle of maltreatment*, or *intergenerational transmission of maltreatment*, refers to child abuse and neglect perpetrated in one generation and repeated in the next "…regardless of which form of maltreatment is experienced in subsequent generations" (Kaufman & Zigler, 1989, p. 130). However, an estimated two-thirds of parents who were victims of abuse or neglect do not continue the cycle, and therefore the association is not straightforward and generalizations should be made cautiously (Kaufman & Zigler, 1987, 1989; Dixon et al., 2009).

The theoretical underpinning of intergenerational maltreatment is that exposure in childhood increases the likelihood that an individual will become a perpetrator as an adult. Research on attachment suggests that individuals who are abused and neglected in childhood transfer dysfunctional internal working models of parent-child relationships to the next generation (Bowlby, 1977). This notion is supported by studies demonstrating that poor quality attachment with caregivers increases the probability of transmission of child maltreatment (Zuravin & DiBlasio, 1996; Zuravin, McMillen, DePanfilis, & Risley-Curtis, 1996).

Another explanation is derived from a cumulative risk model (Rutter, 1989), which proposes that transmission results from negative early experiences that predispose a child to additional adversities by way of poor view of self, other, and relationships. In turn, interpersonal and social competence, affect regulation, and empathy may be impaired, leading to punitive or neglectful parenting. Similarly, a developmental cascade model suggests a "snowball" effect (Dodge et al., 2008; Masten et al., 2005) in which early maltreatment creates disturbances in key developmental processes (e.g., emotion regulation), which then negatively affect competence over time (Masten & Cicchetti, 2010; Masten & Wright, 2010). For instance, neglect interferes with the acquisition of emotional regulation and coping skills, as well as the development of empathy, self-awareness, and emotional understanding (Pollack, Cicchetti, Hornung, & Reed, 2000; Shields & Cicchetti, 1998; Shipman et al., 2005; Tottenham et al., 2010).

A social learning perspective (Bandura, 1973) suggests yet another mechanism of transmission, contending that modeling and reinforcement lead to the internalization and expression of parent behavior. From this viewpoint, individuals have insufficient opportunities to observe positive models of parenting but learn negative parenting behaviors from observing their caregivers (Pears & Capaldi, 2001). As a result, successive generations learn to parent ineffectively.

No model is likely to explain fully how maltreatment is transmitted intergenerationally because numerous factors affect transmission (Kaufman & Zigler, 1993). Although there are differing opinions on how transmission occurs, intergenerational cycles of maltreatment are extensively documented in the

literature (Belsky, 1993; Caliso & Milner, 1994; Ertem et al., 2000; Kaufman & Zigler, 1987; Kim, 2009). The actual rate of continuity, however, is a subject of controversy. In an early review of the intergenerational maltreatment literature, Kaufman and Zigler (1987) estimated the transmission rate to be approximately 30% (±5%) of parents who were victimized in childhood, nearly six times higher than the base rate for the general population. More recently, Ertem and colleagues (2000) reviewed the literature on intergenerational cycles of abuse and neglect and concluded that the figure proposed by Kaufman and Zigler (1987) overestimates transmission. The authors identified a number of methodological limitations of past studies (e.g., retrospective accounts, small sample sizes, lack of comparison groups) and encouraged further study to determine a more accurate figure. Inconsistent rates may reflect differences in study design and methodology (Langeland & Dijkstra, 1995; Newcomb & Locke, 2001; Pears & Capaldi, 2001) and more rigorous and consistent methodological standards would aid in the development of accurate estimates of continuity and discontinuity.

Outcomes of cycles of maltreatment also vary by the nature of a parent's maltreatment experience. Histories of punitive and neglectful caregiving take multiple forms depending on the type of maltreatment experienced, identity of the perpetrator(s), as well as the timing, chronicity, and severity of victimization. Consequently, all intergenerational transmission processes are not alike (Sidebotham & Golding, 2001). Newcomb and Locke (2001) found that different types of childhood maltreatment led to different patterns of problematic parenting in the next generation. Specifically, victims of sexual abuse were more

aggressive with their children, whereas parents who were neglected had poor parenting outcomes overall "above and beyond the general influence of Child Maltreatment" (p. 1233). Kim (2009) compared transmission patterns between self-reported child abuse and neglect among parents aged 18 to 27 years and found evidence of a "type-to-type correspondence." Compared to nonmaltreated individuals, parents who were neglected in childhood were 2.6 times more likely to report neglecting their children, but a similar association was not found for childhood abuse. Conversely, parents who were abused in childhood were twice as likely to report abusing their children, but the association with childhood neglect was not significant. These results were based on limited information, as researchers asked parents' to respond to only two questions: "How often have you left your {child/children} home alone, even when an adult should have been with {him/her}?" and "How often have you not taken care of your {child/children's} basic needs, such as keeping {him/her/them} clean or providing food or clothing?" Methodologically rigorous studies on intergenerational transmission are needed to clarify rates of transmission and account for similarities and differences among types of maltreatment, developmental stage of both parent and child, and perpetrator identity. Only two studies examine "type-to-type" intergenerational transmission processes associated with infant neglect among young parents (Borkowski et al., 2007; Lounds et al., 2006).

Young mothers and intergenerational cycles of maltreatment. A number of investigators have examined maltreatment transmission processes in adult parents, but only a few researchers have conducted studies with teen parents

(e.g., Bert et al., 2009; Crockenberg, 1987; de Paúl & Domenech, 2000; Lounds et al., 2006; Zuravin & DiBlasio, 1992). One longitudinal investigation by Crockenberg (1987) predicted parenting outcomes of 40 adolescent mothers (17-21 years old) and found that rejection in childhood led to patterns of angry and punitive parenting. A smaller study conducted in Spain by de Paúl and Domenech (2000) assessed intergenerational risk in adolescent mothers (<21 years) of newborns and a comparison group of older mothers. The researchers found the highest risk for abuse among adolescent mothers with histories of physical abuse. Neither of the two studies addressed intergenerational cycles leading to neglect.

Lounds and colleagues (2006) published one of the few prospective studies on adolescent parenting that examined cycles of maltreatment leading to neglect. Using a sample of 100 adolescent mother-child dyads (averaging 17 years of age in the third trimester), the researchers found that a maternal history of childhood neglect predicted child neglect potential (low, unreportable levels of child neglect). Their results contradicted an earlier investigation by Zuravin and DiBlasio (1992), which contended that neglectful adolescent parents (under 18 years of age) were not more likely than nonmaltreating comparison mothers to have a childhood history of abuse. The two studies addressed transmission processes for different types of child maltreatment, which may explain their contradictory findings. Nonetheless, the latter study's results illustrate *discontinuity* in intergenerational cycles of maltreatment, which has gone relatively unaddressed in literature.

Discontinuity in intergenerational cycles of maltreatment. While studies detailing the processes underlying intergenerational maltreatment are useful, they do not fully explain why some young mothers interrupt these cycles and others do not. What seems most clear from the literature is that the majority of parents who were abused or neglected in childhood do not continue the pattern (Browne, 1995; Kaufman & Zigler, 1987, 1993; Dixon et al., 2009; Ertem et al., 2000). Conger and colleagues (2009) reported that prospective longitudinal investigations have shown only modest to moderate correlations (.20 to.40) between parenting in one generation and parenting in a second generation (e.g., Belsky, Sligo, Woodward, & Silva, 2005; Hops, Davis, Leve, & Sheeber, 2003). In other words, the likelihood of discontinuity is far greater than the likelihood of continuity.

Developing better estimates of transmission is important, but furthering our understanding of the processes that underlie intergenerational discontinuity is central to instituting efficacious preventive interventions (Egeland, Yates, & Appleyard, 2002; Berlin, Appleyard, & Dodge, 2011). Because discontinuity in cycles of child abuse and neglect may be determined by the presence of protective factors (Starr, MacLean, & Keating, 1991), detection of characteristics that moderate transmission of maltreatment is fundamental to designing and implementing prevention policies and programs. Accordingly, some researchers have turned their attention to intervening factors that reduce risk and enhance a parents' ability to "break the cycle" (Berlin et al., 2011; Dixon, Brown, & Hamilton-Giachritsis, 2005; Dixon, Hamilton-Giachritsis, & Brown, 2005;

Egeland, Jacobvitz, & Sroufe, 1988; Kaufman & Zigler, 1993; Zuravin et al., 1996).

Mediators and moderators of intergenerational transmission. Findings from investigations of the moderators and mediators of intergenerational transmission help to explain why child abuse and neglect in one generation does not inevitably lead to maltreatment in another (Belsky, Conger, & Capaldi, 2009). This type of research is scarce, yet has the potential to uncover pathways of positive adaptation and identify targets for intervention (Berlin et al., 2011). Generally speaking, a *moderator* is a variable that influences the direction and/or strength of the association between an independent variable and a dependent variable, whereas a *mediator* accounts for the association between the independent variable and the dependent variable (Baron & Kenny, 1986).

Berlin and colleagues (2011) reviewed the literature to date and reported that only one other study used a mediation model (Dixon et al., 2005a, 2005b). Moreover, a recent call for papers by *Developmental Psychology* for a special issue on intergenerational transmission explicitly requested submissions on moderation, but "no papers addressing that important developmental issue were submitted or were judged to be of sufficient quality for inclusion," eliciting the comment from Belsky et al. (2009) that "Clearly, more work is needed in this area" (p. 1203). In the same special issue, Conger et al. (2009) speculated that future studies are likely to identify cognitive and emotional characteristics (e.g., parenting beliefs, emotional reactions to interactions with children) as key mediators of continuity and that demographic variables (e.g., maternal youth,

child age and gender), and personal/social characteristics (e.g., parenting style of partners, spousal childhood history, societal views of appropriate parenting practices) may be key moderators. Gene X Environment interactions also are an especially promising area of investigation with regard to moderation (Conger et al., 2009).

Mediators of intergenerational transmission. Quinton and Rudder (1984) theorized that, when continuities do occur, they are mediated by both childhood adversities and current disadvantage. Indeed, even the small body of research on intergenerational mediation suggests that a mother's childhood history, personal characteristics, and environment all are implicated in whether or not child abuse and neglect are transmitted across generations (Dixon et al., 2005a, 2005b; Berlin et al., 2011). Specific mediators of transmission identified in the literature include: a maternal history of mental illness, young maternal age at birth, poor maternal social information processing skills, parental style, living with a violent adult, and social support (Berlin et al., 2011; Dixon et al., 2005a; Hunter & Kilstrom, 1979).

Two English studies by Dixon and colleagues (2005a, 2005b) used mediational analysis to examine continuity of child maltreatment in the first 13 months of a child's life. In the first study, the researchers found that being a parent under the age of 21, having a history of mental illness, and residing with a violent adult partially mediated the pathway (18.5% of the total effect) between a parental history of child abuse (maternal and paternal self-report) and perpetrating maltreatment (official reports to child protection professionals) (Dixon et al.,

2005a). The second study showed that poor parenting (home health visitors' assessments of parental attributions, perceptions, and interactions with their infants) partially mediated intergenerational continuity, but full mediation was not achieved until all three risk factors *and* parenting style were included (62% of the total effect). Inferences from these studies should be made cautiously, as different methods were used to measure maltreatment in each generation.

Berlin and colleagues (2011) conducted another mediational study in which they followed 499 mothers and their infants prospectively during the first two years of parenting. The researchers hypothesized that maternal mental health problems, social isolation, and social information processing patterns would mediate the association between mother's maltreatment experiences in childhood and offspring victimization. The results suggested that social isolation and aggressive response bias, but not maternal health, fully mediated the relation. In addition, a maternal history of childhood abuse, but not neglect, predicted infant maltreatment. An important limitation of the study was its sole reliance on maternal self-report data (Conflict Tactics Scale – Parent-Child Version, Straus et al., 1998). The researchers also did not analyze abuse and neglect separately for offspring maltreatment.

Moderators of intergenerational transmission. Whereas several studies focus on mediators of intergenerational transmission, the literature is almost completely devoid of research on moderators and "little is yet known about mechanisms that either amplify or reduce the degree of continuity in parenting from one generation to the next" (Conger et al., 2009, p. 1281). The limited

research that exists suggests that supportive emotional relationships (positive relationships with caregivers in childhood, good quality social support, extensive social networks) are particularly beneficial in the context of intergenerational maltreatment (Caliso & Milner, 1992; Dixon et al., 2009; Hunter & Kilstrom, 1979). A frequently cited early investigation by Hunter and Kilstrom (1979) found some of the first evidence that social support is a key factor in breaking cycles of maltreatment. The investigators followed the mothers of 282 premature or ill infants for one year and found that, among the 40 families who ended abusive family patterns, a key mechanism of change was parental reliance on extensive social supports. The cycle-breaking parents also exhibited a realistic sense of optimism and the capacity to procure extra resources to cope with crises.

Dixon and colleagues (2009) examined patterns of risk and protection in intergenerational cycles of maltreatment and found that the presence of social support and financial solvency distinguished "cycle breakers" from families referred to child protective services. Additional research by Egeland and colleagues (Egeland et al., 1987; Egeland et al., 1988) revealed that "non-repeaters" were more likely to have a parent or a foster parent who provided support, to be involved in a supportive relationship, experienced fewer stressful life events, participated in psychotherapy, and exhibited a conscious resolve not to repeat the pattern of maltreatment with their own children. Thus, the current literature, albeit limited, strongly suggests that supportive relationships are an especially important factor in ending cycles of abuse and neglect (Dixon et al., 2009; Hunter & Kilstrom, 1979; Kaufman & Zigler, 1989).

Because relationships with caregivers, family members, and friends are multidimensional and complex, most parents who were victims of maltreatment as children also have positive relational experiences they can draw upon to formulate more adaptive caregiving strategies with their own children (Lieberman, Padrón, van Horn, & Harris, 2005). Lieberman and colleagues (2005) referred to the dual influence as "ghosts" and "angels" in the nursery, and their research offers valuable insight into resilience in parenting among mothers who have experienced serious relationship disruptions in childhood (Budd, Heilman, & Kane, 2000; Wekerle, Wall, Leung, & Trocme, 2007).

Ghosts and angels in the nursery. A history of maltreatment can connote disparate childhood experiences for different parents and occur in different life contexts. Parents who were victims of abuse and neglect while growing up typically experienced other dimensions of relationships with their caregivers that, in turn, affect transmission of maltreatment (Belsky, 1993). For example, care-receiving experiences "characterized by intense shared affect between parent and child" are transmitted to the next generation, even among parents who have been maltreated (Lieberman et al., 2005, p. 506). Therefore, caregiving relationships from childhood cannot be easily characterized as *either* risk-inducing *or* buffering with regard to their influence on intergenerational parenting processes (Wakschlag et al., 1996).

Both qualitative and quantitative research on the subject has illustrated this point (Lieberman et al., 2005; Sidebotham & Golding, 2001; SmithBattle, 2006). A longitudinal study with adult mothers by Sidebotham and Golding (2001)

concluded that parents of maltreated children who had a history of abuse did not report significantly lower levels of care from their own mothers. In addition, a qualitative study by SmithBattle (2006) examining family legacies in shaping teen parenting revealed that mothers with difficult childhoods described "positive examples and experiences of care from kin and nonkin that can be drawn on in caring for their own children" (p. 1140). A thorough review of the literature yielded scant studies examining the dual contributions of positive care and maltreatment in childhood to adolescent parenting, and none specifically addressed risk for neglect. However, studies with adult mothers may be useful to developing theoretical models that can be tested with younger mothers.

In her seminal work, "Ghosts in the Nursery," Selma Fraiberg conjured up the image of "ghosts" to describe parents' enactment with their young children of punitive or neglectful experiences from childhood. The authors of the paper by the same name (Fraiberg, Adelson, & Shapiro, 1975) contended that early relational experiences of helplessness and fear, combined with the self-protective tendency to identify with the "aggressor," subsequently impeded parents' capacity to recognize and respond to the needs of their own children. It was a groundbreaking account of intergenerational transmission that still has relevance today, yet the premise fails to address the reasons why many parents *do not* continue the cycle of maltreatment.

Many years later, in response to Fraiberg's "ghosts," Lieberman and colleagues addressed the "chiaroscuro" of intergenerational relationships in their essay, "Angels in the Nursery" (Lieberman et al., 2005). They proposed the

complementary metaphor of "angels," representing the repetition of benevolent parental influences in the past to parent-child interactions in the present. In their view, positive experiences in early relationships—warmth, sensitivity, responsiveness, and protection— are integrated into the child's identity and self-experiences and later played out in relations with their own children. Such interpersonal-affective experiences have been recognized by numerous theorists applying different but analogous terms: "mirroring" (Winnicott, 1971), "secure base" (Ainsworth et al., 1978), "attunement" (Field, 1994), and "emotional availability" (Emde, 1980; Emde & Easterbrooks, 1985), to name just a few.

The notion of "angels" does not contradict Fraiberg's "ghosts," but rather provides a complementary framework for understanding transmission of parenting attitudes, beliefs, and practices. The perspective creates "a counterbalance for the prevailing tendency of relationship-based interventions…to either focus primarily on current parent–child interactions or to explore the parent's early experiences of pain, conflict, and alienation from caregivers" (Lieberman et al., 2005, p. 507). Addressing how these opposing processes work together in the case of maltreatment, Lieberman et al. (2005) argued that "ghosts and angels coexist in dynamic tension with each other, at times actively struggling for supremacy" (p. 506) such that children experiencing maltreatment "may be able to register simultaneously the 'bad' and the 'good' parts of their parents" (p. 512). Transactions between these psychological processes may occur as a result of interactions with a single caretaker (e.g., a medically neglectful mother who provides sensitive emotional care) or multiple caretakers (e.g., one adult who is

emotionally neglectful and another who is attuned and empathetic to a child's needs). Furthermore, adults who are not parents can provide compensatory experiences (e.g., a grandparent, aunt, mother's partner, neighbor, member of a religious community, mental health worker, teacher).

Integration of both negative and positive aspects of past caregiving experiences is believed to be a fundamental component of an adult's capacity to love (Mahler, Pine, & Bergman, 1975; Winnicott, 1965). If this is indeed the case, incorporation of concepts and constructs representing paradoxical relational experiences into studies of early childbearing can provide important insights on the etiology of neglect. Mothers' perceptions of the care they received early in life most clearly distinguish maltreating parents from nonmaltreating parents (Gaudin, 2001), yet researchers rarely incorporate maternal perceptions into explanatory models of transmission. Most studies describe caregiving histories in negative, one-dimensional terms, which may limit insight into the protective factors that improve the odds of discontinuity. Instead, studies might clarify social conditions that moderate the relation between a history of maltreatment and risk for neglect in a positive direction. The current study attempts to address this gap.

The Present Study

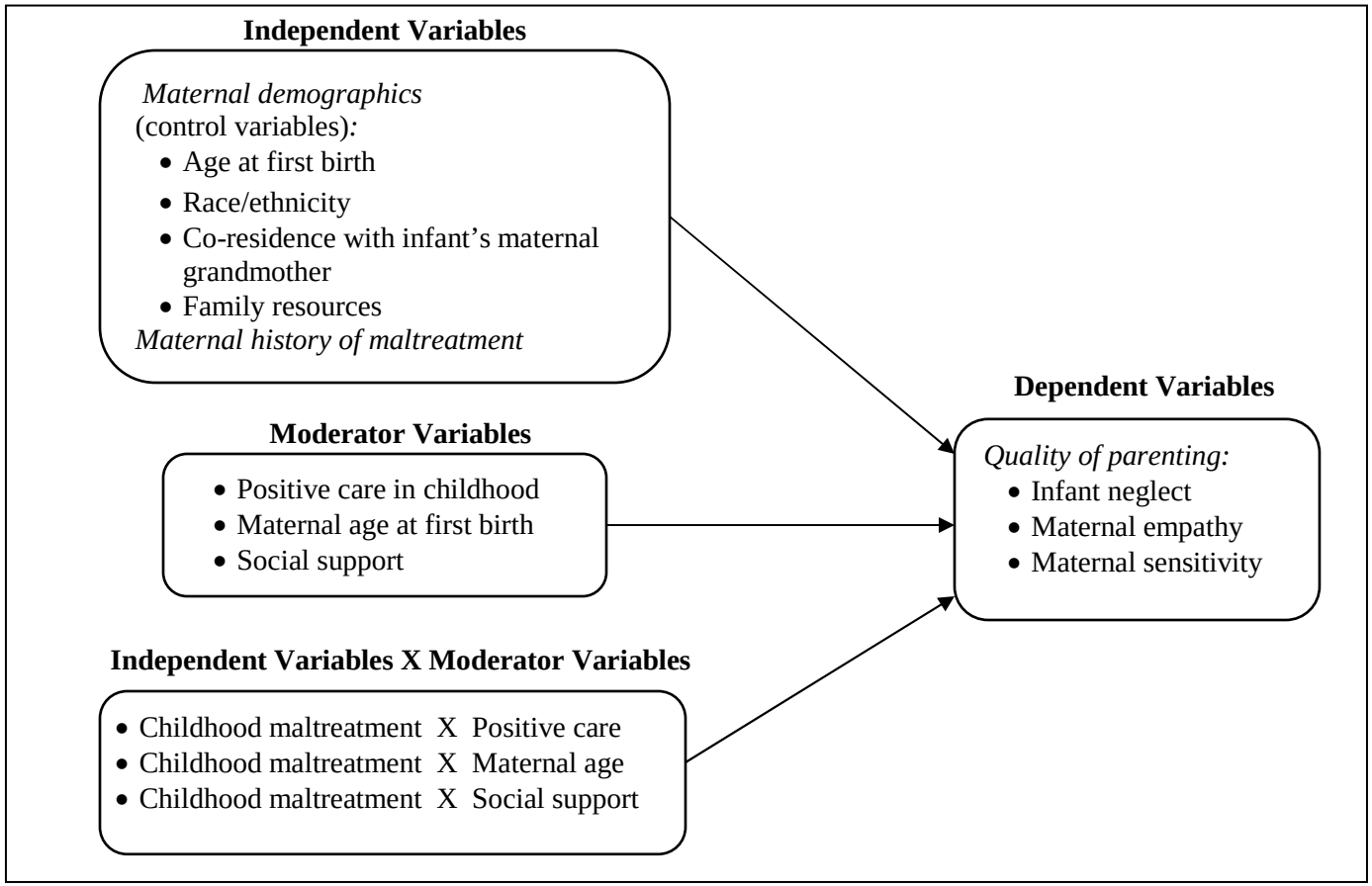
The aim of the present study was to investigate intergenerational cycles of maltreatment in a high-risk sample—adolescent mothers with infants (East & Felice, 1996; Wakschlag et al., 1996). Specifically, the study examined the impact of maternal childhood histories (i.e., maltreatment and positive care) on

the likelihood of infant neglect. A prevention-based approach to research suggests that early indicators of maltreatment risk also require attention. This study considered the role of maternal sensitivity and empathy in risk for neglect and intergenerational transmission. A second goal of the study was to identify intervening factors that improved the odds of discontinuity by testing possible moderators of the relation between a history of maltreatment and parenting outcomes: positive childhood care, maternal age at birth, and social support.

This investigation relied on several measures of maltreatment to offset limitations associated with any single method (substantiated reports from state CPS, maternal self-report, and observation of mother-infant dyads). Overall, I expected the results to show that the majority of mothers with infants who were neglected were victims of maltreatment themselves, but that most young mothers did not maltreat their children. Figure 1 (p. 85) presents the theoretical model for the study, and Figure 2 (p. 86) depicts specific study hypotheses, which were: (a) a maternal history of maltreatment would be associated with increased odds of infant neglect, lower levels of maternal sensitivity, and lower levels of empathetic parenting attitudes; (b) a maternal history of positive care would be associated with a decreased odds of infant neglect, and higher levels of maternal sensitivity and empathy; (c) a maternal history of positive care, older maternal age at first birth, and social support would be associated with lower odds of neglect and higher levels of maternal sensitivity and empathy among maltreated mothers; and (d) maternal sensitivity and empathy with infants would mediate the relation between a history of maltreatment and infant neglect.

Figure 1

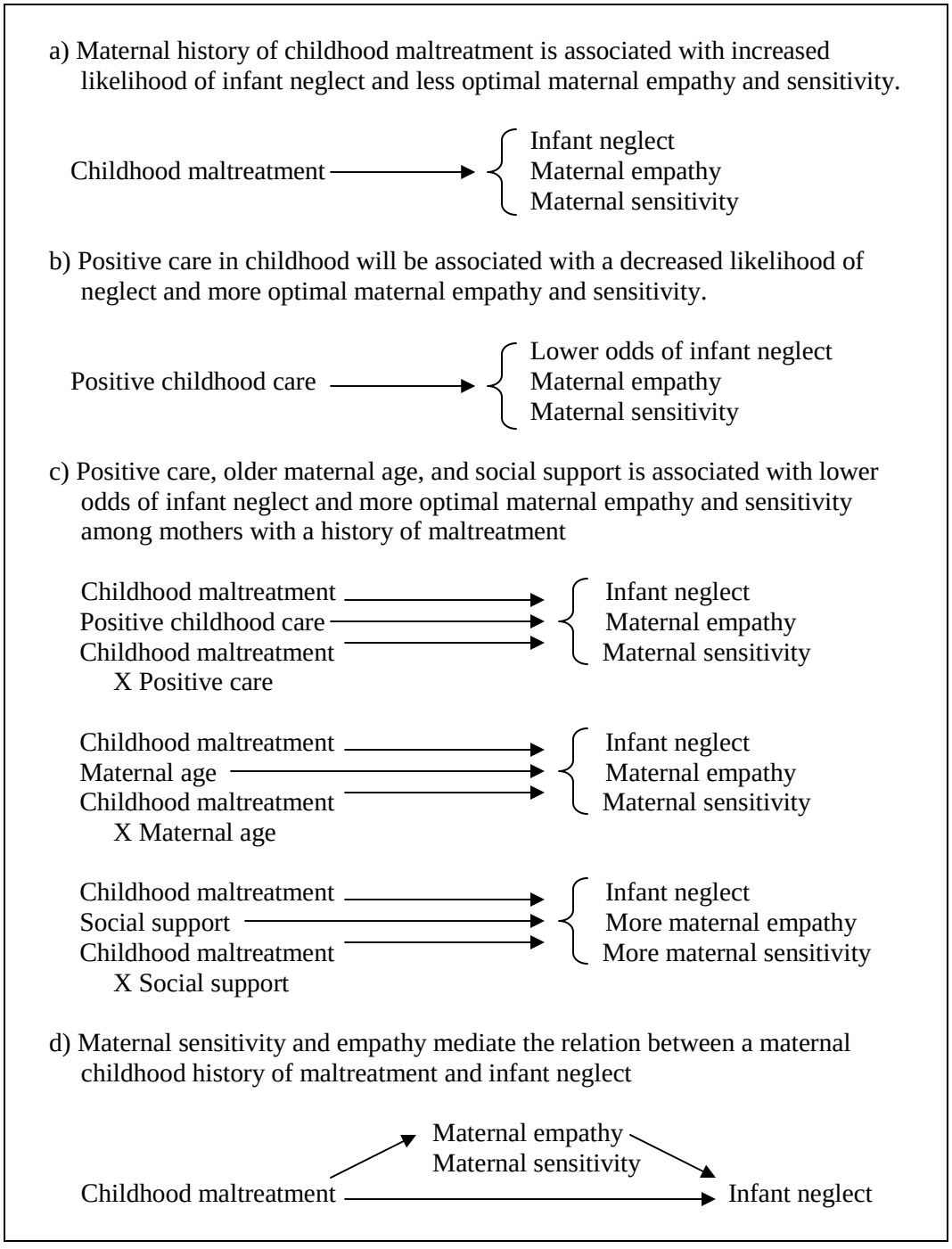
Conceptual Model of Associations Between Maternal Childhood History and Parenting Outcomes[1]



[1] Does not depict mediation.

Figure 2

Diagram of Study Hypotheses



Chapter 3: Method

Sample and Procedures

The sample comprised 447 young mothers who participated in an evaluation of Healthy Families Massachusetts (MHFE-2).[2] Healthy Families Massachusetts (HFM) is a comprehensive, voluntary, prevention-based newborn home visiting program available to all first-time young parents (≤ 20 years at childbirth) in the state of Massachusetts funded by the Massachusetts Children's Trust Fund (MCTF). Based on the Healthy Families America (HFA) model for home visiting, HFM provides parenting support, information, and services to young parents beginning prenatally and continuing until the child's third birthday. There are five stated program goals: (1) to prevent child abuse and neglect by supporting positive, effective parenting; (2) to achieve optimal health, growth, and development in infancy and early childhood; (3) to encourage educational attainment, job, and life skills among parents; (4) to prevent repeat pregnancies during the teen years; and (5) to promote parental health and well-being. HFM has been in operation since 1997 and has provided services to over 26,000 families since its inception.

MHFE-2 is a three-wave, mixed methods study with a randomized control trial design. Study participants were recruited from eight of the twenty-six program sites across the state, based on three criteria: (a) they represented each of

[2] Researchers from the departments of Child Development and Urban and Environmental Policy and Planning at Tufts University were contracted by the Massachusetts Children's Trust Fund to evaluate HFM. A first-cohort evaluation was completed in 2005. Co-principal Investigators are M. Ann Easterbrooks, PhD, Francine H. Jacobs, PhD, and Jayanthi Mistry, PhD, and Project Director is Jessica Goldberg, PhD.

the Department of Health and Human Services regions in the state; (b) they offered a mix of urban and exurban/suburban communities with diverse populations; and (c) each was large enough to accommodate evaluation enrollment within a 6-8 month period. Once recruited from each site, participants were interviewed at three different time points (Time 1-Time 3) over a two-year period. Recruitment and Time 1 data collection began in February 2008. This study used data from the first two data collection time points (Time 1 and Time 2).

Every eligible referral (female, 16 years or older, new to the program, either English- or Spanish-speaking, and cognitively able to provide informed consent) was asked to participate in the study. Participants were included in the study sample if they agreed to: (a) participate in three interviews over two years; (b) receive home visits by researchers; and (c) release social service agency records. Mothers who agreed to these conditions were randomly assigned either to the Home Visiting Services Group (HVS; program group), or the Referrals and Information Only Group (RIO; control group). As incentive to participate, mothers were given gift cards to local stores (HVS participants received $35 at Time 1, $40 at Time 2, and $45 at Time 3; RIO participants received $15 more than HVS participants at each time point in order to keep them engaged in the study despite receiving no home visiting services).

A total of 806 mothers enrolled in the study and agreed to a single telephone interview, 475 (68.54%) of whom agreed to participate in the full study (Integrative Study). Within a day or two of the participant's assignment to a

study group, a trained research assistant (overseen by a Research Coordinator) contacted the participant to explain the study procedure. Every participant who consented to the evaluation was asked to sign a consent form to access her administrative data from state agencies. Tufts University and MCTF secured agreements in FY09 with the Massachusetts Departments of Public Health, Education, Children and Families (formerly, Social Services), and Transitional Assistance.

Mothers who were recruited and gave consent to release their agency data were given the option of participating in a phone interview only (the Intake Interview), or participating in this phone interview and a two-hour Research Visit. Depending on which she option she selected, the participant was assigned to either the *Impact Study* (a phone call and access to state agency data) or the *Integrative Study* (a phone call, access to state agency data, and a research home interview). The Intake Interviews consisted of a 30-minute semi-structured phone interview. Home research visits included a semi-structured interview, completion of written questionnaires, and observations of mother-child interactions. Visits typically lasted two hours and were used to collect in-depth information about program services (HFM and other programs), social relationships and support networks, mothers' childhood history, and current personal functioning/well-being. Both telephone and home interviews were conducted once per year at the three different time points (Time 1-Time 3). By Time 2, several participants had switched from the Integrative Study to the Impact Study or vice versa, others withdrew from the study altogether, and two participants were removed from the

sample following a miscarriage and maternal death, resulting in a final Integrative Study *n* of 447 mothers, which comprised the sample for the dissertation study.

The 447 mothers in the sample averaged 18.73 years old upon study enrollment. At the time of the first home interview, 64.21% (*n* = 287) of mothers were pregnant and 35.79% (*n* = 160) were parenting. At Time 2, the average age of infants was just under one year old (*M* = 11.95 months) and ranged from 1.81 to 29.03 months of age. Young mothers in the sample represented similar racial/ethnic diversity to the population of teen parents in the state, 34.90% identifying themselves as White, 31.54% Hispanic, 19.46% Black, 9.84% Multi-racial/ethnic, and 4.25% Other. More than half of mothers (56.60%) reported receiving welfare at Time 2, and the average median block income was $38,453.[3] The majority of mothers (88.14%, *n* = 394) participated in a parenting program during the evaluation study, whether Healthy Families, another home visiting program, Early Intervention, Early Head Start, parenting education classes, or parenting support groups.

Measures

The study control variables were derived from maternal demographic information (age at birth, race/ethnicity, family resources, residence) as well as data on mothers' participation in parenting programs. Independent variables included maternal childhood history variables (substantiated reports on childhood maltreatment, self-reports of childhood maltreatment, self-reports of positive

[3] Median block income is the smallest geographic entity for which the decennial census tabulates and publishes sample data and was a preferable measure to self-report by adolescents, as many adolescents did not have detailed knowledge about their family income.

care), and social support variables (frequency, dependability). The four dependent variables were: (a) substantiated reports of infant neglect; (b) maternal self-reports of infant neglect; (c) maternal sensitivity; and (d) maternal empathy. Descriptions of all measures used to develop study variables are provided below.

Maternal demographics. Maternal demographic variables were generated from measures of maternal age at first birth, maternal race/ethnicity, family resources, and co-residence with maternal grandmothers.

Maternal age at first birth. Maternal age was measured at two different time points, as not all participants had given birth to a child by the first data collection time point. Individuals with infants provided their age at first birth during a brief telephone intake interview prior to their first interview at home. Expectant mothers supplied this information on the telephone at Time 2. A continuous variable for maternal age at first birth was used in data analyses.

Maternal race/ethnicity. Mothers were asked to indicate their race/ethnicity in a telephone intake interview. They selected all choices that applied to them in both of two categories used in the U.S. Census: (a) ethnicity (Hispanic/Latina, Not Hispanic/Latina); and (b) race (American Indian/Native American/Alaska Native, East Asian, South Asian, Native Hawaiian or Other Pacific Islander, Black or African American, White, or Other). In many instances, participants identified themselves using either the ethnicity categories or the racial categories, but not both. In order to preserve these self-identifications, project researchers collapsed the race and ethnicity categories. Afterward, the categories were combined to generate a reasonable number of

dummy variables to include in the multiply imputed dataset. The final dummy variables used to control for race/ethnicity in analyses were Hispanic, Black, Multiracial, and Other, with the largest group (White) as the reference group.

Family resources. To determine mothers' perception of their family's financial status and access to different resources, participants were asked to complete the Family Resource Scale (FRS) (Dunst & Leet, 1987) during a telephone interview at Time 1 and again at Time 2. The FRS is a 30-item standardized self-report measure that assesses the extent to which different types of resources are adequate in households with young children, including food, shelter, financial resources, transportation, health care, time to be with family, child care, and time for the self. Mothers selected a score on a 5-point Likert scale (1 = not at all adequate, 5 = almost always adequate) for each of the identified resources. Scores were combined into a single sum score and averaged for the two data collection time points to create a single continuous score.

The reliability of the FRS originally was established using a research sample consisting of 45 mothers of preschool-age children in an early intervention program. Internal reliability (Cronbach's alpha) was .92, split-half reliability (using the Spearman-Brown formula) was .95, and test-retest reliability (2 to 3 month interval) was .52. The instrument has been found to have good construct validity in samples of economically diverse families and children (Brannan, Manteuffel, Holden, & Heflinger, 2006).

Co-residence with maternal grandmothers. During the telephone intake interview at Time 1 and Time 2, participants were asked: "Who lives with you in

your home right now and considers it their place of residence right now?" Responses were coded into a dummy variable to indicate whether adolescents shared a residence with their own mothers at any time during the study period, or maintained separate living arrangements throughout the study period.

Formal parenting support. To control for mothers' participation in a parenting programs, a dummy variable (yes/no) was created to indicate whether or not participants had been the recipient of services from Healthy Families Massachusetts, another home visiting program, Early Intervention, Early Head Start, parent education classes, or parent support groups at any time during the study period.

Maternal childhood history. Young mothers' childhood histories of maltreatment and care were assessed via official state records of substantiated reports of abuse and neglect, retrospective self-reports of childhood abuse and neglect, and self-report of positive care in childhood.

Maternal history of substantiated reports of child abuse and neglect. To determine whether adolescent mothers had been victims of abuse or neglect while growing up, cumulative records of CPS substantiated cases of abuse and neglect were obtained from the Massachusetts Department of Children and Families (DCF) dating from mothers' birth until approximately Time 2 data collection (May 2011). The Commonwealth of Massachusetts defines child abuse and neglect under state regulation (110 CMR, section 2.00) as:

> *Abuse***:** the non-accidental commission of any act by a caretaker upon a child under age 18 which causes, or creates a substantial

> risk of, physical or emotional injury; or constitutes a sexual offense under the laws of the Commonwealth; or any sexual contact between a caretaker and a child under the care of that individual. This definition is not dependent upon location (i.e., abuse can occur while the child is in an out-of-home or in-home setting).
>
> *Neglect***:** Failure by a caretaker, either deliberately or through negligence or inability to take those actions necessary to provide a child with minimally adequate food, clothing, shelter, medical care, supervision, emotional stability and growth, or other essential care; provided, however, that such inability is not due solely to inadequate economic resources or solely to the existence of a handicapping condition. This definition is not dependent upon location (i.e., neglect can occur while the child is in an out-of-home setting).

Massachusetts DCF records provided data on the number of reports of maltreatment (substantiated and unsubstantiated), type(s) of maltreatment (physical abuse, sexual abuse, neglect, congenital drug addiction, emotional maltreatment), and identity of the perpetrator(s). Further details on maltreatment could not be accessed (e.g., type, severity, or description of abuse and neglect). Dummy variables were created to use as independent variables indicating whether mothers had been victims of neglect, physical abuse, sexual abuse, neglect, or multiple type maltreatment (i.e., two or more types of maltreatment) or did not experience maltreatment at all. Congenital drug addiction was coded as child

neglect since many child welfare experts consider substance-exposed newborns to be victims of neglect (DePanfilis, 2006). No cases of emotional maltreatment were reported.

Maternal self-reports of childhood abuse and neglect. Maternal childhood histories of maltreatment also were assessed at Time 2 using a retrospective self-report measure, the Conflict Tactics Scale – Parent-Child Version, Adult-Recall (CTSPC-CA) (Straus et al., 1998). The measure has separate subscales for non-violent discipline, corporal punishment, psychological aggression, physical assault, sexual abuse, and neglect. The version of the CTSPC-CA selected for the larger evaluation study included the original 22 items on nonviolent discipline, psychological aggression, and physical assault, five items on neglect, and two additional items on sexual abuse, for a total of 29 items. Subscales for non-violent discipline, psychological aggression, and corporal punishment were not used in this dissertation study.

Items on the physical assault subscale include statements such as "hit me with a fist or kicked me hard," and "hit me on some other part of the body besides the bottom with something like a belt, hairbrush, a stick or some other hard object." Examples of statements on the neglect subscale include "She/He had to leave me at home alone, even when someone should have been there with me," "She/He wasn't able to give me the food that I needed," and "She/He didn't take me to a doctor or hospital when I needed to go." The two sexual abuse questions were: "Before the age of 18, were you personally ever touched in a sexual way by an adult or older child when you did not want to be touched that way, or were you

ever forced to touch an adult or older child in a sexual way—including a family member or anyone else outside your family?" and, "Before the age of 18, were you ever forced to have sex by an adult or older child—including anyone who was a member of your family or anyone outside your family?"

The Adult Recall version of the CTS-PC is an adaptation of the original CTS-PC, in which participants are asked to complete the questionnaire regarding their experiences of maltreatment in childhood (versus their own parenting behaviors). Answers are based on the year they were 13 years old or, if they were not living at home that year, on the last year they lived at home. In the present study, directions were modified slightly to allow mothers to fill out more than two forms when they identified more than two caregivers. Due to time constraints during interviews, frequency for each item was omitted and participants were asked if they had *ever* experienced a given behavior at the hands of that caretaker. A dummy variable was generated separately for each of four types of maltreatment, i.e., physical abuse (physical assault), sexual abuse, neglect, and multiple-type maltreatment (any combination of physical abuse, sexual abuse, or neglect) versus nonmaltreatment.

Psychometric data on the CTS-PC indicate adequate test-retest reliability as well as discriminant and construct validity (Straus et al., 1998). The instrument has been shown to have low internal consistency reliability because parents who maltreat their children in one way do not necessarily maltreat their children in other ways (Straus & Hamby, 1997). The CTS-PC has been used frequently in epidemiological research on prevalence, risk factors, and sequelae, as well as in

evaluations of treatment and prevention programs (DuMont, et al., 2008; Miller-Perrin, Perrin, & Kocur, 2009; Rodriguez & Price, 2004).

Maternal self-report of positive care in childhood. Participants' perceptions of the quality of care they received from their mothers in childhood were measured at Time 2 using the Parental Bonding Instrument (PBI; Parker, Tupling & Brown, 1979). The PBI is one of the most widely used self-report measures of early caregiving experiences. The care subscale was selected for this study, as it is the most stable dimension (Wilhelm, Niven, Parker, & Hadzi-Pavlovic, 2005). This subscale assesses positive care and parental involvement (versus indifference and rejection). When administering the PBI care subscale, all participants were asked to recall their relationships with their biological mothers and to respond to statements such as "spoke to me in a warm and friendly voice" and "was affectionate to me," by indicating the extent to which that behavior was present in participants' first 16 years of life. Scores for each item, ranging from 1 to 3 (1 = never, 2 = sometimes, 3 = often), were then totaled, resulting in a continuous score for each participant with a maximum score of 36 on the care subscale. The PBI care subscale has been shown to have adequate test-retest reliability over time (a mean intra-class correlation of .78 over 90 months) and for up to 20 years in nonclinical samples (Wilhelm et al., 2005).

Social support. The Personal Network Matrix (PNM; Trivette & Dunst, 1988) was administered at Time 2 to assess mothers' support networks while parenting a first child. The PNM asks participants to identify sources of social support available to them (e.g., partners, neighbors, friends, therapists, doctors,

social service agencies) through face-to-face, telephone, or group contact. The measure consists of two sections: Part I establishes the frequency of contact the respondent had with each source in the past month (1 = not at all, 2 = once or twice, 3 = at least 10 times, 4 = at least 20 times, 5 = almost every day); Part 2 asks participants to rate the extent to which they could depend upon each person or group if they needed any type of help (1 = not at all, 2 = sometimes, 3 = occasionally, 4 = most of the time, 5 = all of the time). Participants were asked to fill out the form for 22 sources (e.g., spouse or partner, parents, siblings, other relatives, friends, neighbors, day care or school, coworkers, members of religious communities, psychotherapists, medical professionals, social services workers, Healthy Families) and were also given the opportunity to write in and rate other sources that were not explicitly identified on the measure. If any sources were not present in their lives (e.g., spouse or partner), mothers were asked to select "not applicable" on the survey. Therefore, sum scores on could range from under 22 (a score of "1" for each item, some items not applicable) to 110 or higher (a score of "5" for each item with additional sources of support identified by mothers). Continuous summary scores were developed separately for frequency and dependability of social support. Neither reliability nor validity has been established for this measure, but in the current study, the internal consistency scores for social support frequency and dependability were .67 and .69, respectively.

Parenting quality. Four dependent variables representing parenting quality were developed using measures of: (a) substantiated reports of infant

neglect; (b) maternal self-reports of infant neglect; (c) observation of maternal sensitivity in interactions with infants, and d) self-report of empathetic parenting attitudes.

Substantiated reports of infant neglect. To measure infant neglect in the sample of young mothers, this study used cumulative records of substantiated cases of child abuse and neglect from Massachusetts DCF, beginning prenatally and ending in May 2011, approximately at the second data collection time point (see section above on maternal history of substantiated reports for details on the DCF data). A dummy variable was created for which infant neglect was coded as occurring when any mother had an infant with a substantiated case of neglect that occurred in isolation of any other forms of maltreatment (neglect only). A case was coded as nonmaltreatment when neither a report of neglect nor any report of abuse had been substantiated. Cases in which infants were physically abused with or without neglect were removed from this variable. According to DCF, no other forms of maltreatment were perpetrated in the sample.

In addition to the traditional investigation and assessment system, Massachusetts DCF utilizes an alternative response system in low- to moderate-risk cases. For reports not deemed to pose serious risk to children's safety, DCF reviews the reported allegations, assesses safety and risk of the child, identifies family strengths and determines what, if any, supports and services are needed. For the purposes of this study, when cases were assigned to alternative response, given a disposition of "concern," and the family was provided with services, an infant was considered to be maltreated, whereas cases that were given a

disposition of “no concern” and the family was not provided with service were assigned to the nonmaltreated group. Cases that received an initial disposition of “concern” but in which the family subsequently received no services were also assigned to the nonmaltreated group.

Maternal self-report of infant neglect. In addition to using data on substantiated cases of infant neglect, this construct was measured by self-report with the Conflict Tactics Scale – Parent-Child Version (CTS-PC; Straus et al., 1998), a widely used measure intended for use in assessing the extent to which parents carry out specific acts of aggression and/or neglect, regardless of child injury (see section above on CTSPC-CA for further details on the measure). A dummy variable was created for infant neglect (neglect only vs. nonmaltreatment). Cases in which participants indicated that their infants were abused were removed.

Maternal sensitivity. Mothers’ capacity for sensitive caregiving was measured using the third edition of the Emotional Availability Scales (EAS; Biringen, Robinson, & Emde, 1998) at Time 2. The EAS assess relational exchanges between parent and child and the extent to which individuals are open to emotional signals, motivations, goals, and responsiveness of their partner. Maternal EA is associated with quality of children’s attachment, maternal psychosocial risk, and has been used with diverse samples (Easterbrooks & Biringen, 2009). This study used the sensitivity subscale, which measures maternal affect, clarity of perceptions, and acceptance.

Mothers who consented to be videotaped were filmed with their infants in their homes or another private location during ten minutes of dyadic interaction, including a five-minute teaching task that varied according to the infant's chronological age (e.g., putting a block in a cup; completing a manipulative puzzle; placing beads on a string) and a five-minute free play interaction. Observations were then coded on a scale of one to nine, with higher scores reflecting more optimal sensitivity. According to the manual, mothers who are rated as highly sensitive on the EAS (e.g., 8-9) "display much genuine, authentic, and congruent interest, pleasure, and amusement with the infant (as opposed to performing these behaviors), as demonstrated by warm smiles and giggles, interested eye contact, and comforting and playful physical contact" (Biringen et al., 1998, p. 25). In contrast, parents who receive very low ratings (e.g., 1-2) have few areas of strength with their infants and may exhibit extreme affect negativity, passive disinterest/depression, and/or little knowledge about critical aspects of childrearing. Scores in the middle range of the sensitivity scale represent inconsistency in maternal sensitivity, often evidenced by a mother's fluctuations between interest and disinterest in engaging with the child, joyful and harsh interactions, or, in some cases, slowness to respond to the child's cues (Biringen et al., 1998).

Coders followed a three-step procedure for each of the videotaped segments. First, they viewed the five-minute free play session to get a sense of the mother-infant dyad interaction. Second, coders viewed the segment again and took detailed notes about the behaviors they observed. Finally, coders viewed the

segment a third time in order to determine the codes to assign. This three-step process was repeated for the videotaped teaching task. Coders were kept blind to pertinent information regarding the mother-child dyads (i.e., program participation and mother's age).

The coding team consisted of three coders, one of whom was trained by Easterbrooks and Biringen and, after completing the training, provided the training for two additional coders. Coders achieved interrater reliability during an initial training period using 20 to 30 videotaped observations from a previous evaluation study. Interrater reliability was assessed using average absolute agreement intraclass correlation coefficients (ICC) in a two-way random effects model (McGraw & Wong, 1996) and ranged from .75 to .91 (*M = .87),* indicating excellent reliability (free-play sensitivity = .91; teaching task sensitivity = .90). Following the training period, all three coders independently examined approximately 50% (*n* = 125) of all videotaped interactions. In order to protect against observer drift, all three coders met on a regular basis to code independently and then discuss assigned codes. Disagreements beyond one-point were discussed until agreement was reached. For the post-training period, ICCs ranged from .43 to .94 (*M = .78)* indicating a range in reliability from inadequate to excellent. Post-training ICCs were .91 for free-play sensitivity and .90 for teaching task sensitivity.

For the current study, scores for free-play and teaching sensitivity were averaged to create a single, continuous variable to use in data analyses. In addition, an optimal range (scores of 7-9) derived according to the EAS manual

(Biringen et al., 1998) was used to create a dummy variable (optimal versus nonoptimal sensitivity) for descriptive purposes.

Maternal empathy. Maternal empathy was measured by self-report using the Adult-Adolescent Parenting Inventory (AAPI-2; Bavolek & Keene, 2001). The AAPI-2 is "an indication of the individual's abilities to parent children in a nonabusive manner" (Bavolek, 1984, p. vii). The instrument measures four constructs: parental expectations of the child, parental empathy for the child, the value the parent places on physical punishment, and parent-child role reversal. The measure's construct for empathy, termed "Parental Lack of Empathy Toward Children's Needs," was used in this study. Low levels of parental empathy are indicated when a parent lacks nurturing skills, is unable to handle parenting stresses, fears spoiling children, feels children must act right and be good, and when children's normal development needs are not well understood or valued. Ratings representing high levels of empathy are given when a parent appears to understand and value children's needs, nurtures children and encourage positive growth, communicates with children, recognizes feelings of children, and when children are allowed to display typical developmental behaviors.

Mothers were asked to respond to statements on the questionnaire by indicating their agreement or disagreement with maladaptive child-rearing behaviors, such as "Children who receive praise will think too much of themselves," "Children should keep their feelings to themselves," and "Children should be responsible for the well-being of their parents." Each of the instrument's 40 items was scored on a five point Likert Scale (1=strongly agree,

5=strongly disagree). Responses were entered into an online system developed by the author and converted to sten scores, which range from one to ten and compare the participant's responses to a normal distribution. Sten scores in the 1-3 range suggest high-risk parenting attitudes, scores in the 4-7 range suggest moderate to average risk, and scores in the 8-10 range indicate low risk. A continuous variable (1-10) was used in analyses.

The AAPI was developed based on parenting practices of large, geographically diverse samples of Black and White parents, both maltreating and nonmaltreating. The measure has good construct validity and reliability and findings are reported in both the AAPI Manual and in a separate report on the measure (Bavolek & Keene, 2001 1990). The researchers reported a Spearman Brown reliability score of .86 and a Cronbach's alpha of .85 for the lack of empathy subscale. Content validity for the AAPI-2 was established in a field test of 1,500 adults and adolescents (Bavolek & Keene, 2001).

Analytic Plan

To answer research questions, descriptive, bivariate, and multivariate data analyses were run using IBM SPSS 19.0. The significance level was set at $p = .05$. Prior to addressing missing data or conducting analyses, predictor variables were centered (by subtracting the mean from each value) to reduce problems of multicollinearity (high correlations among predictors) and to simplify subsequent interpretation of main effects (Dearing & Hamilton, 2006).

Missing data. Multiple Imputation (MI) was run on the entire dataset using the Missing Values module of SPSS 19.0 to address missing data. MI is a

statistical strategy for handling data sets with missing values that maximizes sample size for variables that do not have complete data by replacing missing values several times based on observed variables (Rubin, 1987). MI computes multiple datasets by assigning different values for missing data to account for uncertainty in assigning any one value. Data analysis using multiply imputed data generates "pooled" results for the multiple datasets based on "Rubin's rules" (Rubin, 1987). MI has advantages over other methods of handling missing data, such as introducing appropriate random error, allowing for unbiased estimates of all parameters, and providing good estimates of the standard errors (Allison, 2002). Other methods, such as listwise deletion and mean imputation, have received criticism for biasing estimates, distorting statistical power, and leading to unsound conclusions (Rubin, 1987; Widaman, 2006). A prerequisite condition of using Multiple Imputation is that the data are missing at random (MAR) (Rubin, 1987, 1996).

Little's MCAR test, the chi-square statistic for testing whether values are missing completely at random (MCAR) was 37.44 (df = 5177; p = 1.00), indicating that no identifiable pattern existed in the missing data (i.e., the data were missing completely at random). Approximately 27.59% of values were missing across the original dataset, but the percentage of missing values for individual variables ranged from 0.00% (substantiated reports of maltreatment) to 44.30% (videotaped observations of maternal sensitivity). Initially, the "rule of thumb" for MI was to create five datasets at minimum, but MI experts subsequently recommended the use of many more imputations (e.g., Graham,

Olchowski, & Gilreath, 2007). This study used 30 imputed datasets, or approximately one imputation for each percent of missing values in the dataset overall, as recommended by Bodner (2008). Missing values were imputed for all variables except for scores on videotaped observations of maternal sensitivity under certain conditions: (a) the participant or the baby was deceased; (b) the child was in the custody of CPS at the time of the observation; or (c) a child was too young (under four months). These cases were excluded listwise in analyses. To test the consistency of imputed data with original data, all analyses were repeated on the original dataset. The results were consistent with findings from the imputed datasets.

Descriptive analyses. The next step of data analysis was to generate and analyze descriptive statistics and distributions for all predictor and outcome variables for both original and imputed datasets. Aside from an increase in *n* for imputed results, differences between the two sets of descriptive statistics were minimal. A key focus at this stage was to examine the frequency of child abuse and neglect in each generation, to determine overall rates of maltreatment in the sample, and to establish the presence or absence of intergenerational cycles leading to neglect. After analyzing these results and examining distributions of all study variables, three sets of analyses were conducted: bivariate analyses, hierarchical multiple regression analyses, and hierarchical logistic regression analyses.

Bivariate analyses. Bivariate analyses tested associations between pairs of study variables, with particular attention to relations between predictor

variables and parenting outcomes. An appropriate statistical technique (Pearson's correlations, T-tests, or bivariate regression) was used to examine relations between pairs of variables. Logistic regression was selected as a technique to explore relations between dichotomous variables, as pooled statistics for chi-square tests are not provided in SPSS when using multiply imputed data. Bivariate regressions for continuous outcome variables (maternal empathy, maternal sensitivity) were conducted to provide analogous test results for continuous variables.

Multivariate analyses. Upon establishing bivariate relations for study variables, independent variables and interaction terms of theoretical interest (childhood maltreatment, childhood care, social support, childhood maltreatment X maternal age at birth, childhood maltreatment X childhood care, childhood maltreatment X social support) were calculated and entered into multivariate analyses along with control variables (maternal age, maternal race/ethnicity, co-residence with grandmothers, parenting program participation) to test relations with the four outcome variables (substantiated infant neglect, self-reported infant neglect, maternal empathy, maternal sensitivity).

Two types of regression analyses were used in multivariate analyses: (a) hierarchical multiple regression, which is appropriate for use with a continuous outcome variable, tested the effects of each maternal childhood history variable on outcome variables; and (b) hierarchical logistic regression, an analytic technique that is used when an outcome variable is dichotomous, tested the relation between these same childhood history variables and infant neglect.

Comparable models were employed for each of the outcome variables, with the exception of maternal self-reports of infant neglect, which did not have a sufficient number of cases to accommodate a multivariate approach (n = 27).

In the first model (M1) of each multivariate regression analysis, control variables (maternal age, maternal race/ethnicity, family resources, co-residence with grandmothers) were entered alone in a single block. In the second model (M2), maternal childhood maltreatment (either neglect, physical abuse, *or* multiple type maltreatment) were entered along with control variables. The third model (M3) included all variables in the second model with the addition of childhood positive childhood care. In the fourth model (M4), all variables from M1-M3 were entered together, as well as the two social support variables (frequency, dependability). The fifth and final model (M5) tested the effect of all independent variables from M1-M4 together on parenting outcomes, in addition to four two-way interactions terms (childhood maltreatment X maternal age, childhood maltreatment X childhood care, childhood maltreatment X social support frequency, childhood maltreatment X social support dependability). Interaction plots were created to show the nature of significant interactions (i.e., moderators). Regression analyses (multiple regression and logistic regression) testing the five nested models were run separately with each of three different maternal childhood maltreatment types (i.e., neglect, physical abuse, multiple type maltreatment) predicting three outcome variables with a large enough n to accommodate these multivariate analyses (i.e., substantiated infant neglect,

maternal empathy, maternal sensitivity), resulting in a total of nine sets of multivariate regressions with five nested models each.

The final step in data analysis was to test whether maternal sensitivity and maternal empathy partially mediated the relation between a maternal childhood history of maltreatment and infant neglect using the mediation procedure advocated by Kenny and colleagues (Baron & Kenny, 1986; Kenny, Kashy, & Bolger, 1998). The first two steps establish whether there is a correlation between the predictor variable and the outcome variable, and a correlation between the predictor variable and the mediator variable. The third step attempts to show that the mediator affects the outcome variable by controlling for the predictor variable.

Chapter 4: Results

Descriptive Analyses

Tables 1 and 2 provide descriptive information for child maltreatment in the sample for original and multiply imputed datasets, respectively. Tables 3 and 4 display descriptive statistics for all other study variables. Study results refer to findings from imputed data unless specified otherwise. Results provided for particular types of maltreatment represent findings that are specific to that form alone. For example, when a rate of childhood "neglect," "physical abuse," or "sexual abuse" is reported, infants or their mothers experienced only that form of maltreatment and no other, whereas "multiple maltreatment" refers to any combination of these three forms. The rates of sexual abuse in each generation are reported but excluded from further analysis, as sexual abuse derives from processes that do not usually implicate adolescent mothers as perpetrators (Finkelhor, 2009).

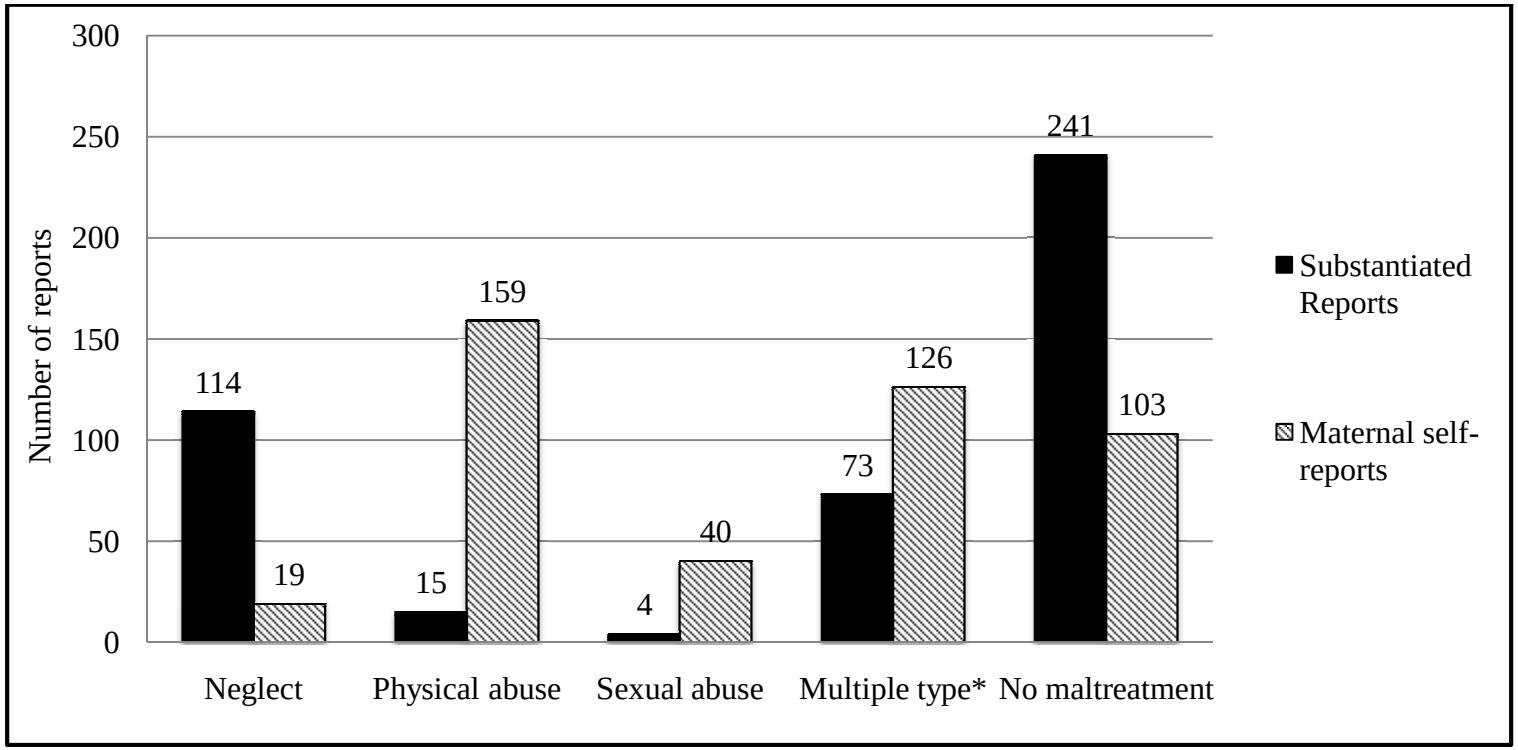
Maternal history of childhood maltreatment. Just under half of young mothers in the sample (46.09%, *n* = 206) had substantiated cases of maltreatment in childhood. This figure was considerably lower than mothers' self-reported victimization on the CTS-PC (Straus et al., 1998), which indicated that over three-quarters of participants were abused and/or neglected (76.96%, *n* = 344). Disparate findings for the two methods also were apparent for specific forms of childhood maltreatment (see Figure 3, p. 112). Neglect was substantiated most often (25.50%, *n* = 114), followed by multiple type maltreatment (16.33%, *n* = 73), physical abuse (3.36%, *n* = 15), and sexual abuse (.90%, *n* = 4). On the CTS-

PC, mothers reported physical abuse (35.57%, *n* = 159) most often, and multiple type maltreatment (28.19%, *n* = 126) more frequently than CPS records suggested. The rate of sexual abuse was comparatively lower according to both substantiated reports and self-reports, but higher as reported by the teenagers themselves (8.95%, *n* = 40) than reported in CPS records (.90%, *n* = 4). The greatest rate disparity emerged in the category of childhood neglect: CPS records showed that neglect occurred more often in the sample than other forms of childhood maltreatment (25.50%, *n* = 114), whereas the results from the CTS-PC indicated that neglect occurred the least often (4.25%, *n* = 19). Multiple type maltreatment was the second most common type for both types of reports.

Infant maltreatment. In a preliminary examination of current maltreatment, 79 infants (17.67%) were found to have substantiated cases of abuse and neglect (see Figure 4, p. 113). In all cases, infants were neglected; in six cases, infants also suffered physical abuse (multiple type maltreatment). There were no cases of sexual or physical abuse alone, findings that differed from results on the CTS-PC. According to the CTS-PC, a larger proportion of mothers maltreated children (30.65%, *n* = 137), but fewer were neglectful (6.94%, *n* = 31) or multiply maltreating (2.46%, *n* = 11) compared to substantiated cases. Based on their CTS-PC self-reports, over one-fifth of mothers (21.25%, *n* = 95) engaged in acts of physical assault, whereas substantiated cases indicated no physical abuse. Thus, when physical abuse was defined by CTS-PC standards, it was the most prevalent type of maltreatment but, when defined by CPS substantiation status, physical abuse did not occur at all.

Figure 3

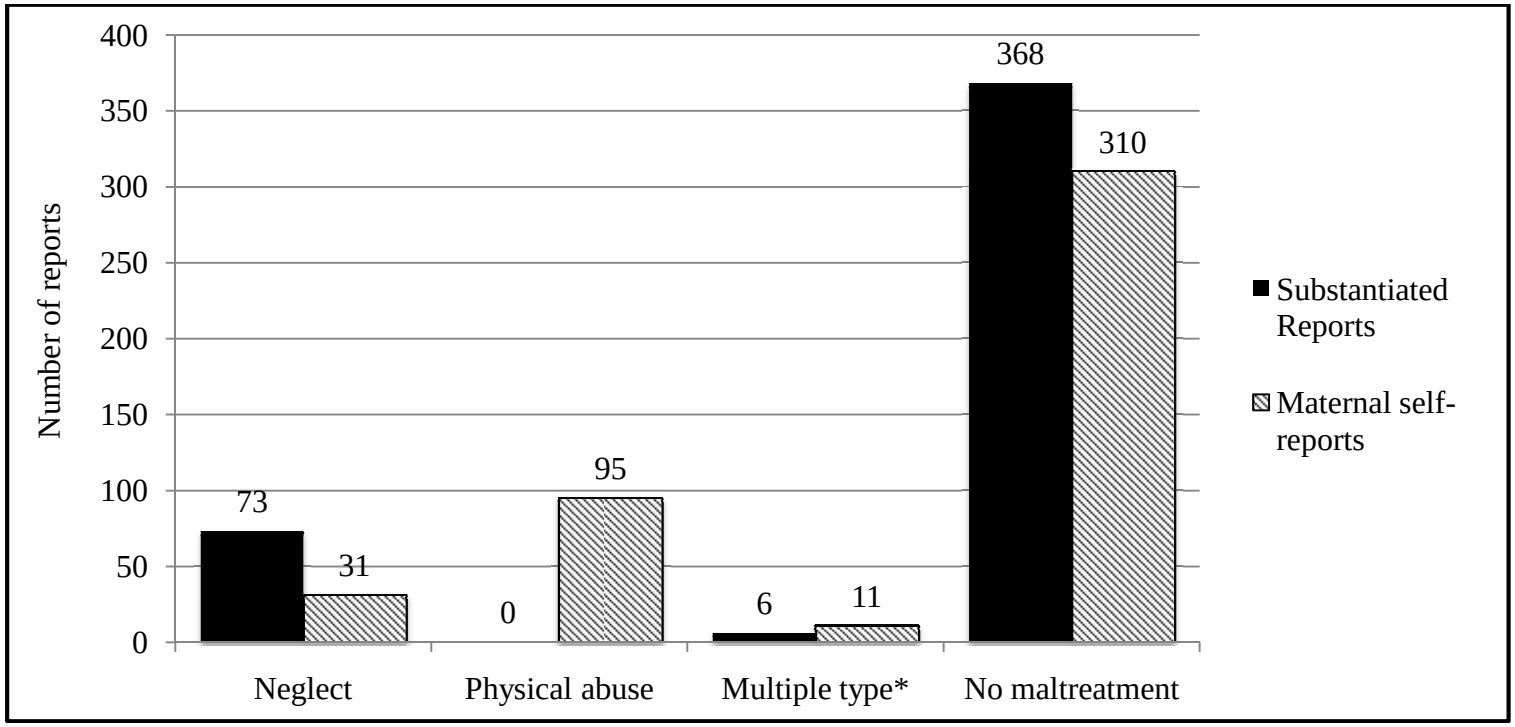
Maternal Childhood History of Substantiated Reports and Maternal Self-reports of Maltreatment (n = 447)



*Multiple type maltreatment is defined as the occurrence of two or more of the following forms of maltreatment: neglect, physical abuse, and sexual abuse.

Figure 4

Substantiated Reports and Maternal Self-reports of Infant Maltreatment in the Sample (n = 447)



*Multiple type maltreatment is defined as the occurrence of two or more of the following forms of maltreatment: neglect, physical abuse, and sexual abuse.

Substantiated cycles of abuse and neglect. An examination of maltreatment data in both generations revealed a strong trend of discontinuity in intergenerational transmission. Over three-quarters (76.70%, *n* = 158) of the 206 mothers with a history of childhood maltreatment broke the cycle; that is, their infants were not maltreated. However, a maternal history of child abuse and neglect was fairly common among mothers with infants who were maltreated—almost two-thirds (60.76%, *n* = 48) of maltreated infants (*n* = 79) had mothers who were childhood victims. Approximately 60.27% (*n* = 44) of neglected infants (*n* = 73) had mothers who experienced childhood abuse and neglect. The results of a chi-square test indicated that the proportion of young mothers whose infants were neglected significantly differed by whether they did or did not have a childhood history of substantiated maltreatment, χ^2 (1, 447) = 7.38, p = .007 (see Table 5).

Self-reported cycles of abuse and neglect. The results from the CTS-PC also suggested that intergenerational discontinuity in cycles of maltreatment was more common than continuity (see Table 6), but that maltreatment re-occurred in the second generation more often than was indicated by CPS data. Whereas 77% of adolescent mothers whom CPS determined to be maltreated in childhood had infants without substantiated reports, two-thirds (67.15%, *n* = 231) of mothers with a history of self-reported child abuse and/or neglect (*n* = 344) indicated that they broke the cycle. Conversely, 113 of 137 self-reported maltreating mothers (82.48%) had a history of childhood maltreatment; eighty of the 95 mothers (84.21%) who self-reported physically abusive behaviors with their infants were

abused and/or neglected as children. Of those mothers, 36 (45.00%) were physically abused, 31 (38.75%) were multiply maltreated, nine (11.25%) were sexually abused, and four (5.00%) were neglected. Approximately three-quarters (74.19%, $n = 23$) of neglectful mothers ($n = 31$) had a history of childhood maltreatment; Chi-square tests were not performed for these cross-tabulations because they cannot be computed in SPSS 19.0 with multiply imputed data. Instead, these associations were explored using other analytic methods; specifically, bivariate logistic and ordinary least squares (OLS) regression.

Bivariate Analyses

Intercorrelations among study variables are shown in Table 7. Associations between most pairs of variables were small to medium in size ($r = .10 – .58$), according to Cohen's (1988) guidelines for interpreting effect size. Maternal age at birth was positively related to Black racial/ethnic background (r (445) = .16, p = .001), and negatively related to being Hispanic (r (445) = -.20, p = .000) [4], residing with the infant's grandmother (r (445) = -.18, p = .000), family resources (r (445) = -.11, p = .024), maternal empathy (r (445) = -.11, p = .029), and social support frequency (r (445) = -.10, p = .042). These findings indicate small but significant correlations between older maternal age and mothers being Black, having fewer family resources, lower scores for maternal empathy, and less frequent social support, whereas younger maternal age was associated with being Hispanic and residing with the maternal grandmother. Because older age at birth

[4] Race/ethnicity variables were dummy coded with one signifying that the participant identified herself as having that background (e.g., Black, Hispanic) and zero representing the reference group (White).

was expected to have positive associations with family resources, empathy, and social support, correlational analyses also were run on the non-imputed data, which yielded comparable findings.

A Hispanic maternal background was inversely related to grandmother co-residence (r (445) = -.16, p = .001), participation in a parenting program (r (445) = -.10, p = .035), and maternal empathy (r (445) = -.12, p = .017). Having a Black or multiple racial/ethnic identity was not associated with any of the independent or dependent variables (aside from the relation between Black and maternal age mentioned above). Mothers' self-identification as "other" with regard to race/ethnicity was inversely related to co-residence with grandmothers. Co-residence with grandmothers (r (445) = .13, p = .000) was positively associated with having more family resources. In addition, having more adequate family resources was related to participation in a parenting program (r (445) = .20, p = .000), higher maternal empathy scores (r (445) = .11, p = .02), more frequent social support (r (445) = .21, p = .000), and more dependable social support (r (445) = .20, p = .000).

As expected, a maternal history of positive childhood care was inversely related to substantiated childhood maltreatment (any type) (r (445) = -.16, p = .001) and self-reported childhood maltreatment (any type) (r (445) = -.18, p = .000), and positively related to frequency (r (445) = .15, p = .001) and dependability of social support (r (445) = .24, p = .001). A maternal history of substantiated childhood maltreatment was positively related to substantiated infant neglect (r (445) = .13, p = .001), as anticipated. Substantiated infant

neglect was associated with less frequent contact with members of the maternal social support network (r (445) = -.15, p = .001). Finally, there was a strong, positive association between social support frequency and social support dependability (r (445) = .58, p =.000). No significant relations between maternal sensitivity and other variables were found.

Bivariate associations between study variables and each of the four dependent variables were further tested using logistic regression for dichotomous outcomes (substantiated reports and maternal self-reports of infant neglect) and ordinary least squares (OLS) regression for continuous outcomes (maternal empathy and sensitivity). Results of bivariate regression analyses are shown in Tables 8 and 9 and findings for each outcome variable are discussed below.

Infant neglect. Binary logistic regression analyses confirmed several hypothesized associations with CPS substantiated infant neglect but not self-reported infant neglect. The first finding was that a maternal childhood history of multiple type maltreatment predicted neglect substantiation. Specifically, infants of adolescent mothers who were victims of more than one type of maltreatment as children were more than 2.5 times (OR = 2.61, p = .004) as likely to be neglected as mothers without a history of multiple maltreatment. A similar trend emerged for a maternal history of neglect, but the association did not reach statistical significance (OR = 1.77, p = .062). Also as hypothesized, infants whose mothers reported frequent contact with members of their social support network were less likely (.94 times the odds) to be neglected (OR = .94, p = .002). Contrary to expectations, however, positive maternal childrearing histories did not predict

lower odds of infant neglect. None of the control variables had significant associations with self-reported infant neglect in bivariate analyses.

Maternal sensitivity and empathy. The results of OLS regression analyses (see Table 9) indicated that mothers' age at first birth, race/ethnicity (Hispanic versus White) and family resources each independently predicted maternal empathy. For each year older, a mother's scores on the AAPI empathy scale decreased by .16 (B = -.16, p = .029), a finding that did not indicate a strong effect yet was unanticipated. To take extra precaution, a comparable analysis with the non-imputed data was performed and produced similar results (B = -.18, p = .021). Bivariate regression analyses also showed that Hispanic mothers had lower average empathy scores than White mothers (B = -.49, p = .017). Mothers who felt they had more adequate resources for their families reported slightly more empathy as parents (B = .01, p = .028).

Substantiated reports of childhood neglect (B = .46, p = .052) and frequency of social support (B = .02, p = .080) each approached but did not reach statistical significance in bivariate regressions predicting maternal empathy. The trend suggested in the regression results assessing the relation between social support and empathy was as expected, that is, more frequent access to social support was associated with higher levels of empathy with children. However, the trend of a positive association between childhood neglect and empathy was not expected, as a mother's experience of neglect as a child was hypothesized to predict less parental empathy in the next generation, not more. The same analysis using the original data produced a similar result (B = .51, p = .037). To further

test this conclusion, an independent-samples t-test was run to compare average empathy levels for neglected mothers and nonmaltreated mothers. Results again supported this finding, trending toward a significant difference between the two group means, with nonmaltreated mothers receiving lower average scores for empathy (M = -.13, SD range = 1.97 - 2.07) than neglected mothers (M = .33, SD range = 1.92 – 2.27), t (2382)=-1.95, p = .052). Because this finding was still somewhat inconclusive (it did not fully reach statistical significance at the level of p = .05), it warranted further examination in multivariate analyses.

With regard to bivariate relations predicting maternal sensitivity, initial expectations were that childhood maltreatment and care would have opposite influences on maternal sensitivity, but no significant associations were found between either of these nor any other study variables and maternal sensitivity (see Table 9). These were unexpected results and therefore explored further. Maternal sensitivity appeared to have a fairly normal distribution (M = 4.5, *Median* = 5, *Mode* = 5, SD = 1.15); however, on a possible scale of 1 to 9, observed scores fell between 1.5 and 7.5. No participants had scores below 1.5 or above 7.5. Furthermore, of the 229 mothers for whom observations of maternal-infant dyads were videotaped and coded using the Emotional Availability Scales (Biringen et al., 1998) with the consent of mothers, only one mother was assigned a score of 1.5, three received a score of 2.0, and one received a score of 7.5, again representing limited variability at the tails of the distribution. Due to the lack of scores in the optimal sensitivity range, 7.0 to 9.0 (Biringen et al., 1998), it is not surprising that bivariate analyses assessing relations between study variables and

the dichotomous variable for maternal sensitivity (optimal versus non-optimal) also yielded nonsignificant results.

A lack of variation in sensitivity scores at the high end of the scale may reflect lower quality parenting by adolescents' mothers, yet it was unclear why there were so few scores at the low end of the scale. To attempt to answer this question, a chi-square test of independence was run to investigate the hypothesis that mothers of maltreated infants were more likely than their nonmaltreating counterparts to deny consent for videotaped observations of interactions with their children (thereby eliminating potential for low sensitivity scores). This hypothesis was supported: the relation between a childhood history of substantiated neglect and whether or not a participant had a maternal sensitivity score was significant, χ^2 (1, n = 441) = 12.11, p = .001, indicating that mothers of infants with substantiated reports of infant neglect were less likely to agree to allow researchers to conduct videotaped observations than mothers of infants who were not neglected. Stated in other terms, analyses may not have identified existing relationships between maternal sensitivity and child maltreatment because lower scores for sensitivity were lost when maltreating mothers declined consent to participate in the sensitivity measure.

Multivariate Analyses

Two sets of hierarchical logistic regression analyses tested the effects of independent and control variables on substantiated reports of infant neglect and maternal self-reports of infant neglect. Two sets of hierarchical multiple regression analyses assessed the effects of independent and control variables on

maternal empathy and sensitivity. These analyses were conducted separately for each of three types of childhood maltreatment: neglect, physical abuse, and multiple type maltreatment. The results of all multivariate analyses appear in Tables 10 - 24. Results of analyses with self-reported neglect as the outcome variable are not reported, as the analyses were invalid due to a low *n* for cases of neglect. For OLS regression results, the adjusted R^2 statistics were averaged for the 30 imputed datasets and provided in the results tables to indicate variance explained by the predictors. Pseudo R^2 statistics (Nagelkerke), also averaged for all datasets, appear in tables for logistic regressions, which do not have an equivalent to the R^2 statistic in OLS regression.

Logistic regression predicting infant neglect. Five nested models assessed the relation between maternal childhood neglect and infant neglect: (1) control variables only; (2) control variables with childhood neglect; (3) control variables, childhood neglect, and childhood care; (4) control variables, childhood neglect, childhood care, and the two social support variables; and (5) all predictor variables and theorized moderators—two-way interactions (childhood neglect X maternal age at birth, childhood neglect X childhood care, childhood neglect X social support frequency, childhood neglect X social support dependability). Parameter estimates, approximate p values, and goodness-of-fit tests are shown in each of the three results tables (Tables 10 – 12).

Parameter estimates did not differ substantially from the first model (control variables only) to the full model, and therefore results of logistic regression analyses predicting substantiated infant neglect (Tables 10 – 12) are

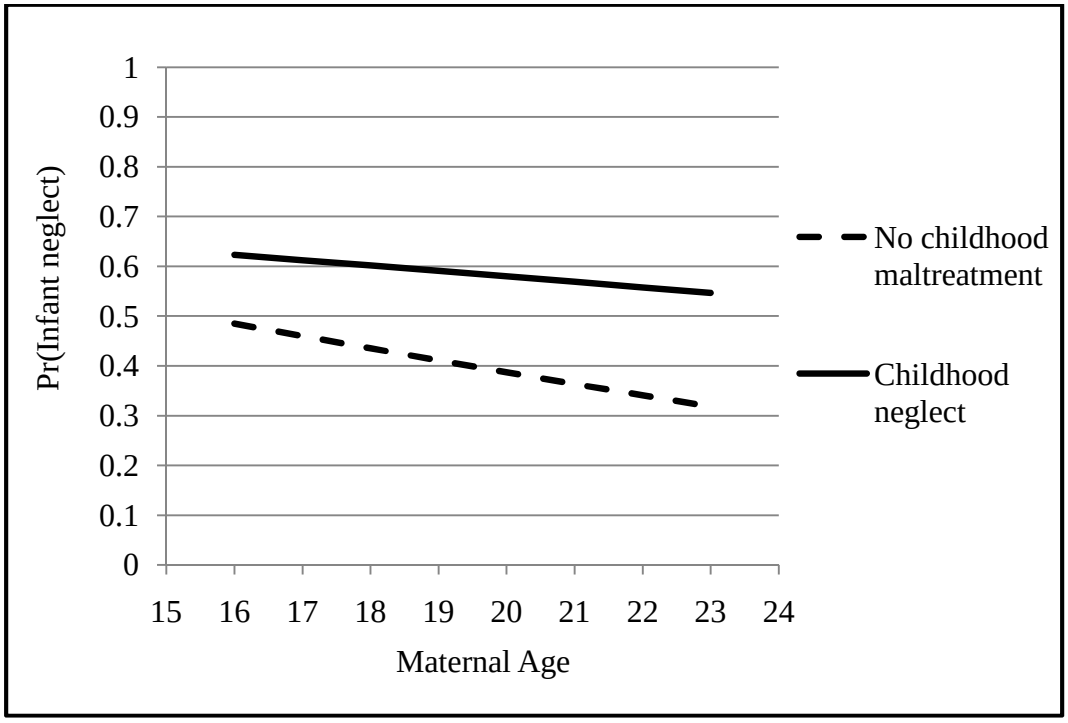
presented only for Model 4 (all variables except for interactions) to illustrate the main effects of predictor variables with control variables, and for Model 5 (all variables as well as interaction terms) to show the effects of moderator variables with control variables.

As shown in Model 4 of Table 10 social support frequency significantly predicted infant neglect (OR = .94, p = .031) with other variables held constant. In the full model (Model 5), both social support (OR = .92, p = .029) and the interaction between childhood neglect and maternal age (OR = .58, p = .041) predicted infant neglect when controlling for all other variables in the model. Increased frequency of contact between mothers and members of their social support network was associated with lower likelihood of infant neglect. More specifically, for each point increase on the social support frequency scale, infants had .94 times the likelihood of being neglected compared to infants whose mothers had less frequent social support (see Model 4). Also, a mother's age at the birth of her first child moderated the relation between a maternal childhood history of neglect and an infant's chances of being neglected (see Model 5). Although the parameter estimates are not directly interpretable for interactions in logistic regression, the interaction plot shown in Figure 5 (p. 123) illustrates the specific nature of this association. The plot indicates that, when controlling for other variables, older maternal age was associated with lower odds of neglect, whether or not mothers were neglected as children, but that the odds were higher for mothers who were maltreated. In addition, the protective effect of higher maternal age on the likelihood of neglecting an infant was slightly stronger for

mothers without a history of childhood neglect than for those with a history of childhood neglect.

Figure 5

Interaction Plot Showing the Fitted Probability of Substantiated Infant Neglect by Maternal History of Substantiated Childhood Neglect Across Different Maternal Ages at Birth (n = 447)



Tables 11 and 12 show the results of the logistic regression analyses predicting substantiated infant neglect by a maternal history of physical abuse and multiple type maltreatment. Physical abuse did not significantly predict infant neglect; social support frequency (OR = .91, p = .022) was the only variable that maintained significance in the full model when holding other variables constant, an analogous finding to the childhood neglect model (see Model 4 in Table 11).

As shown in Model 4 of Table 12, two variables emerged as significant when the effects of a maternal history of multiple maltreatment were tested while controlling for other variables in the model: a maternal history of multiple maltreatment (OR = 2.59, p = .009), and social support frequency (OR = .94, p = .048). Mothers' self-identification as Black approached significance (OR = .37, p = .061) in Model 4 and reached significance in Model 5 (OR = .35, p = .049), when interaction terms were included. Mothers who were Black (versus White), and who had a history of being multiply maltreated, were more likely to have an infant who was a victim of neglect than mothers without these characteristics, whereas mothers with more frequent access to social support were less likely to have an infant who was neglected than mothers with more limited access to social support. None of the four interaction were significant when testing the effect of multiple type maltreatment on infant neglect holding all other variables constant (see Model 5).

Multiple regression predicting maternal empathy and sensitivity. Again, parameter estimates and significant findings did not vary substantially across models (see parameter estimates and approximate p values for Models 1-5 in Tables 13-18), therefore only the results of full model (Model 5) are reviewed here.

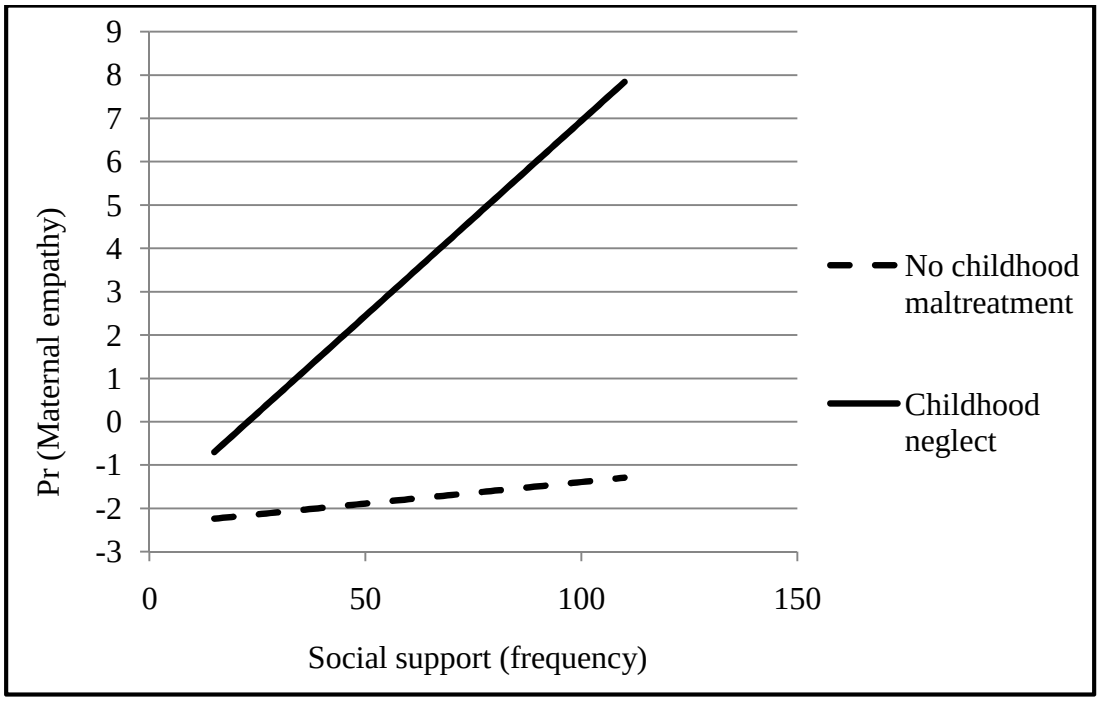
Predicting maternal empathy. The first set of multiple regressions tested the association between a maternal history of substantiated childhood neglect and maternal empathy, including possible moderators of this relation, while controlling for the effects of maternal age, maternal race/ethnicity, co-residence

with grandmothers, family resources, and participation in a parenting program. Results of this analysis appear in Table 13. Infants born to mothers who were Hispanic versus White had a lower mean score for empathy (B = -.78, p = .005), and a similar trend was found for Black versus White mothers (B = -.59, p = .056), although this relation did not quite reach statistical significance. Mothers' perceptions of the adequacy of their family resources also approached significance (B = .01, p = .067).

In addition, social support frequency moderated the association between mothers' childhood neglect and their empathetic attitudes toward their children (B = .08, p = .036). Figure 6 (p. 126), which displays a plot of the interaction between social support and childhood neglect predicting infant neglect (substantiated reports), shows the differential effects of social support frequency for mothers with dissimilar childhood histories while controlling for demographic variables. As hypothesized, for mothers who were neglected in childhood, frequent contact with members of their social support networks was associated with higher levels of maternal empathy, whereas for mothers without a history of childhood maltreatment, the effect of social support had minimal impact on maternal empathetic attitudes. Contrary to expectations, maternal empathy was higher for mothers with a history of childhood neglect than for mothers without a childhood history of maltreatment across different levels of social support frequency.

Figure 6

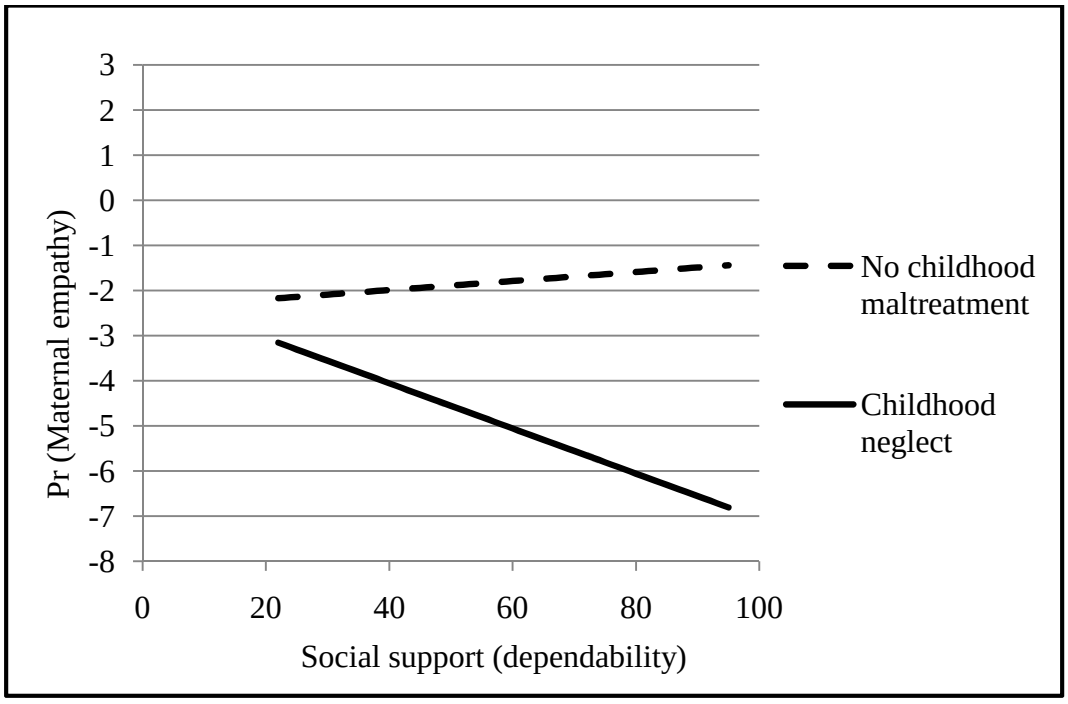
Interaction Plot Showing the Fitted Probability of Maternal Empathy by a Substantiated Maternal History of Childhood of Neglect Across Different Levels of Social Support Frequency (n = 447)



Social support dependability also showed a strong trend toward moderation (B = -.06, p = .055), but the nature of this relation appeared to be quite different than for social support frequency (see Figure 7 on p. 127). Across varying levels of social support dependability, maternal empathy was higher for mothers who were not neglected in childhood than mothers who were. However, more dependable support among mothers who were neglected was associated with lower levels of maternal empathy, whereas this was not the case for nonmaltreated mothers. Maternal empathy scores did not change markedly across different levels of social support dependability for mothers without a history of neglect.

Figure 7

Interaction Plot Showing the Fitted Probability of Maternal Empathy by a Substantiated Maternal History of Childhood of Neglect Across Different Levels of Social Support Dependability (n = 447)



Multiple regressions predicting maternal empathy were run with substantiated childhood physical abuse and multiple type maltreatment as independent variables (see results in Tables 14 and 15) and no significant relations with empathy were found. Maternal childhood maltreatment variables and childhood care also did not significantly predict maternal empathy. However, variables representing maternal racial/ethnic background were significant in full regression models (see Model 5 in Tables 14 and 15). Hispanic mothers had lower mean scores than White mothers on the AAPI empathy subscale (B = -.73, p = .031). Likewise, Black mothers (B = -.63, p = .049), and mothers in the "Other" category of race/ethnicity (B = -1.26, p = .048) had lower scores than

White mothers on the empathy subscale. That is, holding all other variables constant, for each one-point increase in on the AAPI empathy subscale, Black, Hispanic, and "Other" mothers had scores that were .73, .63, and 1.26 points lower than White mothers, respectively. No other statistically significant relations were found in the results of analyses predicting maternal empathy by substantiated physical or of analyses predicting maternal empathy by multiple type maltreatment.

Self-reported (versus substantiated) childhood neglect, physical abuse, multiple type maltreatment also were tested as predictors of maternal empathy. The results of the three analyses are shown in Tables 16-18. The main effects for each of the self-reported childhood experiences (positive care, neglect, physical abuse, multiple type maltreatment) were not significantly related to maternal empathy in any of the models, nor were moderating effects found. Across models, only two variables were significant, both representing categories of maternal race/ethnicity: Hispanic and Black. Controlling for other variables, Hispanic mothers reported lower levels of maternal empathy than White mothers in the final regression models with childhood neglect (B = -1.09, p = .039), physical abuse (B = -.86, p = .01), and multiple type maltreatment (B = -1.08, p = .020) (see Model 5 in Tables 16, 17, and 18) as independent variables. In a number of the preliminary regression models, Black mothers also had significantly lower empathy scores than White mothers. However, these results fell under the p = .05 significance level in final models controlling for childhood neglect (B = -1.33, p = .053) and multiple type maltreatment (B = -.80, p = .052)

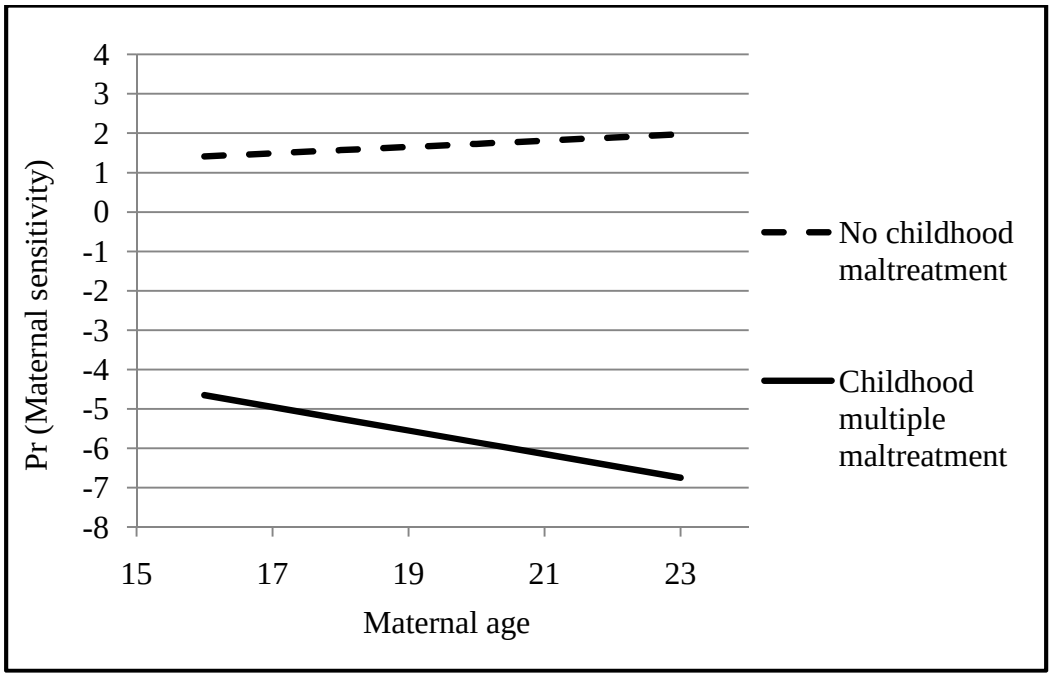
(see Model 5 in Tables 16 and 18) and were nonsignificant controlling for physical abuse. When holding physical abuse constant, social support frequency nearly reached significance (B = .04, p = .051), indicating that, for each unit increase in social support frequency, mean empathy scores increased by .04 points (see Model 5 in Table 17).

Predicting maternal sensitivity. Tables 19 through 24 show the results of multivariate OLS regressions predicting maternal sensitivity by substantiated reports and self-reports of childhood maltreatment. None of the hypothesized associations between independent variables and maternal sensitivity were significant, with the exception of an interaction between multiple type maltreatment in childhood and maternal age at birth (see Model 5 in Table 21).

The interaction plot shown in Figure 8 (p. 130) illustrates the moderating effect of maternal age at birth on the relation between a maternal childhood history of multiple type maltreatment and observed maternal sensitivity. Mothers who were not maltreated as infants exhibited more sensitivity overall than mothers who had been victims of maltreatment. In addition, the effect of maternal age on maternal sensitivity differed by maternal childhood maltreatment history such that, for mothers with a history of multiple type maltreatment in childhood, older age at the birth of a first child was associated with lower levels of maternal sensitivity whereas, for mothers without a history of childhood maltreatment, older age at the birth of a first child was associated with higher levels of maternal sensitivity (B = -.38, p = .01).

Figure 8

Interaction Plot Showing the Fitted Probability of Maternal Sensitivity by a Substantiated Maternal Childhood History of Multiple Type Maltreatment Across Different Maternal Ages at Birth (n = 447)



Mediation Analyses

The final step in data analysis was to explore potential mediators, namely the role of maternal empathy and sensitivity, in explaining early risk for neglect. Given the nonsignificant findings for relations between maternal self-reports of maltreatment in childhood and infant neglect, a substantiated physical abuse and infant neglect, and maltreatment variables and maternal sensitivity, these analyses were conducted only for maternal empathy. Specifically, the analyses tested whether empathy scores partially mediated the relationship between a maternal history of substantiated neglect or multiple type maltreatment and the likelihood of infant neglect.

The first step in investigating mediation (Baron & Kenny, 1986; Kenny, Kashy, & Bolger, 1998) is to assess whether the independent variable is associated with the outcome variable; binary logistic regression results revealed a significant association between a maternal history of substantiated multiple type maltreatment and infant neglect (OR = 2.61, p = .004), and a trend for the association between a substantiated childhood neglect and infant neglect (OR = 1.77, p = .065). To meet the second requirement for establishing mediation, the dependent variable must be significantly related to the mediator. In this case, no statistically significant association was found between childhood multiple type maltreatment and maternal empathy (OR = .05, p = .260), but the association between childhood neglect and maternal empathy nearly reached significance (B = .46, p = .052). Because the latter relation closely approached significance, the third step of mediation was performed, which examined whether the effect of childhood neglect on infant neglect disappeared when controlling for the maternal empathy. Neither childhood neglect (B = .57, p = .069) nor maternal empathy (B = .01, p = .920) was significantly related to infant neglect, showing no mediation effect.

Chapter 5: Discussion

In this study, I examined discontinuities in intergenerational cycles of maltreatment associated with infant neglect among the children of young mothers. The central aim of the investigation was to add in some meaningful way to a scant empirical literature on the etiology of neglect, as it has considerable potential to inform prevention by improving prediction of risk for child maltreatment (Mersky, Berger, Reynolds, & Gromoske, 2009). An ecological perspective (Bronfenbrenner & Morris, 2006) influenced the study's design, which integrated aspects of individuals, families, and developmental contexts into explanations of child neglect (Belsky, 1993; Cicchetti & Lynch, 1993). Based on a resilience perspective (Masten & Powell, 2003), the study highlighted discontinuity in intergenerational transmission of child maltreatment associated with positive parenting outcomes (maternal empathy, maternal sensitivity, and nonmaltreatment).

A young mother's childhood history of abuse and neglect was a salient risk factor for poor parenting, yet the majority of adolescent mothers who were maltreated had not continued this pattern of parenting with their own children as of the beginning of their second year participating in the study. Although analyses of substantiated reports and maternal self-reports of child maltreatment yielded dissimilar results for almost every area investigated, findings based on both sources of measurement coalesced with regard to discontinuity, showing that most infants did not become casualties of intergenerational transmission. Study results thus support the theory of intergenerational cycles of maltreatment (Zigler

& Kaufman, 1987) while affirming the conclusion that most adolescent mothers avert infant neglect despite the presence of a widespread and potent social risk factor. The results of this study therefore are consistent with findings from a small number of earlier studies demonstrating that discontinuity is a more common outcome of intergenerational cycles of abuse and neglect than continuity, even among adolescent parents, a population at risk for perpetuating cycles of negative parenting (e.g., Borkowski et al., 2007; de Paúl & Domenech, 2000; Lounds et al., 2006; Whitman et al., 2001; Zuravin & DiBlasio, 1992).

Rates of Child Maltreatment Among Young Mothers with Infants

The pervasiveness of childhood histories of abuse and neglect among mothers in the study sample is consistent with prior research showing that teen mothers are more often victims of maltreatment in childhood than adult mothers (Herrenkohl et al., 1998; Krpan et al., 2005). Child protective service (CPS) records indicated that approximately half (46%) of all young mothers were maltreated by their caregivers, but by mothers' own reports on the Conflict Tactics Scale-Parent Child version ([CTS-PC]; Straus et al., 1998), over three-quarters were subjected to maltreatment as children. According to either estimate, a considerable proportion of young mothers began parenting with a grim family legacy.

The discrepant rates for different forms of maltreatment that emerged from data on substantiated reports compared to self-reports makes it difficult to draw precise conclusions about young mothers' past experiences. According to CPS records, neglect occurred more frequently than any other type of maltreatment

(26%), but self-report data imply that physical abuse (36%) occurred most often. Both methodologies identified multiple type maltreatment (neglect, physical abuse, and sexual abuse in any combination) as the second most common form of childhood victimization, a finding in keeping with nationwide studies of incidence and prevalence, which show that many children suffer more than one type of maltreatment (Sedlak et al., 2010; USDHHS, 2010).

Rates of infant abuse and neglect in the sample also differed by the methodology employed to measure maltreatment. CPS records indicated that just under one-fifth of young mothers' children had a substantiated case of maltreatment (by mothers and/or other perpetrators), whereas maternal self-reports showed that nearly one-third were victims of abuse and/or neglect. Both estimates exceeded the national incidence of maltreatment among infants (20.6 per 1,000, or 2% in 2009) (USDHHS, 2010), reinforcing prior observations that infants of adolescent parents constitute an especially high-risk population for child abuse and neglect (Erickson, Egeland, & Pianta, 1989; Hildyard & Wolfe, 2002). These rates are especially alarming since most infants have few individuals from whom they can receive the consistent and responsive care they need for healthy development, and when those adults fail to meet their emotional, cognitive, and physical needs, it may cause serious and long-term damage to their development across multiple domains of functioning (Scannapieco & Connell-Carrick, 2005). Furthermore, these rates are likely to increase over time as other harmful parenting behaviors materialize and more children are reported to child welfare authorities.

As was the case for maternal childhood histories of maltreatment, the specific nature of children's experiences was difficult to determine because substantiation status and self-report data did not provide a consistent picture of infant victimization. Whereas neglect was the most common form of substantiated infant maltreatment (16% of the sample), physical abuse was the most common form of self-reported infant maltreatment (21% of the sample). In all likelihood, divergent rates in both generations reflect biases inherent to measurement, raising important questions about how present-day conventions for defining and measuring child neglect influence our understanding of its prevalence and etiology.

Measurement of Child Maltreatment

The results of this study are in line with prior studies asserting that the rate of child maltreatment researchers find in a given population depends, in part, upon the methodology employed to identify it (Shaffer et al., 2008; Widom et al., 2004). Agreement among measurement sources is especially low for neglect (McGee et al., 1995), a problem that has impeded efforts to make generalizations across studies (Shaffer et al., 2008). The limitations of each measure have precluded any one methodology's ascendency above the others, and an important inference from the child maltreatment literature as a whole is that reliance on a single method is not sufficient to identify true incidence in a population or to accurately identify causal factors for neglect (Slack, Holl, Altenbernd, McDaniel, & Stevens, 2003; Shaffer et al., 2008). The consensus among contemporary neglect researchers is that multiple modes of measurement are necessary to lessen

"method effect" biases (Kline, 1998; Slack et al., 2003), yet the field lacks common scientific guidelines on how to utilize different metrics in combination, particularly with regard to interpreting disparate findings that may emerge from different methods of measurement.

To limit measurement error, this study used several measures of parenting quality, including two measures of child maltreatment. The hope was that triangulating this data would provide a more accurate portrayal of child maltreatment in the sample than any one method alone. In the end, the self-report data did not detect a sufficient number of neglect cases to be utilized in multivariate analyses. Although it was unfortunate that the absence of self-reported neglect prevented a more thorough examination of its antecedents, this finding was informative as well. Self-reports of child abuse and neglect have an important role in child maltreatment research. For example, they tend to be more powerful predictors of child and adolescent outcomes than CPS records (Everson et al., 2008; McGee et al., 1995). However, the patterns of self-reported infant maltreatment in the sample, which revealed few instances of neglect yet many instances of physical abuse compared to CPS reports, suggest that self-report (or at least the CTS-PC, the form of self-report used in this study) is better suited to assessing abuse than neglect. Likewise, Berlin and colleagues (2011) found that the CTS-PC identified few instances of neglect, and the investigators postulated that it was a more effective measure of physical abuse than neglect.

A major criticism of self-report methodologies is that respondents are likely to answer in socially desirable ways that minimize negative parenting

behaviors (Miller-Perrin & Perrin, 2007). This bias may be especially pronounced for the CTS-PC neglect subscale because items representing neglectful parenting are grouped together, whereas items for other subscales are intermingled, combined with positive parenting behaviors, and vary substantially with regard to severity. Therefore, it is possible that the questions themselves alerted mothers in this study to the measure's partiality regarding neglectful behaviors. As a result, they may have been less inclined to give affirmative answers to these questions, whether in relation to their childhood experiences or current parenting. The extreme nature of certain items on the CTS-PC neglect subscale also may have deterred some parents from endorsing them (e.g., "You were so drunk or high that you had a problem taking care of your child") (Bennet et al., 2006).

In comparison, mothers may have been more willing to disclose physical abuse because items on the physical assault subscale are juxtaposed with behaviors that are generally considered to be more adaptive (e.g., "You put your child in a 'time out' or sent the child to his or her room"), and include items that parents may not consider to be maltreatment at all (e.g., "You hit your child on the bottom with something like a belt, hairbrush, stick, or some other hard object"). Stated more precisely, the fact that so many participants reported physically assaulting their children on the CTS-PC, and so few reported neglecting their children, may reflect their relative comfort with disclosing certain parenting behaviors. Consequently, the CTS-PC may understate the prevalence of

neglect (Bennett et al., 2006) and perhaps overstate the prevalence of physical abuse.

Markedly different assumptions underlie determinations of physical abuse using the CTS-PC versus CPS substantiated reports, and comparisons made between the two in this study ought to be considered with this in mind. Most notably, the fact that the CTS-PC includes corporal punishment as a form of physical assault distinguishes it from CPS substantiation as a measure of child abuse. Whereas corporal punishment is categorized as an act of "physical assault" on the CTS-PC, such behaviors are unlikely to be substantiated by child welfare authorities, as every state permits the use of corporal punishment in some form (Coleman, Dodge, & Campbell, 2010). Because very young children are more vulnerable to harm from physical punishment, one could argue that prevention based research should include corporal punishment as an indicator of child abuse. Nevertheless, CPS substantiation status does not systematically account for corporal punishment unless it has caused serious injury to the child (Coleman et al., 2010).

Whether or not physical discipline is classified as a form of physical abuse not only differentiates the CTS-PC from CPS substantiation methodologically, but it has specific relevance to investigating child maltreatment within populations in which corporal punishment is more common. For instance, researchers have found socioeconomic and race differences in mothers' reporting of their own parenting practices on the CTS-PC, with especially high rates of self-reported abuse by low-income mothers and Black mothers (e.g., Berger, McDaniel, &

Paxson, 2006). Naturally, when corporal punishment is classified as physical abuse in studies of families with these demographic characteristics, rates of abuse will appear particularly high when compared to families with other backgrounds (e.g., White, middle class families). Additional research exploring variation in child maltreatment measurement outcomes in different family contexts is needed before we can draw accurate conclusions about the incidence and prevalence of different types of maltreatment across populations. In particular, future studies might examine how beliefs about the social desirability of various parenting practices in different communities influence self-reporting of neglect and abuse (Hardt & Rutter, 2004). A parent's response to the CTS-PC neglect item "You were not able to make sure your child got to a doctor or hospital when he or she needed it", for example, may depend on a parent's conceptualization of a child's "need", his or her cultural beliefs about certain medical interventions, the age of the child, or relate to the family's access (or lack of access) to affordable health care.

In this study, the examination of intergenerational continuity and discontinuities in the transmission of maltreatment yielded more significant findings with substantiated reports than self-reports. Nevertheless, it is important to note that ten of the twenty-seven infants who were neglected according to self-report data (prior to imputing missing data) were not identified as neglected in CPS records. These cases may be small in number, but they represent an opportunity to detect infants who are in serious danger and might otherwise have "slipped through the cracks" of the child welfare system. Since CPS

substantiation fails to detect many cases of maltreatment (Cross & Casanueva, 2009; Sedlack & Broadhurst, 1996), one solution for improving early identification of infant neglect is to take an inclusive approach. Researchers might enlarge their samples of neglected children by including any child found to be neglected by either measure. For example, if substantiated and self-reports were combined in the current sample, the total number of infants who were neglected would increase from 73 to 83 cases, or 16% to 19% of the sample. Some maltreatment experts also advocate for including children reported to CPS but whose reports were unsubstantiated. This unconventional approach may seem overly liberal, but recent studies reveal few differences in outcomes for young children with unsubstantiated versus substantiated maltreatment reports (e.g., Hussey et al., 2005). Given the severity of harm infants may experience when no one intervenes on their behalf, a conservative approach to early identification is not likely to be the best approach. Etiologic studies that assign neglected infants to a nonmaltreated group also risk generating inaccurate explanations of neglectful parenting, including processes of intergenerational transmission.

Intergenerational Cycles of Child Maltreatment

In keeping with a substantial literature on risk factors for child neglect, children in the study whose mothers had a childhood history of maltreatment were more likely to be neglected than children of nonmaltreated mothers (Berlin et al., 2011; Dixon et al., 2005a, 2005b; Ertem et al., 2000; Kaufman & Zigler, 1987; Li et al., 2010; Lounds et al., 2006; Pears & Capaldi, 2001; Scannapieco & Connell-Carrick, 2005). Between two-thirds (substantiated reports) and three-quarters

(maternal self-reports) of neglected infants had a mother who was a victim of maltreatment in childhood, and yet most maltreated parents did not perpetuate the cycle.

The majority of infants born to adolescent mothers who had experienced maltreatment growing up in their own families did not become victims of abuse or neglect. The rate of discontinuity in the sample was 77% and 67% for substantiated reports and self-reports, respectively. The latter figure is consistent with Kaufman and Zigler's (1987) estimate of a 30±5% rate of continuity, but the former suggests considerably more resilience to intergenerational transmission of maltreatment in these young families. Either figure demonstrates that many maltreated children become competent parents, at least from the standpoint of nonmaltreatment in the second generation. In other words, "Being maltreated as a child puts one at risk for becoming abusive but the path between these points is far from direct or inevitable" (Kaufman & Zigler, 1987, p. 190).

The rate of continuity may well increase as more instances of abuse and neglect are discovered by child protective services and more young women struggle with the challenging transition from infancy to toddlerhood (Thompson, Easterbrooks, & Padilla-Walker, 2003), but the proportion of discontinuity at this stage of development (within the first 30 months of life) is noteworthy because the majority of neglect occurs during this period. Because the central aim of this study was to identify factors that impact the likelihood of discontinuity in transmission of neglect, correlates of neglect were an important aspect of this investigation.

Correlates of Infant Neglect

The results of bivariate analyses revealed that two study variables independently predicted infant neglect: a maternal history of multiple type maltreatment and the frequency of mothers' contact with members of their social support network. In addition, one of the race/ethnicity variables (Black versus White) was significant in the multivariate model predicting neglect by a maternal history of multiple type maltreatment. None of the other demographic variables were significant, probably due to limited variability in the sample. Lounds and colleagues (2006) noted that analyses of neglect by adolescent mothers "holds constant the two main variables predictive of neglect in the population at large: socioeconomic status (SES) and age" (p. 282). The same may be said of maternal age, family resources, and program involvement in the current study. Furthermore, the dichotomous (yes/no) variable used for grandmother co-residence may not have been sensitive enough to explain a significant amount of variance in parenting outcomes.

Maternal childhood history of multiple type maltreatment. Mothers in the sample who were victims of multiple forms of maltreatment in childhood had infants who were at heightened risk for experiencing neglect. These children had over 2.5 times the likelihood of being neglected when compared to the children of mothers who were not maltreated. When controlling for the effects of all other study variables and interaction terms, the odds of neglect increased to nearly a factor of three. This finding fits with several explanations of intergenerational transmission. Viewed from a social learning perspective, young mothers who

were maltreated in multiple ways may not have had opportunities to observe healthy parenting and did not learn how to engage in appropriate ways with their infants (Pears & Capaldi, 2001). As seen from a trauma perspective, mothers who were victims of abuse and neglect may have developed symptoms of Post-traumatic Stress Dissorder or other mental health problems (Boney-McCoy & Finkelhor, 1996; Rossman, Bingham, & Emde, 1997) that hindered their ability to meet their infants' basic needs. An attachment perspective suggests that the extensive neglect and abuse mothers endured as children led to dysfunctional working models of relationships that served as a problematic model for relationships with infants (Bowlby, 1958).

Despite many potential explanations for this association, no other studies have examined multiple type victimization in one generation and neglect in the next. Some researchers have examined the effect of multiple maltreatment exposure on individual functioning and found that it is highly predictive of psychological distress, adjustment problems, externalizing behavior problems, trauma symptoms, and psychiatric impairment among survivors (Arata, Langhinrichsen-Rohling, Bowers, & O'Brien, 2007; Finkelhor, Ormrod, & Turner, 2007; Richmond, Elliott, Pierce, Aspelmeier, & Alexander, 2009). A sensible inference from this literature is that multiple victimization also places an individual at risk for poor parenting, but no studies prior to this one explicitly make this connection. One investigation by Pears and Capaldi (2001) found that parents who endured multiple acts of abuse in childhood were more likely to become abusive than were nonmaltreating parents, but the researchers did not

examine neglect. Additional research is needed to replicate this finding and explore whether the link between multiple childhood victimization and child neglect is characteristic of some parents more than others. Researchers might also explore these cycles as they relate to different constellations of multiple type maltreatment (e.g., neglect and physical abuse, neglect and psychological abuse, neglect, physical abuse, and psychological abuse).

Race/ethnicity. The increased risk for infant neglect among Black mothers in the sample compared to White mothers is consistent with the results of epidemiological studies showing that African American families are overrepresented in the U.S. child welfare system (Sedlak et al., 2010; USDHHS, 2010). The reasons for the disproportionality are hotly debated (Derezotes & Poertner, 2005). No single factor accounts for disproportionality (Dettlaff et al., 2011) and Barth (2005, p. 29) identified six possible explanations: (1) African American children are reported when they do not need to be, (2) White children are underreported, (3) the types of maltreatment reported affect African American children more than White children, (4) racial differences exist in rates of investigation, (5) racial differences exist in rates of substantiation, and (6) racial differences exist in rates of case openings. Within each of these models are more specific explanations for the disparity, including institutional racism, high rates of poverty, high rates of early childbearing, and parenting behaviors that conflict with White European middle class societal norms, just to name a few (Derezotes & Poertner, 2005).

In this study, the association between maternal age and race/ethnicity may explain the elevated risk for neglect among Black mothers. On average, mothers who were Black were significantly younger than White mothers when they gave birth to their first children, and young maternal age increases the chances that children experience neglect (Erickson et al., 1989; Hildyard & Wolfe, 2002). Other factors that were not examined in the study also may have affected the likelihood of neglect among Black versus White mothers (e.g., parental stress, neighborhood conditions, socioeconomic status). For example, Pinderhughes and colleagues (Pinderhughes et al., 2000) found that the effect of ethnicity on parental discipline was mediated by family stress, with African American parents exhibiting greater stress and harsher discipline than European American parents. The authors also noted the important role of social support in moderating the association between stress and parenting (McLoyd, 1990).

Social support. The relation between social support and parenting quality was a key finding in this study, offering further evidence of the impact of relationships on childrearing (Chen & Kaplan, 2001; Thompson, 1995) and risk for neglect (Coohey, 1995; Polansky, Gaudin, Ammons & Davis, 1985; Zolotor & Runyan, 2005). A number of studies have reported strong associations between social isolation and child neglect (Coohey, 1996; Garbarino & Kostelny, 1992; Gaudin et al., 1993; Kotch et al., 1999; Scannapieco & Connell-Carrick, 2005; Slack et al., 2004), and children and their mothers experience the most social isolation during infancy (DuMont, Ehrhard-Dietzel, & Kirkland, 2011). Conversely, the notion that social support helps to prevent maltreatment is widely

embraced by policymakers, researchers, and prevention programs (Thompson, 1995), but their efforts are based on a surprisingly unrefined empirical literature.

In a critical analysis of child maltreatment prevention through social support, Thompson (1995) highlighted the essential nature of this resource but noted "a complex calculus in understanding the effects of specific social support efforts on behalf of individuals in need" (p. 67). Because the effects of social support tend to be population specific, depend upon the type and quality of support, and vary by developmental timing, a nuanced understanding of what forms of social support work best for whom and under what conditions is essential to protecting children. This study makes no claim of providing comprehensive answers to these questions, but exploring two different dimensions of social support (frequency and dependability) is one of its strengths. Another asset is the study's reliance on mothers' own perceptions of their social support, as subjective measures are robust predictors of child maltreatment (Pepin & Banyard, 2006).

Interestingly, young mothers' perceptions that they had frequent access to members of their social support network was more important to parenting outcomes than their perceptions that those individuals were dependable. Social support frequency predicted substantiated infant neglect in bivariate analyses and all three of the multivariate analyses. Adequate social support has been found to reduce the risk of child neglect (Beeman, 1997; Li et al., 2010; Zolotor & Runyan, 2005), but some studies suggest that the quality of social support is more important than the quantity (e.g., Corse, Schmid, & Tricket, 1990). This is a

dichotomy that needs to be further deconstructed and situated within a developmental context.

It is possible that the dimension of frequency is salient to adolescent parenting because it represents the degree to which adolescents' immediate practical and developmental needs are met (e.g., concrete help with the baby, child care coverage to sleep or spend time with friends, information on childrearing, financial support). In addition, young mothers are not passive recipients of social support (Thompson, 1995) and the dimension of frequency may be a useful measure of their success in actually procuring the help they need.

Nonmaltreating mothers in this study frequently alluded to the tangible everyday benefits of receiving assistance from others, a finding in keeping with prior research suggesting that young mothers negotiate early parenthood more effectively when they receive concrete assistance from family members and friends in times of need (Luster & Haddow, 2005). For example, one mother described the advantages of receiving help with child care:

> I know my mom helps a lot. I am telling you, she cries throughout the whole entire night, and I can go a whole night without sleep. I am tired as hell the next day. She will take her and feed her, bathe her, do what she has to do with the baby and let me sleep.

In comparison to the concrete benefits mothers receive as a result of frequent contact with members of their social support network, the dependability of those members may be more difficult to quantify. Perhaps mothers' conceptualizations of dependability are not well represented by values on the Likert scale of the

Personal Network Matrix (Trivette & Dunst, 1988). Another possibility is that certain dimensions of socialization that were not assessed in this study are associated with child neglect. For instance, a young mother's interpersonal skills may be relevant to her infant's risk for neglect. Beeman (1997) found that neglectful African American mothers had complex feelings about relying on others for help, and demonstrated anger, disappointment, and confusion about the limitations of others' ability to help them. Taken together, findings from this study and previous research on social support suggest that further study in this area would produce useful information about how interventionists can assist parents in maximizing the protective effects of social support to reduce their risk of neglectful parenting and increase sensitivity and empathy in interactions with their babies.

Correlates of Maternal Empathy and Sensitivity

No significant correlates of maternal sensitivity were observed in this study, but several maternal demographic variables uniquely predicted maternal empathy, including age at birth, racial/ethnic background (Hispanic versus White), and family resources, albeit with modest effect sizes.

Family resources. As hypothesized, mothers who reported more adequate family resources also reported more empathetic parenting attitudes, a finding in line with research demonstrating an association between parental access to resources (both financial and social) and parenting quality (Drake & Pandey, 1996; Leadbeater & Linares, 1992; Pianta, et al., 1989; Sedlak & Broadhurst, 1996; Vondra & Belsky, 1993; Zuravin, 1989). The fact that mothers'

perceptions of social and economic family hardship were significantly related to maternal empathy also is consistent with research showing that self-reported family disadvantage is an especially strong predictor of child neglect (Slack et al., 2004).

Maternal age. Older mothers reported lower levels of parental empathy than younger mothers in the sample, which was surprising in light of evidence that adolescent parents display less empathy in interactions with their children than adult parents (Baranowski et al., 1990; Bavolek, 1984). The negative relation between older maternal age and co-residence with infants' grandmothers may help to explain this finding. Perhaps individuals who begin parenting in their early teen years have more support from family members, in turn relieving parental stress and fostering more empathetic parenting attitudes (Moore & Brooks-Gunn, 2002). Alternatively, mothers' self-appraisals may be more realistic in the later teen years and this capacity for self-reflection results in lower self-ratings of parental empathy. This explanation is consistent with Eisenberg and colleagues' (Eisenberg, Carlo, Murphy, & Van Court, 1995) finding that older adolescents have better awareness of self than younger adolescents. A number of older mothers in the study displayed a keen awareness of the challenges they faced as teen parents, and when asked what type of advice they would give to other young mothers, one mother answered:

> To really think through if you are able to do this. It's not just fun and games, its not playing house, it's a lot of things, and its not just about the child either. It's about, is the father going to be around,

> are you going to have support from your family, are you going to be left alone and have to go to a shelter, are you going to have to bounce from place to place? Because that's not healthy for your child as well as yourself. You have to really think and make sure that you want to do this because it's not about you. Once you have a baby, it's not about you anymore, it's about everything but you.

Race/ethnicity. In keeping with other research on early childbearing and parental empathy (Jacobs, Easterbrooks, Brady, & Mistry, 2005), Hispanic mothers rated themselves lower on empathetic awareness of their children's needs than White mothers. Because young Latina mothers tend to raise their children in more challenging circumstances than young White mothers (e.g., poverty, single parenting, less education) (Bavolek & Keen, 2001), it is conceivable that the disadvantages they encounter lead to deficits in empathetic awareness. Another possibility is that the lack of empathy subscale of the AAPI-2 (Bavolek & Keene, 2001) did not assess the same construct among Hispanic mothers as it did in White mothers. In other words, the survey lacks measurement equivalence (Knight & Hill, 1998). The AAPI-2 was standardized on large samples of Black and White parents and its psychometric properties have not held in some Latino samples (Solis-Camara & Diaz Romero, 1991; Solis-Camara, Rivera, & Valedez, 1993).

Hui and Triandis (1985) outlined measurement equivalence issues in cross-cultural research and highlighted three types that are necessary to establish the validity and reliability across ethnic and racial groups: (a) item equivalence, or

when items on a measure have the same meaning across racial/ethnic groups; (b) functional equivalence, or when scores on a given measure have similar correlates across racial/ethnic groups; and (c) scalar equivalence, or when a given score on a measure refers to the same nature and magnitude of the construct across racial/ethnic groups. Items on the AAPI-2 may have introduced a lack of equivalence for Hispanic versus White mothers in any of these three categories. For example, an "agree" response to the statement "Parents' needs are more important than children's needs" may reflect a lack of empathy among White mothers, yet an emphasis on parental authority among Latina mothers (Falicov, 1998). Furthermore, "agree" may represent different levels of agreement in the two groups. Studies examining the AAPI-2 in cross-cultural contexts would shed light on the issues that are most pertinent to measuring empathetic parenting attitudes among adolescent parents. In the present study, the association between a maternal Hispanic background and parenting empathy in relation to intergenerational transmission should be interpreted with caution.

Moderators of Intergenerational Cycles of Child Maltreatment

The main objective of this investigation was to identify modifiable factors that protect adolescent mothers against the risk of continuing cycles of child maltreatment with their infants. Toward this end, a maternal history of positive care in childhood, maternal age at birth, and two forms of social support were tested as moderators of the relation between a maternal history of childhood maltreatment and parenting outcomes. These moderators were significant with the exception of positive childhood care.

The promotive effect of positive relationships on parenting quality has received considerable empirical support (Belsky et al., 2005), and the finding that a maternal history of positive care was not related to adolescent parenting quality in this study was puzzling. The majority of adolescents reported high levels of care from their own mothers as (M = 30.54, range = 0.00-36.00), according to the cutoff recommended by the authors of the PBI (a score of 27 or higher indicates high levels of care; Parker et al., 1979). Limited variability is one explanation for the lack of significant results. However, it does not explain *why* so many adolescents perceived their mothers as caring given pervasive histories of childhood maltreatment in the sample. Perhaps their perpetrators were not their own mothers and their recollections of early care accurately depict bonding experiences in childhood. Alternatively, mother-daughter relationships may have been harbingers of both risk and protection (Lieberman et al., 2005) and, in this scenario, the presence of other risk and protective factors in adolescents' lives may have been more influential determinants of parenting quality. Yet another possibility is that adolescents may have believed that their mothers did the best that they could under difficult circumstances and therefore thought of them as "caring" even if they were punitive or neglectful parents. Some evidence for this hypothesis emerged in the transcripts of interviews with participants. For example, one mother told the interviewer that she would not want to imitate her mother despite reporting that her mother provided positive care in childhood:

> I would never wanna be my mother because I don't think my mom was ready to be a mom…I don't think she was prepared to do what

> a parent actually has to do. It's not something, "Oh well, when you're thirteen, you'll be good enough to be on your own." This is forever, you know. And I don't think my mom got an opportunity to learn that. So I don't think I would wanna portray that because I think that she wants to be a good mom, I just don't think she knows how.

In other cases, it was more difficult to understand why participants reported experiences of positive care given the descriptions they gave of their relationships with their mothers. For example, one 21-year-old participant who gave her mother a 31 out of 36 on the PBI care subscale told the interviewer:

> She was basically not stable enough. I remember her in the living room. She was just knocked out and we would try to wake her up and she just wouldn't get up. From there I didn't know what to do. I would wake up my brothers. They were awake already and they'd say, "I'm hungry." I would take money from my mom's purse and go buy milk and cereal for them…That's how I learned to be responsible now. I feel like I'm going to be nothing like my mom. I'm always going to be there for my child. No matter what I'm going to try my hardest.

Why the dissonance between these two characterizations of participants' relationships with their mothers was so marked in some instances is not evident from these data, but future studies might explore the beliefs, values, or internal scripts such contradictions represent (e.g., denial,

dissociation, “steeling” effect, respect for elders). Study findings on the effects of maternal age were more straightforward, though also context specific.

Numerous studies have found that children born to adolescent mothers are at higher risk for maltreatment than children of older mothers and, conversely, that older maternal age at birth reduces the odds of poor parenting (Goerge & Lee; 1997; Hildyard & Wolfe, 2002). Very few examine age variations within the period of adolescence (Furstenberg et al., 1990; Goerge & Lee, 1997). The results of this study show that maternal age at the time of a child’s birth, even within a fairly restricted range (16 to 20 years), has specific relevance to an infant’s risk for being neglected within the context of intergenerational transmission.

The degree to which older maternal age buffered against the risk of infant neglect, or whether it buffered the risk at all, differed by maternal childhood history. The protective effect of older maternal age on the likelihood of infant neglect was stronger for nonmaltreated mothers than for neglected mothers. Similarly, the effect of age on maternal sensitivity was different for maltreated and nonmaltreated mothers. For nonmaltreated mothers, having a child at an older age was associated with more sensitivity in interactions with infants than having a child earlier in adolescence whereas, for mothers who were victims of multiple type maltreatment in childhood, older maternal age was associated with less maternal sensitivity.

That infants received more sensitive parenting and were less likely to be neglected when their mothers were older, as was the case for the nonmaltreated parent group, is consistent with the notion that cognitive and emotional maturity are determinants of parenting quality (Borkowski et al., 2007). Moreover, the finding that mothers with a history of maltreatment were less sensitive than nonmaltreated mothers across all age groups fits with the theory of intergenerational transmission (Kaufman & Zigler, 1987). Why older maternal age was associated with lower sensitivity among maltreated mothers is less clear. One possibility is that the associations among these three variables (maternal age, maltreatment history, and sensitivity) were explained by factors that were not accounted for in the two-way interaction (childhood maltreatment X maternal age). For example, three-way interactions with certain demographic variables, such as poverty, race/ethnicity, or additional births, might better explain this relation. Furthermore, older mothers were less likely to live with their own mothers and had less frequent social support than younger mothers. Perhaps the disadvantage of less contact with family members and friends overshadowed the advantages of being a few years older at the birth of a first child.

A number of older mothers in the study spoke to researchers about the lack of social connection in their lives. One 19-year-old mother with a history of childhood neglect said: “I don’t really count people as friends…I don’t really like talking to people about my business; I don’t like people in my business.” Another young mother who had a history of multiple maltreatment in childhood, and was

18-years-old when she had her first child, recalled feeling isolated during pregnancy:

> I thought I was fat, and messed up my body, and couldn't do what other people were doing. They were going out to the club, and they were having all this fun, and partying their life away…and I'm sitting on my butt at the house being pregnant, sweating, crying all the time, I was so depressed.

Of course, other risk factors such as parental mental illness, intimate partner violence, or substance abuse also may help explain why the effect of age on maternal sensitivity differs by maltreatment history. Regardless, older age appears to enhance parenting under some conditions but not others.

The role of social support in intergenerational transmission processes also varied according to circumstance. Social support moderated the association between past experiences of neglect and maternal empathy, but the nature of these relations differed for the two dimensions of social support. Mothers who were neglected as children and reported frequent access to social support held more empathetic attitudes towards their children than neglected mothers with less support. Frequency of social support had comparatively little impact on empathy for nonmaltreated mothers. This finding highlights the fundamental contribution of relationships to healthy parenting following childhood adversity (Kaufman & Zigler, 1989; Lieberman et al., 2005; Werner & Smith, 1992) and affirms the study's premise that social support enhances resilience in parenting subsequent to childhood maltreatment.

The dependability of social support related to maternal empathy in an altogether different way. Neglected mothers reported less empathetic parenting attitudes when they perceived their social support network members to be more dependable. On the surface, it seems counterintuitive that mothers who had social support networks on which they could rely had less empathetic attitudes than mothers whose supports were less dependable. However, the link between social support and adolescent parenting is not straightforward, and studies show mixed results concerning the effects of extensive social support on their children (Luster & Haddow, 2005).

The benefits a teenager derives from others' support often relates to the balance of interdependence and autonomy she achieves as a mother (Moore & Brooks-Gunn, 2002). For example, Apfel and Seitz (1996) studied early parenting in multigenerational families and concluded that young mothers and children did best when grandmothers did not "take over", but rather provided moderate assistance with childrearing. Cooley and Ungar (1991) also found evidence that when grandmothers were highly involved, teen mothers become less involved with their children. Extrapolating from this research to the results of the present study, neglected mothers who perceived their social supports to be highly dependable may have had lower levels of parental empathy because they had relinquished caregiving responsibilities to other adults. Or, adolescents who held less empathetic parenting attitudes may have required the most assistance, and therefore had highly dependable support. Luster and Haddow (2005) speculated that, for teen mothers who experience the most difficulties, "social support may

be helpful to the mothers receiving it, but they would not necessarily receive high marks on measures of parenting when compared to other adolescent mothers" (p. 94).

Reliance on social support is not necessarily a "red flag" for poor parenting. Seeking assistance from others, whether emotional, instrumental, or informational, was a common theme in the narratives of study participants. "Cycle-breaking" mothers talked about receiving help from a variety of sources, including partners, family members, surrogate parents, friends, and social service professionals and paraprofessionals. Many expressed satisfaction with these supports, and when asked what advice they would give to other adolescent mothers, they counseled their peers to seek assistance. "Don't be afraid to ask for help," one participant advised. Another expressed optimism that others could find the help that they need:

> There are people that are there for you whether it's through your family or the father's family or through programs. There is at least one person out there that is willing to help, and I thought I had nobody for the longest time and I have somebody right in my home. I have so many different programs that are helping me because they want me to be good; they want me to be healthy and the baby to be healthy—the baby to actually have something. So if you are pregnant and your parents don't like it and you are going to get kicked out, fine, you are still going to have people that are going to help you.

Implications for the Prevention of Child Neglect

The ecological design of this study is consistent with a recent shift in the zeitgeist of child maltreatment prevention from "improving" parents to building environments that help parents to raise healthy children (Daro & Dodge, 2009). Early maltreatment tends to be symptomatic of adversity in multiple spheres of a child's life and applied research must use a broad lens from which to view parenting (MacKenzie, Kotch, Lee, Augsberger, & Hutto, 2011) in order to advance prevention efforts. This investigation explored interactions among maternal characteristics and proximal social ecologies that help young mothers avert risk for infant neglect.

Several findings from this study are applicable to child neglect prevention theory, policy, and practice. The results support the theory of intergenerational transmission of child maltreatment in general (Kaufman & Zigler, 1987), but extend the theory to child neglect in particular. Evidence of continuity in this sample suggests that intergenerational processes are central antecedents of neglect, and yet remarkably few studies have examined these cycles. In light of disparate transmission rates for different forms of maltreatment, the results also imply that the theory should be refined to account for the underlying mechanisms of type-to-type transmission and that researchers should investigate type-specific patterns. For instance, the finding that a specific type of maltreatment recurs in a second generation might reinforce a social learning theory perspective, in which individuals observe parenting behaviors in childhood and model these same behaviors with their own children (Bandura, 1973). Alternatively, the finding that

different maltreatment types occur in each generation suggests other mechanisms of intergenerational transition. For example, the results of the current study showed that a maternal childhood history of multiple type maltreatment (most typically neglect in combination with abuse), not neglect or abuse alone, was the strongest predictor of infant neglect, and therefore theory on the etiology of neglect must account for how the combination of childhood abuse and neglect leads to infant neglect rather than leading to a second generation of multiple type maltreatment. In this case, a cumulative risk (Rutter, 1989) or developmental cascade model (Dodge et al., 2008; Masten et al., 2005) might better explain transmission. Additional studies that elucidate type-specific patterns of intergenerational transmission of child maltreatment therefore may be useful for deepening our theoretical understanding of the etiology of neglect. In addition, information on type-specific transmission might help child welfare practitioners and clinicians predict which families are at the highest risk for which types of maltreatment (Kim, 2009).

A second and more important implication for theory arose from the discovery of extensive discontinuity in a sample composed of adolescent mothers, many of whom were victims of childhood abuse and neglect. Providing sensitive and responsive care to a child without having experienced "good enough" parenting (Winnicott, 1953) is challenging for individuals at any age (Wechsler, 2005), and yet the majority of mothers did just that. This raises an important question regarding our knowledge of child maltreatment prevention: Why is our

understanding of discontinuity so limited when it is the most usual and desired outcome of intergenerational cycles of child maltreatment?

When working with victims of child maltreatment, Lieberman and colleagues (2005) recommend a therapeutic stance in which "experiences of joy, intimacy, pleasure, and love are considered to be as worthy of therapeutic attention as negative experiences" (p. 517). To address heterogeneity in response to risk, theoretical models of child neglect might adopt a similar posture. That is, theory might account for factors that restore, support, and enhance healthy parent-child interactions in equal proportion to the determinants of neglect. The objective of such a theoretical shift is not to revel in optimism, it is pragmatic: to explain normative adaptation to adversity for the purpose of promoting resilient child and family trajectories (Masten & Powell, 2003).

Research discerning how high-risk individuals manage to parent effectively despite intergenerational risk can inform prevention policy and practice. In this study, frequent access to social support protected infants of young mothers from neglect, which suggests that prevention policy and programs consider strategies to help adolescent parents establish regular social contact with others, whether through home visiting, group therapy, the provision of informal opportunities in the community for socialization, participation in religious activities, social skills training, or other means. While social support already is a cornerstone of many prevention programs, general strategies to increase social support, even when based on strong empirical and theoretical grounds, are unlikely to reduce child neglect unless they address the specific needs of a

population (Daro & Dodge, 2009). Further research in this area could expand policymakers' and practitioners' understanding of which forms of social support are most useful to particular groups of parents, and thus which forms are most likely to protect their children (Thompson, 1995).

The results of this study also suggest that prevention policy and practice consider the contextual specificity of protective processes (Wright & Masten, 2006). The fact that social support and older maternal age at birth operated differently for parents with a childhood history of maltreatment than for those who did not have this background implies that "one-size-fits-all" approaches to neglect prevention may fall short if they are not tailored to the needs of individual parents. Since child abuse and neglect take place in a variety of social and physical environments and affect families from diverse backgrounds, the question of how to prevent it especially complicated. Refining knowledge on how protective processes operate in different settings, as well as the incidence and distribution of child abuse and neglect, will likely point to common themes that are useful for targeting prevention strategies that are appropriate for particular populations within particular contexts (Stagner & Lansing, 2009; Wulczyn, 2009).

One approach to individualizing prevention is to conduct comprehensive initial interviews with young mothers that not only identify current strengths, resources, and vulnerabilities, but also aspects of their developmental histories, such as past experiences of abuse and neglect. This information might be factored into decisions about which services should be prioritized. At present, child welfare agencies lack a consistent approach to screening parents for risk of

neglect, and few risk assessment models are empirically based (Lyons, Doueck, & Wodarski, 1996).

Accurate screening for childhood maltreatment is complicated by the same measurement challenges described earlier, particularly the problem of underrepresenting the occurrence of child neglect (Dubowitz et al., 2005). Studies that examine these issues, including this one, clearly indicate that no single measurement approach is likely to identify actual incidence in a population (Sedlak et al., 1996; Shaffer, 2008). As neglect is especially difficult to detect (DePanfilis, 2006), and this study shows evidence of transmission from one generation to another, screening for a parental history of maltreatment ideally would entail the use of more than one measurement technique (e.g., interviewing *and* CPS records). The underrepresentation of infant neglect is also a concern in developmental research, and future studies might combine self-reports and CPS records (i.e., assume a child is maltreated when identified by either means) to create a more inclusive sample (Brown et al., 1998). Relying on either self-report methodologies or CPS agencies to identify families at risk will leave many young children unprotected. This is particularly dangerous in an economic climate in which child welfare agencies are downsizing due to state fiscal constraints and lawmakers are calling for more stringent standards for serving children.

This study represents a small step toward identifying infants in harm's way early enough to offer them the protection they need and in time to steer their families in positive directions. Establishing the evidentiary base needed to implement preventive interventions to reduce child neglect will require further

research. Ultimately, our capacity to prevent neglect and promote infants' well-being will not depend on research alone. Rather, it will necessitate cross-disciplinary collaboration among researchers, scientists, policymakers, practitioners, and other stakeholders to translate findings from applied developmental science into prevention policy and practice that improves the lives of young children and their families.

Study Limitations and Conclusions

It is important to recognize the limits of any study to contribute to child neglect prevention, and certain limitations merit particular consideration when interpreting the results of this investigation. First, the two measures of infant maltreatment utilized somewhat different metrics for assessing both neglect and abuse. This allowed for an interesting comparison between rates of child maltreatment, and yet the two measures report on slightly different perpetrator populations and use different definitions of physical abuse and neglect. While substantiated reports (state agency measure) refer to perpetration by any caregiver, the CTS-PC (self-report measure) requests information about the parenting behavior of the individuals filling out the surveys (young mothers). Had mothers been asked to report on other perpetrators of child maltreatment on the CTS-PC, the rate would have been even higher and perhaps shown a different pattern of maltreatment in the sample. One way to equalize the two perpetrator groups would have been to eliminate substantiated cases in which the mother was not the perpetrator, but this would have led to a dramatic reduction in sample size and limited the generalizability of results in an even more problematic way.

Self-report and state agency data on child maltreatment also used different definitions of abuse and neglect. Whereas the physical assault subscale of the CTS-PC included corporal punishment, by Massachusetts state statute, CPS substantiated reports only account for physical discipline when child welfare personnel deem that a caregiver's physical act "causes, or creates a substantial risk of, physical or emotional injury" (110 CMR, section 2.00). One way to remedy this disparity in the future might be to define physical abuse on the CTS-PC using only moderate and severe forms of physical assault, but this approach also risks eliminating cases in which corporal punishment caused an infant harm or led to injury in the future.

Self-reports and substantiated reports also represent different definitions of child neglect. The CTS-PC defines neglect as having occurred in four specific situations (in the current study, neglect was defined as an affirmative answer from a young mother to one or more of these situations): "you had to leave your child home alone, even when you thought some adult should be with him or her", "You were not able to make sure that your child got the food he or she needed", "You were not able to make sure that your child got to a doctor or hospital when he or she needed it", and "You were so drunk or high that you had a problem taking care of your child" (Straus et al., 1998). On the other hand, state child protective service agencies defined neglect by statute as: "Failure by a caretaker, either deliberately or through negligence or inability to take those actions necessary to provide a child with minimally adequate food, clothing, shelter, medical care, supervision, emotional stability and growth, or other essential care" in the event

that a caregiver's inability is not due to inadequate economic resources or a handicapping condition alone (110 CMR, section 2.00). Substantiated reports of congenital drug addiction were also coded as neglect. Although the CPS report and self-report definitions have much in common, the dissimilar results generated by the two measures (whether due to variation in definition or reporting source) are illustrated in the current study by divergent rates of abuse and neglect. Thus, one of the principal strength of this study—the use of multiple sources of data (Zuravin, 1999)—also introduced one of its most significant limitations (i.e., inconsistent measurement of child maltreatment). Because other researchers seeking to improve upon earlier methods of measurement by using more than one approach to measuring child abuse and neglect (Kline, 1998; Zuravin, 1999) are likely to encounter similar problems, further empirical consideration of this issue is warranted. Researchers might also be explicit about the specific aims of operationalizing child maltreatment in multiple ways within a given study. This investigation was somewhat exploratory in this regard, but other studies might have a more specific objective, such as identifying only cases in which there is a high rate of concordance among sources or, conversely, ascertaining all children who have been maltreated by any standard.

Another methodological limitation of this study was that its categorization of situations as "neglect" or "nonmaltreatment" represents an oversimplification of children's experiences (Dubowitz, 2008; Newcomb & Locke, 2001). Neglect is diverse in its phenomenology (Mennan, Kim, Sang, & Trickett, 2010) and this method did not account for dimensions of neglect such as chronicity and severity.

Although the CTS-PC (Straus et al., 1998) measures both prevalence and chronicity of child maltreatment, chronicity was not assessed due to time limitations during the interviews. The evaluation project also did not have this information for substantiated reports because access to the field notes that contained these data was not approved by the state CPS. Nevertheless, the study addressed one of the most serious limitations of prior studies on maltreatment by conducting analyses separately for different forms.

A third limitation of this investigation was that it did not follow mothers and infants beyond their second year in the study. As a result, not enough time elapsed to limit findings to an exact age span (infants ranged from just under two months old to almost 30 months old with a mean age of 12 months). Different patterns of child abuse and neglect might have been found if similar analyses were conducted with data corresponding to the first 24 months of each child's life, for example.

A fourth limitation of the study is that the results of analyses for maternal sensitivity were somewhat limited due to a high rate of nonparticipation by maltreating young mothers. The fact that missing values were more common among abusive and neglectful parents than nonmaltreating parents likely led to an unrepresentatively high mean for maternal sensitivity in the sample. In turn, the results of analyses using this variable may not accurately represent parenting patterns. For instance, the clustering of maternal sensitivity scores in the midrange calls into question the validity of the finding that maternal age moderated the association between a maternal history of multiple maltreatment

and maternal sensitivity. Thus, this finding should be interpreted with care. This issue also may account for the overall lack of significant findings for maternal sensitivity in the study.

Research on Emotional Availability, including the construct of maternal sensitivity, has demonstrated valid findings across types of caregiver risk (Biringen, Matheny, Bretherton, Renouf, & Sherman, 2000; Easterbrooks, Biesecker, & Lyons-Ruth, 2000; Easterbrooks et al., 2005; Ziv, Aviezer, Gini, Sagi, & Koren-Karie, 2000). Nonetheless, Easterbrooks and Biringen (2000) prudently called for further examination of the limits of the Emotional Availability Scales (Biringen et al., 1998) among "different families, different cultures and different contexts" (p. 127). Perhaps maltreating adolescent mothers comprise a population in which the EAS are less appropriate. On the other hand, I might have found significant results using a different analytic approach, such as separately testing outcomes for teaching and free play sensitivity, or including interactions between maternal sensitivity and the observation context.

A final limitation of the study was that it did not incorporate certain correlates of neglect that may help to explain continuity and discontinuity in intergenerational transmission. In addition to variables included in the study, other parental risk factors (e.g., stress, depression, substance abuse, trauma, low intelligence), family risk factors (e.g., intimate partner violence, single parenthood, stressful life events, additional births during adolescence), and environmental risk factors (e.g., limited community resources, dangerous neighborhood) increase the likelihood of continuity (Connell-Carrick, 2003;

Erikson & Egeland, 2011; Miller-Perrin & Perrin, 2007) and may have a causal role in neglect. Conversely, protective factors not examined in the study, such as caring relationship with a non-parental adult in childhood, the presence of a supportive partner/spouse, or psychotherapy, may have been related to discontinuity (Egeland et al., 2002). Many of these risk and protective factors will be investigated as part of the larger evaluation study.

Despite these limitations, the present study contributes to the field of child maltreatment prevention in several ways. First, it addresses the "neglect of neglect" (Dubowitz, 1999) by adding to a scant empirical literature on intergenerational cycles of neglect. Second, findings introduce some of the first evidence of differential transmission by type of maltreatment. Third, in contrast with the majority of studies on intergenerational transmission of parenting, this investigation highlighted *discontinuity* of problematic parenting and its applications to early prediction and prevention of neglect. Lastly, the finding that social support and maternal age moderated intergenerational transmission of parenting suggests avenues for intervention.

Thus far, efforts to prevent child neglect, whether through home visiting, parent education, or the provision of health services, have been relatively ineffectual, and research is still needed to develop, implement, and test interventions that could reduce the neglect of very young children (Harden & Klein, 2011; Reynolds, Mathieson, & Topsitzes, 2009). Although the deleterious effects of neglect may not be evident until children are older (Dubowitz, 2008), waiting until a family is involved with the child welfare system is too late to

prevent them from being harmed. Understanding of risk and protective processes during pregnancy and immediately after birth is essential to affecting change through preventive intervention.

Ecological perspectives on child neglect (Belsky, 1993; Cicchetti & Lynch, 1993) imply that, historically, our pursuit of explaining parenting diversity has been overly narrow, emphasizing maternal attributes and overlooking the role of environmental forces. Contemporary experts highlight the role of contextual factors (e.g., poverty) in the etiology of neglect (Belsky, 1993; Cicchetti & Lynch, 1993; Sedlak & Broadhurst, 1996; Slack et al., 2004). Given the strong link between socioeconomic status and neglect, prevention efforts should not lose focus on helping families meet children's physical needs. Concurrently, the inextricable link between children's adjustment and their parents' psychological well-being (Easterbrooks et al., 2008) suggests that children's ability to achieve safety, security, love, and belonging (Maslow, 1943) depends on how well our society fulfills the social and emotional needs of their parents. Neglect-related infant fatalities (USDHHS, 2010) offer disturbing evidence that children's survival depends on it. Providing the proper supports very early on in parenting offers the best possibility for prevention and of a good return on our investments (Daro, 2009; Palusci & Haney, 2010), and applied researchers are in the unique position of supplying the information necessary to carry out this agenda.

Table 1

Child Maltreatment in the Sample Using Non-imputed Data (n = 447)

Variable	*n*	Sample %
Maternal childhood maltreatment (substantiated reports)		
Neglect only	114	25.50
Physical abuse only	15	3.36
Sexual abuse only	4	.90
Multiple type maltreatment	73	16.33
Nonmaltreatment	241	53.91
Maternal childhood maltreatment (self-reports)		
Neglect only	15	3.36
Physical abuse only	145	32.44
Sexual abuse only	18	4.03
Multiple type maltreatment	99	22.15
Nonmaltreatment	65	14.54
Infant maltreatment (substantiated reports)		
Neglect only	73	16.56
Physical abuse only	0	0.00

Variable	*n*	Sample %
Sexual abuse only	0	0.00
Multiple type maltreatment	6	1.34
Nonmaltreatment	368	83.32
Infant maltreatment (self-reports)		
Neglect only	11	2.46
Physical abuse only	93	20.81
Sexual abuse only	0	0.00
Multiple type maltreatment	10	2.24
Nonmaltreatment	255	57.05

Note. Multiple type maltreatment is defined as the occurrence of two or more of the following forms of maltreatment: neglect, physical abuse, and sexual abuse.

Table 2

Child Maltreatment in the Sample Using Imputed Data (n = 447)

Variable	*n*	Sample %
Maternal childhood maltreatment (substantiated reports)		
Neglect only	114	25.50
Physical abuse only	15	3.36
Sexual abuse only	4	.90
Multiple type maltreatment	73	16.33
Nonmaltreatment	241	53.91
Maternal childhood maltreatment (self-reports)		
Neglect only	19	4.25
Physical abuse only	159	35.57
Sexual abuse only	40	8.95
Multiple type maltreatment	126	28.19
Nonmaltreatment	103	23.04
Infant maltreatment (substantiated reports)		
Neglect only	73	16.56
Physical abuse only	0	0.00

Variable	*n*	Sample %
Sexual abuse only	0	0.00
Multiple type maltreatment	6	1.12
Nonmaltreatment	368	82.32
Infant maltreatment (self-reports)		
Neglect only	31	6.94
Physical abuse only	95	21.25
Sexual abuse only	0	0.00
Multiple type maltreatment	11	2.46
Nonmaltreatment	310	69.35

Note. Multiple type maltreatment is defined as the occurrence of two or more of the following forms of maltreatment: neglect, physical abuse, and sexual abuse.

Table 3

Descriptive Statistics for the Sample Using Non-imputed Data (n = 447)

Variable	Mean (SD)	Range	*n*	Sample %
Maternal age at birth (years)	18.73 (1.28)	15.83-21.42	444	--
Child age, T2 (months)	11.92 (5.43)	1.81-29.03	399	--
Race/Ethnicity				
White	--	--	155	34.67
Hispanic	--	--	140	31.32
Black	--	--	87	19.46
Multiracial/ethnic	--	--	44	9.84
Other	--	--	14	4.25
Co-residence with infant's grandmother				
Yes	--	--	234	53.40
No	--	--	204	46.60
Family resources	108.38 (16.07)	53.00-142.50	447	--
Parenting program				
Yes	--	--	394	88.14
No	--	--	53	11.86
Childhood care	30.55 (5.85)	12.00-36.00	364	--

Variable	Mean (SD)	Range	*n*	Sample %
Social support				
Frequency	24.03 (7.61)	59.00-24.03	390	--
Dependability	23.60 (10.13)	0.00-53.00	390	--
Maternal empathy	5.05 (2.01)	1.00-10.00	389	--
Maternal sensitivity	4.74 (1.15)	1.50-7.50	229	--
Optimal	--	--	14	5.62
Non-optimal	--	--	235	94.38

Table 4

Descriptive Statistics for the Sample Using Imputed Data (n = 447)

Variable	Mean	Range	*n*	Sample %
Maternal age at birth (years)	18.73	15.83– 21.42	447	--
Child age, T2 (months)	11.95	-6.76 – 30.77	447	--
Race/Ethnicity				
White	--	--	156	34.90
Hispanic	--	--	141	31.54
Black	--	--	87	19.46
Multiracial/ethnic	--	--	44	9.84
Other	--	--	19	4.25
Co-residence with infant's grandmother				
Yes	--	--	239	53.47
No	--	--	208	46.53
Family resources	108.38	53.00-142.50	447	--
Parenting program				
Yes	--	--	394	88.14
No	--	--	53	11.86
Childhood care	30.54	12.00-36.00	447	--

Variable	Mean	Range	*n*	Sample %
Social support				
Frequency	24.01	24.03-59.00	447	--
Dependability	23.59	7.00-53.00	447	--
Maternal empathy	5.06	1.00-10.00	447	--
Maternal sensitivity	4.74	.38-8.73	447	--
Optimal	--	--	29	6.49
Non-optimal	--	--	418	93.51

Table 5

Intergenerational Cycles of Substantiated Reports of Maltreatment by Type of Infant Maltreatment (n = 447)

	Infant maltreatment					
	Neglect only	Physical abuse only	Sexual abuse only	Multiple type maltreatment	Non-maltreatment	Total
Maternal childhood history of maltreatment	44 (21.36%)	0 (0.00%)	0 (0.00%)	4 (1.94%)	158 (76.70%)	206
No maternal childhood history of maltreatment	29 (12.03%)	0 (0.00%)	0 (0.00%)	2 (.83%)	210 (87.14%)	241
Total	73	0	0	6	368	447

Note. A maternal childhood history of maltreatment includes neglect, physical abuse, and sexual abuse, alone or in any combination.

Table 6

Intergenerational Cycles of Maternal Self-reports of Maltreatment by Type of Infant Maltreatment (n = 447)

	Infant Maltreatment					
	Neglect only	Physical abuse only	Sexual abuse only	Multiple type maltreatment	Non-maltreatment	Total
Maternal childhood history of maltreatment	23 (6.69%)	80 (23.26%)	0 (0.00%)	10 (2.91%)	231 (67.15%)	344
No maternal childhood history of maltreatment	8 (7.77%)	15 (14.56%)	0 (0.00%)	1 (.97%)	79 (76.70%)	103
Total	31	95	0	11	310	447

Note. A maternal childhood history of maltreatment includes neglect, physical abuse, and sexual abuse, alone or in any combination.

Table 7

Intercorrelations for Study Variables Using Pearson's Coefficient

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Maternal age	--	-.20***	.16**	-.02	-.03	-.18***	-.11*	-.04	-.11*	-.01	-.01	-.01	.06	-.11*	.06	-.10*	-.04
Race/ethnicity																	
2. Hispanic	--	--	-.34***	-.22***	-.13**	-.16**	-.09	-.10*	.02	-.05	.01	-.04	.02	-.12*	-.06	.04	-.05
3. Black	--	--	--	-.16**	-.10*	-.01	-.04	.04	-.01	-.07	-.04	-.06	.08	-.06	.00	.04	.02
4. Multiracial/ethnic	--	--	--	--	-.07	-.05	-.02	-.01	.01	-.05	.02	-.05	.04	.04	.01	.01	.00
5. Other race/ethnicity	--	--	--	--	--	-.14**	-.06	.01	-.04	.03	.02	.02	.05	-.05	-.03	.00	-.03
6. Co-residence with grandmother	--	--	--	--	--	--	.13**	-.05	.07	-.02	-.01	-.02	-.12*	.00	-.05	.07	.15**
7. Family resources	--	--	--	--	--	--	--	.02	.20***	-.01	.01	-.02	-.11	.11*	-.08	.21***	.29***
8. Parenting program	--	--	--	--	--	--	--	--	.06	.03	.10	.04	-.02	-.01	-.08	.00	.00
9. Childhood care	--	--	--	--	--	--	--	--	--	-.16**	-.18***	-.04	-.01	-.05	-.04	.15**	.24**
10. Childhood maltreatment (substantiated)	--	--	--	--	--	--	--	--	--	--	.02	.13**	.05	.05	.07	-.06	-.04

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
11. Childhood maltreatment (self-report)	--	--	--	--	--	--	--	--	--	--	--	-.02	-.01	-.03	-.03	.02	-.05
12. Infant neglect (substantiated)	--	--	--	--	--	--	--	--	--	--	--	--	-.02	-.02	.07	-.15**	.07
13. Infant neglect (self-report)	--	--	--	--	--	--	--	--	--	--	--	--	--	.04	-.04	.02	.06
14. Maternal empathy	--	--	--	--	--	--	--	--	--	--	--	--	--	--	.05	.09	.02
15. Maternal sensitivity	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-.05	-.04
16. Social support frequency	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	.58***
17. Social support dependability	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

*p<.05. **p<.01. ***p<.001.

Table 8

Results of Bivariate Logistic Regression Predicting Infant Neglect (n = 447)

	Substantiated reports		Maternal self-reports	
	Odds ratio (SE)	95% C.I.	Odds ratio (SE)	95% C.I.
Maternal age at birth	.98 (.10)	.81-1.19	.98 (.18)	.69-1.39
Maternal race/ ethnicity				
Hispanic	.74(.29)	.42-1.31	.74 (.29)	.42-1.39
Black	.59 (.37)	.28-1.22	.64 (.72)	.15-2.63
Multiracial	.62 (.49)	.27-1.63	1.22 (.63)	.36-4.16
Other	1.42 (.58)	.46-4.38	.07 (.48)	.24-3.26
Grandmother co-residence	.91 (.26)	.55-1.52	.91 (.46)	.37-2.25
Family resources	1.00 (.01)	.99-1.01	1.00 (.01)	.98-1.03
Parenting program	1.34 (.43)	.88-2.06	1.12 (.53)	.39-3.17
Childhood maltreatment				
Neglect	1.77 (.31)$^{+}$	1.04-3.01	1.49 (1.16)	.15-14.62
Physical abuse	1.81 (.68)	.48-6.80	.75 (.68)	.20-2.86

	Substantiated reports		Maternal self-reports	
	Odds ratio (SE)	95% C.I.	Odds ratio (SE)	95% C.I.
Multiple type	2.61 (.33)**	1.87-3.64	1.31 (.66)	.36-4.82
Childhood care	.98 (.02)	.94-1.03	1.00 (.04)	.93-1.07
Social support				
Frequency	.94 (.02)**	.90-.98	1.01 (.03)	.96-1.07
Dependability	.98 (.01)	.95-1.01	1.02 (.02)	.98-1.06

$^{+}$p<.07. *p<.05. **p<.001.

Table 9

Results of Bivariate Ordinary Least Squares Regression Predicting Maternal Empathy and Sensitivity (n =447)

	Maternal empathy	Maternal sensitivity
	B (SE)	B (SE)
Maternal age at birth	-.16 (.07)*	.05 (.05)
Maternal race/ethnicity		
Hispanic	-.49 (.21)*	-.14 (.15)
Black	-.28 (.24)	.01 (.16)
Multiracial	-.23 (.32)	.04 (.23)
Other	-.49 (.48)	-.19 (.34)
Grandmother co-residence	.00 (.19)	-.11 (.12)
Family resources	.01 (.01)*	-.01 (.00)
Parenting program	-.05 (.29)	-.28 (.20)
Childhood maltreatment (substantiated)		
Neglect	.46 (.24)+	-.08 (.15)
Physical abuse	-.19 (.52)	.04 (.41)
Multiple type	.05 (.26)	-.01 (.20)

	Maternal empathy	Maternal sensitivity
	B (SE)	B (SE)
Childhood maltreatment		
(self-report)		
Neglect	-.17 (.27)	-.29 (.37)
Physical abuse	-.09 (.28)	-.19 (.17)
Multiple type	-.08 (.31)	-.04 (.20)
Childhood care	-.02 (.02)	-.01 (.01)
Social support		
Frequency	.02 (.01)+	-.01 (.01)
Dependability	.01 (.10)	-.01 (.01)

+p<.08. *p<.05.

Table 10

Multivariate Logistic Regression Model that Describes the Relation Between a Maternal History of Substantiated Childhood Neglect and Infant Neglect (n = 447)

	Model 4		Model 5	
Predictor variable	Odds ratio (SE)	95% CI	Odds ratio (SE)	95% CI
Intercept	.23 (.51)	.09-.63	.23 (.52)	.08-.62
Maternal age	.85 (.13)	.65-1.10	1.07 (.17)	.77-1.50
Race/ethnicity				
Hispanic	.48 (.42)	.21-1.09	.49 (.43)	.21-1.11
Black	.53 (.49)	.20-1.38	.55 (.50)	.21-1.48
Multiracial	.52 (.60)	.16-1.68	.56 (.61)	.17-1.84
Other	.56 (.80)	.12-2.67	.52 (.81)	.11-2.54
Grandmother co-residence	.76 (.34)	.39-1.46	.70 (.34)	.36-1.37
Family resources	1.01 (01)	.41-2.51	1.00 (.01)	.98-1.03

	Model 4		Model 5	
Predictor variable	Odds ratio (SE)	95% CI	Odds ratio (SE)	95% CI
Parenting program	1.01 (.47)	.41-2.51	1.00 (.47)	.40-2.52
Childhood neglect	1.47 (.33)	.77-2.81	1.38 (.38)	.66-2.90
Childhood care	.99 (.03)	.93-1.06	.97 (.43)	.89-1.05
Social support frequency	.94 (.03)*	.88-.99	.92 (.04)*	.85-.99
Social support dependability	1.0 (.02)	.95-1.04	1.00 (.03)	.95-1.06
Childhood neglect X maternal age	--	--	.58 (.27)*	.34-.98
Childhood neglect X childhood care	--	--	1.05 (.07)	.92-1.20
Childhood neglect X social support frequency	--	--	1.04 (.06)	.92-1.18
Childhood neglect X social support dependability	--	--	.99 (.05)	.90-1.08

	Model 4	Model 5
Mean -2LL (Range)	267.91 (190.81-272.27)	261.66 (186.00-255.47)
Mean Wald p-value (Range)	1.88 (.00-9.15)	1.73 (.00-9.02)
Δ Mean -2LL (Range)	118.09 (98.50-118.34)	123.34 (186.01-394.80)[a]
df	9	13
Δ df	--	4

Note. Nagelkerke R^2 for Model 5 (average) = .13. *p<.05.

[a]Compared to model 1 (control variables only).

Table 11

Multivariate Logistic Regression Model that Describes the Relation Between a Maternal History of Substantiated Childhood Physical Abuse and Infant Neglect (n = 447)

	Model 4		Model 5	
Predictor variable	Odds ratio (SE)	95% CI	Odds ratio (SE)	95% CI
Intercept	.12 (1.67)	.01-3.24	.17 (1.73)	.01-5.00
Maternal age	1.15 (.17)	.82-1.60	1.09 (.17)	.78-1.53
Race/ethnicity				
Hispanic	.36 (.57)	.12-1.08	.41 (.57)	.14-1.26
Black	.61 (.58)	.20-1.90	.53 (.62)	.16-1.81
Multiracial	.84 (.84)	.16-4.36	.89 (.84)	.17-4.63
Other	1.95 (.78)	.42-8.96	1.43 (.88)	.25-8.05
Grandmother co-residence	1.09 (.43)	.46-2.54	.96 (.45)	.40-2.32
Family resources	1.00 (.01)	.98-1.03	.98 (.01)	.97-1.03

	Model 4		Model 5	
Predictor variable	Odds ratio (SE)	95% CI	Odds ratio (SE)	95% CI
Parenting program	1.19 (.61)	.36-3.93	.84 (.62)	.34-3.80
Childhood physical abuse	1.95 (.74)	.45-8.37	.00 (.38)	.66-2.90
Childhood care	.97 (.04)	.89-1.05	.96 (.04)	.88-1.05
Social support frequency	.91 (.04)*	.84-.99	.92 (.04)*	.94-.99
Social support dependability	1.0 (.03)	.94-1.06	1.00 (.03)	.95-1.07
Childhood physical abuse X maternal age	--	--	.58 (.27)	.34-.98
Childhood physical abuse X childhood care	--	--	1.05 (.07)	.92-1.20
Childhood physical abuse X social support frequency	--	--	1.04 (.06)	.92-1.18

	Model 4		Model 5	
Predictor variable	Odds ratio (SE)	95% CI	Odds ratio (SE)	95% CI
Childhood physical abuse X social support dependability	--	--	.99 (.05)	.90-1.08
Mean -2LL (Range)	172.07 (112.26-176.39)		163.05 (106.63-170.74)	
Mean Wald p-value (Range)	1.16 (.00-8.91)		2.17 (.00-6.33)	
Δ Mean -2LL (Range)	213.93 (210.15-256.68)□		222.95 (106.64-387.11)□	
df	9		13	
Δ df	--		4	

Note. Nagelkerke R^2 for Model 5 (average) = .19. *p<.05.

□Compared to model 1 (control variables only).

Table 12

Multivariate Logistic Regression Model that Describes the Relation Between a Maternal History of Substantiated Childhood Multiple Type Maltreatment and Infant Neglect (n = 447)

	Model 4		Model 5	
Predictor variable	Odds ratio (SE)	95% CI	Odds ratio (SE)	95% CI
Intercept	.24 (1.35)	.02-3.34	.20 (1.39)	.01-2.98
Maternal age	1.11 (.14)	.85-1.45	1.09 (.17)	.81-1.57
Race/ethnicity				
Hispanic	.63 (.41)	.28-1.39	.22 (.42)	.27-1.35
Black	.37 (.53)	.13	.35 (.54)*	.12-1.00
Multiracial	.48 (.69)	.12-1.88	.55 (.69)	.14-2.13
Other	1.32 (.78)	.29-6.06	1.45 (.77)	.32-6.52
Grandmother co-residence	1.11 (.36)	.55-2.27	1.13 (.36)	.55-2.31
Family resources	.99 (.01)	.97-1.02	.56 (.01)	.97-1.02

	Model 4		Model 5	
Predictor variable	Odds ratio (SE)	95% CI	Odds ratio (SE)	95% CI
Parenting program	1.62 (.58)	.52-5.05	.32 (.59)	.57-5.73
Childhood multiple type maltreatment	2.59 (.37)**	1.27	2.90 (.38)**	1.38-6.10
Childhood care	.99 (.03)	.93-1.05	.98 (.03)	.92-1.05
Social support frequency	.94 (.03)*	.87-1.00	.92 (.04)*	.85-.99
Social support dependability	1.02 (.03)	.97-1.07	1.01 (.87)	.95-1.06
Childhood multiple type maltreatment X maternal age	--	--	.97 (.28)	.56-1.68
Childhood multiple type maltreatment X childhood care	--	--	[a]	[a]
Childhood multiple type maltreatment X social support frequency	--	--	1.05 (.07)	.95-1.15

	Model 4		Model 5	
Predictor variable	Odds ratio (SE)	95% CI	Odds ratio (SE)	95% CI
Childhood multiple type maltreatment X social support dependability	--	--	1.04 (.38)	.01-2.98
Mean -2LL (Range)	378.46 (313.85-381.87)		240.08 (173.93-244.70)	
Mean Wald p-value (Range)	1.64 (.00-9.08)		1.58 (.00-8.14)	
Δ Mean -2LL (Range)	7.54 (4.43-55.09)		145.92 (173.93-387.11)□	
df	9		13	
Δ df	--		4	

Note. Nagelkerke R^2 for Model 5 (average) = .19. *p<.05.

□Compared to model 1 (control variables only).

[a] Insufficient number of cases in several imputations to include in the analysis.

Table 13

A Nested Taxonomy of Regression Models Describing the Relation Between a Substantiated Maternal Childhood History of Neglect and Maternal Empathy (n = 447)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Intercept	.41 (.30)	.33 (.35)	.32 (.35)	3.16 (1.85)	.30 (.35)
Maternal age	-.19 (.08)*	-.15 (.09)*	-.14 (.09)	-.13 (.09)	-.16 (.11)
Maternal race/ethnicity					
Hispanic	-.82 (.24)**	-.80 (.28)**	-.80 (.28)**	-.86 (.28)**	-.78 (.28)**
Black	-.57 (.27)*	-.63 (.30)*	-.64 (.30)*	-.70 (.31)*	-.59 (.31) $^{+}$
Multiracial/ethnic	-.25 (.33)	-.30 (.39)	-.29 (.39)	-.36 (.39)	-.36 (.39)
Other	-.89 (.49)	-.84 (.54) $^{+}$	-.84 (.54)$^{+}$	-.91 (.55)	-.93 (.55)
Grandmother co-residence	-.06 (.19)	-.10 (.22)	-.10 (.22)	-.09 (.23)	-.12 (.23)
Family resources	.01(.01)	.01 (.01)$^{+}$	.01 (.01) $^{+}$	.01 (.01)	.01 (.11) $^{+}$
Parenting program	.06 (.29)	.10 (.32)	.11 (.32)	.11 (.32)	.23 (.32)
Childhood neglect	--	.31 (.24)	.29 (.24)	.31 (.24)	.34 (.24)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Positive childhood care	--	--	-.01 (.02)	-.01 (.02)	.00 (.03)
Social support frequency	--	--	--	.03 (.02)	.01 (.02)
Social support dependability	--	--	--	-.01 (.01)	.01 (.02)
Childhood neglect X positive childhood care	--	--	--	--	-.05 (.05)
Childhood neglect X Maternal age at birth	--	--	--	--	.05 (.18)
Childhood neglect X Social support frequency	--	--	--	--	.08 (.04)*
Childhood neglect X Social support dependability	--	--	--	--	-.06 (.03)$^{+}$

Note. Model 5 adjusted R^2 (average) = .06. $^{+}$p<.08. *p<.05. **p<.01.

Table 14

A Nested Taxonomy of Regression Models Describing the Relation Between a Substantiated Maternal Childhood History of Physical Abuse and Maternal Empathy (n = 447)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Intercept	.41 (.30)	.30 (.40)	.30 (.40)	3.37 (2.11)	.24 (.41)
Maternal age	-.19 (.08)*	-.17 (.10)	-.17 (.10)	-.16 (.10)	-.16 (.11)
Maternal race/ethnicity					
Hispanic	-.82 (.24)**	-.71 (.32)*	-.971 (.32)*	-.72 (.3)*	-.73(.34)*
Black	-.57 (.27)*	-.49 (.36)	-.49 (.36)	-.51 (.37)	-.50 (.37)
Multiracial/ethnic	-.25 (.33)	-.50 (.52)	.50 (.53)	.46 (.53)	.47 (.53)
Other	-.89 (.49)	-1.07 (.65)	-.107 (.53)$^{+}$	-1.06 (.66)	-1.08 (.68)
Grandmother co-residence	-.06 (.19)	-.13 (.26)	-.13 (.26)	-.14 (.26)	-.12 (.27)
Family resources	.01(.01)	.01 (.01)$^{+}$	.01 (.01)$^{+}$	.01 (.01)	.01 (.01)
Childhood physical abuse	--	-.06 (.51)	-.06 (.51)	-.03 (.52)	-.06 (.56)
Positive childhood care	--		.00 (.03)	.00 (.03)	.00 (.03)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Social support frequency	--	--	--	.01 (.02)	.01 (.02)
Social support dependability	--	--	--	.01 (.02)	.01 (.02)
Childhood physical abuse X positive childhood care	--	--	--	--	-.06 (.12)
Childhood physical abuse X Maternal age at birth	--	--	--	--	-.06 (.51)
Childhood physical abuse X Social support frequency	--	--	--	--	.04 (.07)
Childhood physical abuse X Social support dependability	--	--	--	--	-.01 (.05)

Note. Model 5 adjusted R^2 (average) = .02. +p<.08. *p<.05. **p<.01.

Table 15

A Nested Taxonomy of Regression Models Describing the Relation Between a Substantiated Maternal Childhood History of Multiple Type Maltreatment and Maternal Empathy (n = 447)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Intercept	.31 (.30)	.14 (.37)	.14 (.37)	3.55 (1.92)	.16 (.37)
Maternal age	-.19 (.08)*	-.17 (.09)$^{+}$	-.17 (.09)$^{+}$	-.16 (.09)$^{+}$	-.14 (.11)
Maternal race/ethnicity					
Hispanic	-.82 (.24)**	-.76 (.28)**	-.77 (.28)**	-.79 (.28)**	-.76 (.29)**
Black	-.57 (.27)*	-.61 (.31)$^{+}$	-.62 (.31)*	-.64 (.32)*	-.63 (.32)*
Multiracial/ethnic	-.25 (.33)	.30 (.44)	.31 (.44)	-29 (.44)	.27 (.44)*
Other	-.89 (.49)*	-1.26 (.63)*	-1.27 (.63)*	-1.27 (.64)*	-1.26 (.64)
Grandmother co-residence	-.06 (.19)	-.02 (.23)	-.02 (.23)	-.02 (.24)	-.01 (.24)
Family resources	.01(.01)	.01 (.01)	.01 (.01)	.00 (.01)	.01 (.01)
Parenting program	.06 (.29)	.23 (.35)	.24 (.35)	.24 (.35)	.20 (.35)
Childhood multiple type	--	-.36 (.26)	-.07 (.27)	-.06 (.27)	-.08 (.27)
Positive childhood care	--	--	-.01 (.02)	-.01 (.02)	-.01 (.23)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Social support frequency	--	--	--	.01 (.02)	.01 (.02)
Social support dependability	--	--	--	.00 (.02)	.01 (.02)
Childhood multiple type X positive childhood care	--	--	--	--	[a]
Childhood multiple type X Maternal age at birth	--	--	--	--	-.07 (.22)
Childhood multiple type X Social support frequency	--	--	--	--	.03 (.05)
Childhood multiple type X Social support dependability	--	--	--	--	-.06 (.04)

Note. Model 5 adjusted R^2 (average) = .03. +p<.08; *p<.05; **p<.01.

[a] Insufficient number of cases in several imputations to include in the analysis.

Table 16

A Nested Taxonomy of Regression Models Describing the Relation Between a Maternal Self-Reported Childhood History of Neglect and Maternal Empathy (n = 447)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Intercept	.41 (.30)	.33 (.72)	.64 (.72)	5.80(1.85)	.67 (.74)
Maternal age	-.19 (.08)*	-.24 (.18)	-.23 (.18)	-.24 (.18)	-.24 (.18)
Maternal race/ethnicity					
Hispanic	-.82 (.24)**	-1.01 (.51)*	-1.03 (.52)*	-1.08 (.51)*	-1.09 (.52)*
Black	-.57 (.27)*	-1.25 (.66) $^{+}$	-1.28 (.66) $^{+}$	-1.31 (.31)*	-1.33 (.31) $^{+}$
Multiracial/ethnic	-.25 (.33)	-.30 (.80)	-.30 (.80)	-.23 (.81)	-.23 (.82)
Other	-.89 (.49)	-.60 (1.31)	-.75 (1.36)	-.65 (1.37)	-.59 (1.40)
Grandmother co-residence	-.06 (.19)	.17 (.45)	.19 (.45)	.26 (.46)	.26 (.47)
Family resources	.01(.01)	.00 (.01)	.00 (.01)	.01 (.01)	.00 (.02)
Parenting program	.06 (.29)	-.19 (.68)	-.14 (.69)	-.21 (.69)	-.22 (.69)
Childhood neglect	--	-.13 (.59)	-.20 (.61)	-.07 (.62)	-.04 (.62)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Positive childhood care	--	--	-.03 (.05)	-.02 (.05)	-.02 (.06)
Social support frequency	--	--	--	.05 (.04)	.04 (.35)
Social support dependability	--	--	--	-.02 (.03)	-.02 (.03)
Childhood neglect X positive childhood care	--	--	--	--	.01 (.07)
Childhood neglect X Maternal age at birth	--	--	--	--	[a]
Childhood neglect X Social support frequency	--	--	--	--	[a]
Childhood neglect X Social support dependability	--	--	--	--	.00 (.02)

Note. Model 5 adjusted R^2 (average) = .02. +p<.06. *p<.05. **p<.01.

[a] Insufficient number of cases in several imputations to include in the analysis.

Table 17

A Nested Taxonomy of Regression Models Describing the Relation Between a Maternal Self-Reported Childhood History of Physical Abuse and Maternal Empathy (n = 447)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Intercept	.41 (.30)	.69 (.43)	.70 (.43)	4.26 (2.24)	.75 (.43)
Maternal age	-.19 (.08)*	-.18 (.11)	-.17 (.10)	-.16 (.10)	-.16 (.11)
Maternal race/ethnicity					
Hispanic	-.82 (.24)**	-.77 (.34)*	-.71 (.32)*	-.87 (.34)*	-.86(.35)*
Black	-.57 (.27)*	-.53 (.38)	-.55 (.39)	-.65 (.39)	-.66 (.39)
Multiracial/ethnic	-.25 (.33)	-.44 (.48)	-.43 (.48)	-.46 (.48)	-.46 (.48)
Other	-.89 (.49)	-.15 (.93)	-.17 (.93)	-.18 (.93)	-.16(.93)
Grandmother co-residence	-.06 (.19)	-.14 (.28)	-.14 (.28)	-.09 (.28)	-.11 (.28)
Family resources	.01(.01)	.02 (.01)	.02 (.01)$^{+}$	.01 (.01)	.01 (.01)
Parenting program	.06 (.29)	-.26 (.36)	-.25 (.36)	-.24 (.36)	-.24 (.36)
Childhood physical abuse	--	.01 (.29)	.00 (.29)	-.06 (.29)	-.06 (.30)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Positive childhood care	--	--	-.01 (.03)	-.02 (.03)	-.01 (.05)
Social support frequency	--	--	--	.04 (.02) $^{+}$	.04 (.02)$^{+}$
Social support dependability	--	--	--	-.01 (.02)	-.03 (.02)
Childhood physical abuse X positive childhood care	--	--	--	--	-.01 (.06)
Childhood physical abuse X Maternal age at birth	--	--	--	--	[a]
Childhood physical abuse X Social support frequency	--	--	--	--	[a]
Childhood physical abuse X Social support dependability	--	--	--	--	.02 (.03)

Note. Model 5 adjusted R^2 (average) = .04. $^{+}$p<.06. *p<.05. **p<.01.

[a] Insufficient number of cases in several imputations to include in the analysis.

Table 18

A Nested Taxonomy of Regression Models Describing the Relation Between a Maternal Self-Reported Childhood History of Multiple Type Maltreatment and Maternal Empathy (n = 447)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Intercept	.41 (.30)	-.01 (.48)	3.89 (2.21)	3.55 (1.92)	-.01 (.50)
Maternal age	-.19 (.08)*	-.16 (.11)$^{+}$	-.15 (.11)	-.14 (.11)	-.16 (.15)
Maternal race/ethnicity					
Hispanic	-.82 (.24)**	-1.08 (.35)**	-1.06 (.35)**	-1.07 (.35)*	-1.08 (.36)**
Black	-.57 (.27)*	-.84 (.31)*	-.80 (.41)*	-.81 (.41)*	-.80 (.41)$^{+}$
Multiracial/ethnic	-.25 (.33)	.13 (.48)	.15 (.48)	.13 (.48)	.17 (.49)
Other	-.89 (.49)*	-.73(.62)	-.65 (.62)*	-.68 (.62)	-.69 (.64)
Grandmother co-residence	-.06 (.19)	.36 (.28)	.37 (.28)	.40 (.94)	-.40 (.29)
Family resources	.01(.01)	.00 (.01)	.00 (.01)	.00 (.01)	.00 (.01)
Parenting program	.06 (.29)	.33 (.43)	.38 (.43)	.38 (.43)	.35 (.43)
Childhood multiple type maltreatment	--	.04 (.29)	-.10 (.31)	-.08 (.31)	-.10 (.32)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Positive childhood care	--	--	-.03 (.03)	-.03 (.03)	-.03 (.05)
Social support frequency	--	--	--	.01 (.03)	.02 (.03)
Social support dependability	--	--	--	-.01 (.02)	-.01 (.03)
Childhood multiple type X positive childhood care	--	--	--	--	.00 (.06)
Childhood multiple type X Maternal age at birth	--	--	--	--	-.02 (.18)
Childhood multiple type X Social support frequency	--	--	--	--	-.03 (.05)
Childhood multiple type X Social support dependability	--	--	--	--	.01 (.03)

Note. Model 5 adjusted R^2 (average) = .04. $^{+}$p<.08. *p<.05. **p<.01.

Table 19

A Nested Taxonomy of Regression Models Describing the Relation Between a Substantiated Maternal Childhood History of Neglect and Maternal Sensitivity (n = 447)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Intercept	.99 (.53)	1.21 (.56)	1.14 (.57)	.15 (1.39)	1.06 (.59)
Maternal age	.02 (.06)	.07 (.06)	.07 (.06)	.07 (.06)	.08 (.08)
Maternal race/ethnicity					
Hispanic	-.17 (.17)	-.21 (.17)	-.21 (.17)	-.19 (.18)	-1.83 (.18)
Black	-.09 (.18)	-.15 (.21)	-.16 (.21)	-.14 (.22)	-.14 (.22)
Multiracial/ethnic	-.07 (.24)	.06 (.29)	.01 (.29)	.03 (.29)	.06 (.29)
Other	-.32 (.37)	-.23 (.46)	-.22 (.39)	-.20 (.39)	-.24 (.39)
Grandmother co-residence	-.08 (.14)	-.10 (.15)	-.09 (.15)	-.09 (.15)	-.10 (.15)
Family resources	-.01 (.00)	-.01 (.01)	-.01 (.01)	-. 01 (.01)	-.01 (.01)
Parenting program	-.25 (.20)	-.20 (.21)	-.18 (.21)	-.19 (.21)	-.20 (.21)
Childhood neglect	--	-.09 (.15)	-.11 (.15)	-.11 (.15)	-.13 (.16)
Positive childhood care	--	--	-.01 (.01)	-.01 (.01)	-.01 (.02)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Social support frequency	--	--	--	-.01 (.01)	-.01 (.02)
Social support dependability	--	--	--	.00 (.01)	-.01 (.01)
Childhood neglect X positive childhood care	--	--	--	--	-.01 (.03)
Childhood neglect X Maternal age at birth	--	--	--	--	-.03 (.12)
Childhood neglect X Social support frequency	--	--	--	--	-.03 (.03)
Childhood neglect X Social support dependability	--	--	--	--	.03 (.02)

Table 20

A Nested Taxonomy of Regression Models Describing the Relation Between a Substantiated Maternal Childhood History of Physical Abuse and Maternal Sensitivity (n = 447)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)
Intercept	.99 (.53)	1.31 (.67)	1.25 (.67)	.14 (1.58)
Maternal age	.02 (.06)	.06 (.07)	.07 (.08)	.06 (.08)
Maternal race/ethnicity				
Hispanic	-.17 (.17)	-.26 (.22)	-.27 (.22)	-.25 (.22)
Black	-.09 (.18)	-.10 (.26)	-.13 (.26)	-.11 (.26)
Multiracial/ethnic	-.07 (.24)	-.26 (.39)	-.27 (.39)	-.23 (.38)
Other	-.32 (.37)	-.38 (.52)	-.39 (.52)	-.39 (.51)
Grandmother co-residence	-.08 (.14)	-.16 (.18)	-.16 (.18)	-.15 (.18)
Family resources	-.01 (.00)	-.01 (.010)	-.01 (.01)	-.01 (.01)
Parenting program	-.25 (.20)	-.17 (.27)	-.14 (.27)	-.15 (.27)
Childhood physical abuse	--	.11 (.41)	.10 (.41)	.08 (.41)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)
Positive childhood care	--	--	-.01 (.02)	-.01 (.02)
Social support frequency	--	--	--	-.01 (.02)
Social support dependability	--	--	--	.00 (.01)
Childhood physical abuse X positive childhood care	--	--	--	--
Childhood physical abuse X Maternal age at birth	--	--	--	--
Childhood physical abuse X Social support frequency	--	--	--	--
Childhood physical abuse X Social support dependability	--	--	--	--

Note. A fifth model was not included due to an insufficient number of cases in several imputations.

Table 21

A Nested Taxonomy of Regression Models Describing the Relation Between a Substantiated Maternal Childhood History of Multiple Type Maltreatment and Maternal Sensitivity (n = 447)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Intercept	.99 (.53)	1.22 (.61)	1.21 (.61)	1.12 (1.49)	.97 (.63)
Maternal age	.02 (.06)	.00 (.07)	.00 (.07)	.00 (.07)	.08 (.08)
Maternal race/ethnicity					
Hispanic	-.17 (.17)	-.19 (.20)	-.19 (.20)	-.19 (.21)	-.19 (.20)
Black	-.09 (.18)	-.07 (.23)	-.07 (.23)	-.06 (.21)	-.09 (.24)
Multiracial/ethnic	-.07 (.24)	-.23 (.32)	-.23 (.32)	-.24 (.32)	-.22 (.31)
Other	-.32 (.37)	-.56 (.46)	-.56 (.47)	-.58 (.47)	-.53 (.47)
Grandmother co-residence	-.08 (.14)	-.08 (.16)	-.08 (.16)	-.06 (.17)	-.03 (.16)
Family resources	-.01 (.00)	-.01 (.01)	-.01 (.01)	-.01 (.01)	-.01 (.01)
Childhood multiple maltreatment	--	-.01 (.20)	-.02 (.21)	-.02 (.21)	.02 (.21)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Positive childhood care	--	--	.00 (.01)	.00 (.02)	-.01 (.02)
Social support frequency	--	--	--	-.01 (.02)	-.01 (.02)
Social support dependability	--	--	--	-.01 (.01)	-.01 (.01)
Childhood multiple type X positive childhood care	--	--	--	--	[a]
Childhood multiple type X Maternal age at birth	--	--	--	--	-.38 (.15)*
Childhood multiple type X Social support frequency	--	--	--	--	.04 (.04)
Childhood multiple type X Social support dependability	--	--	--	--	-.01 (.03)

Note. Adjusted R^2 (average) = .04. *p<.05.

[a] Insufficient number of cases in several imputations to include in the analysis

Table 22

A Nested Taxonomy of Regression Models Describing the Relation Between a Maternal Self-reported Childhood History of Neglect and Maternal Sensitivity (n = 447)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Intercept	.99 (.53)	.97 (1.07)	1.09 (1.07)	-1.73 (2.67)	1.07 (1.22)
Maternal age	.02 (.06)	.09 (.11)	.09 (.11)	.09 (.11)	.09 (.11)
Maternal race/ethnicity					
Hispanic	-.17 (.17)	-.11 (.34)	-.09 (.35)	-.08 (.35)	-.08 (.36)
Black	-.09 (.18)	-.06 (.46)	-.01 (.46)	.01 (.46)	.00 (.47)
Multiracial/ethnic	-.07 (.24)	-.36 (.57)	-.35 (.57)	-.38 (.57)	-.38 (.62)
Other	-.32 (.37)	-.31 (.84)	-.13 (.84)	-.14 (.85)	-.09 (.85)
Grandmother co-residence	-.08 (.14)	-.04 (.30)	-.06 (.30)	-.07 (.30)	-.05 (.30)
Family resources	-.01 (.00)	.00 (.01)	-.01 (.01)	.00 (.01)	-.01 (.01)
Parenting program	-.25 (.20)	-.44 (.50)	-.50 (.46)	-.48 (.46)	-.45 (.48)
Childhood neglect	--	-.27 (.41)	-.17 (.43)	-.22 (.44)	-.21 (.44)
Positive childhood care	--	--	.03 (.03)	.03 (.03)	.03 (.04)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Social support frequency	--	--	--	-.02 (.02)	-.02 (.02)
Social support dependability	--	--	--	.01 (.02)	.01 (.02)
Childhood neglect X positive childhood care	--	--	--	--	.02 (.05)
Childhood neglect X Maternal age at birth	--	--	--	--	[a]
Childhood neglect X Social support frequency	--	--	--	--	[a]
Childhood neglect X Social support dependability	--	--	--	--	.00 (.01)

[a] Insufficient number of cases in several imputations to include in the analysis.

Table 23

A Nested Taxonomy of Regression Models Describing the Relation Between a Maternal Self-reported Childhood History of Physical Abuse and Maternal Sensitivity (n = 447)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Intercept	.99 (.53)	.93 (.66)	.97 (.66)	-.31 (1.52)	.91 (.69)
Maternal age	.02 (.06)	.05 (.07)	.05 (.07)	.05 (.07)	.04 (.07)
Maternal race/ethnicity					
Hispanic	-.17 (.17)	-.15 (.23)	-.15 (.23)	-.12 (.23)	-.12 (.23)
Black	-.09 (.18)	-.05 (.23)	-.03 (.23)	.00 (.24)	.00 (.24)
Multiracial/ethnic	-.07 (.24)	.09 (.33)	-.09 (.33)	.10 (.33)	.10 (.33)
Other	-.32 (.37)	-.06 (.60)	-.04 (.60)	-.03 (.61)	-.04 (.60)
Grandmother co-residence	-.08 (.14)	-.08 (.17)	-.08 (.17)	-.10 (.17)	-.09 (.16)
Family resources	-.01 (.00)	.00 (.01)	-.01 (.01)	.00 (.01)	.00 (.01)
Parenting program	-.25 (.20)	-.31 (.24)	-.32 (.22)	-.32 (.22)	-.32 (.23)
Childhood physical abuse	--	-.21 (.18)	-.21 (.18)	-.19 (.18)	-.19 (.19)
Positive childhood care	--	--	-.01 (.02)	.01 (.02)	.00 (.03)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Social support frequency	--	--	--	-.01 (.01)	-.01 (.01)
Social support dependability	--	--	--	.01 (.01)	.01 (.02)
Childhood physical abuse X positive childhood care	--	--	--	--	.01 (.04)
Childhood physical abuse X Maternal age at birth	--	--	--	--	[a]
Childhood physical abuse X Social support frequency	--	--	--	--	[a]
Childhood physical abuse X Social support dependability	--	--	--	--	-.01 (.02)

[a] Insufficient number of cases in several imputations to include in the analysis.

Table 24

A Nested Taxonomy of Regression Models Describing the Relation Between a Maternal Self-reported Childhood History of Multiple Type Maltreatment and Maternal Sensitivity (n = 447)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Intercept	.99 (.53)	1.06 (.80)	.99 (.81)	1.61 (1.82)	.88 (.85)
Maternal age	.02 (.06)	-.01 (.08)	.00 (.08)	-.01 (.08)	.03 (.11)
Maternal race/ethnicity					
Hispanic	-.17 (.17)	-.06 (.26)	-.05 (.26)	-.02 (.26)	-.02 (.26)
Black	-.09 (.18)	.02 (.33)	.03 (.33)	.05 (.33)	.08 (.33)
Multiracial/ethnic	-.07 (.24)	.06 (.37)	.07 (.37)	.08 (.37)	.06 (.39)
Other	-.32 (.37)	.01 (.47)	.04 (.48)	.05 (.47)	.07 (.47)
Grandmother co-residence	-.08 (.14)	-.11 (.23)	-.11 (.23)	-.12 (.23)	-.12 (.23)
Family resources	-.01 (.00)	-.01 (.01)	-.01 (.01)	.00 (.01)	.00 (.01)
Parenting program	-.25 (.20)	-.36 (.32)	-.34 (.32)	-.34 (.32)	-.34 (.32)
Childhood multiple type maltreatment	--	-.11 (.21)	-.17 (.23)	-.19 (.23)	-.15 (.24)

Variable	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 4 B (SE)	Model 5 B (SE)
Positive childhood care	--	--	-.02 (.02)	-.02 (.02)	.00 (.03)
Social support frequency	--	--	--	-.02 (.02)	-.03 (.03)
Social support dependability	--	--	--	.01 (.01)	.01 (.02)
Childhood multiple type X positive childhood care	--	--	--	--	[a]
Childhood multiple type X Maternal age at birth	--	--	--	--	-.06 (.11)
Childhood multiple type X Social support frequency	--	--	--	--	.02 (.04)
Childhood multiple type X Social support dependability	--	--	--	--	-.01 (.03)

[a] Insufficient number of cases in several imputations to include in the analysis.

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