Parenting, neighborhood characteristics, and disruptive child behavior in low-income African American families

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Parenting, Neighborhood Characteristics, and Disruptive Child Behavior in Low-Income African American Families

by

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Abstract

The purpose of this study is to further examine the multifaceted relationship between parenting, neighborhood characteristics, and child disruptive behavior. Examining data from a low-income, African American preschool sample, this study investigated how self-reported neighborhood characteristics and observed parenting behaviors uniquely predicted observed disruptive behavior in children. Findings supported the strong relationship between parenting behaviors and child disruptive behavior where parenting sensitivity and engagement were predictive of fewer child disruptive behaviors while verbal and physical parenting interference and intrusiveness was predictive of greater disruptive child behavior. Neighborhood characteristics did not directly relate to parenting or child behaviors. However, neighborhood characteristics uniquely interacted with parenting behaviors and predicted varying levels of child disruptive behavior. Specifically, within disadvantaged neighborhoods, parenting behaviors were a stronger predictor of child disruptive behavior compared to more advantaged neighborhoods. Few studies have examined this complex relationship between neighborhood, parenting, and child behavior with the self-report and observational measures that were utilized in this study. Furthermore, few studies have examined this relationship within such a high-risk, preschool sample.
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Introduction

The most common reason for mental health referral in preschool children is disruptive behavior (Bufferd et al., 2012; Wakschlag & Danis, 2004). Early disruptive behavior has been shown to impede normal development and have adverse effects on later outcomes, including school difficulties, mental health problems, substance use, crime, and unemployment (Fergusson et al., 2005; Washbrook et al., 2013; Fergusson & Lynskey, 1998; Fergusson & Horwood, 1998; Kratzer & Hodgins, 1997). Given that disruptive behavior “disrupts” normative development, it is essential to examine predictors in order to intervene and prevent these problems more effectively. Additionally, the rates of disruptive behavior are two to three times higher in children from lower socioeconomic status (Bufferd et al., 2012; Kaiser et al., 2000; Qi & Kaiser, 2003). Ethnicity and socioeconomic status (SES) are confounded because almost half (45%) of African American children live in a family that experiences economic hardship (Eggebeen & Lichter, 1991; Burchinal et al., 1997). Therefore, minoritized children are more likely to come from a lower SES background, which confers greater risk for the development of disruptive behavior. Given that minoritized status and lower SES act as risk factors for disruptive behavior, it is important to examine the mechanisms that contribute to the development of these behaviors in this population. Investigation into the mechanisms behind disruptive behavior development in preschool children of minoritized status and low SES will aid in the development and implementation of more effective interventions and prevention programs in this population in the future.

One predominant mechanism behind the development of disruptive behavior is parenting behavior. Since preschool children are especially dependent on their caregiver, it is not surprising that there is substantial literature available that links parenting behaviors and
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disruptive behavior in children. Specifically, parenting that is high in warmth, responsive, and
proactive has been associated with fewer disruptive behavior problems. On the other hand,
arbitrary, inconsistent, negative, or uninvolved parenting has been associated with greater
disruptive behavior problems (Maccoby & Martin, 1983; Miller et al., 1993; Campbell, 1995;
Parenting behaviors that are related to optimal child behaviors are influenced by SES.
Specifically, higher SES has been shown to be related to positive parenting in both majority and
minoritized groups (Bakermans-Kranenburg et al., 2004; Yaman, Mesman et al., 2010).
Therefore, caregivers from lower SES backgrounds are more likely to engage in nonoptimal
parenting behaviors, partially due to psychological distress from socioeconomic strain (Emmen
et al., 2013). Minoritized families of lower SES may experience additional stressors due to their
minoritized status such as acculturation stress, discrimination, and racism. However,
psychological distress from socioeconomic strain and acculturation stress are not the only factors
that influence parenting and child disruptive behavior in lower SES populations. There are
numerous factors that influence parent and child behaviors; however, this study will focus on
neighborhood characteristics.

Parents from lower SES backgrounds are constrained in their choice of neighborhood
(Robinette et al., 2017). Low income status may lead families to reside in extremely poor
neighborhoods. These neighborhoods may be characterized by crime, unemployment, and few
resources for child development (Cutrona et al., 2006). Neighborhood affluence has been shown
to be associated with child outcomes such as intelligence and graduation rates (Anderson et al.,
2014). In other words, neighborhood characteristics appear to have significant effects on child
development and behavior. In addition to the effects that neighborhood characteristics have on
children, neighborhood residence also has been associated with parenting practices (Beyers et al., 2003). Neighborhood poverty has been shown to be associated with less maternal warmth and responsiveness (Supplee et al., 2007). A majority of the research that examines disruptive behavior, parenting, and neighborhood characteristics involves older children such as elementary school-aged children or adolescents. Preschool-age children have less direct interaction with their neighborhood than older children, but they may experience some of the same effects either directly or indirectly. Additionally, previous research often examined neighborhood characteristics via census data or by creating neighborhood disadvantage factors. This study will contribute to the current clinical and developmental literature by examining specific neighborhood characteristics that directly and indirectly influence child disruptive behavior. Also, this study will examine these associations in a population of low-income, urban, African-American, preschool children. Given that this population in understudied, this study will contribute to a better understanding of the predictors and mechanisms of disruptive behavior in a low-income, minoritized population.

**Disruptive Behavior in Preschool Children**

**Definition of Disruptive Behavior**

Disruptive behavior acquired the name for intuitive reasons: the maladaptive set of behaviors “disrupt,” or disturb, the people (i.e., parents, teachers, peers), activities, and environments (i.e., home, school, community) that surround an individual. These disruptive behaviors include aggression, temper loss, noncompliance, and a low concern for others (Briggs-Gowan et al., 2006; Wakschlag & Danis, 2009; Wakschlag et al., 2010). However, disruptive behavior is best conceptualized within the two problem domains of emotional and behavioral regulation, which will be described in greater detail below (Wakschlag et al., 2007).
Problems in Emotion Regulation

One of the defining aspects of disruptive behavior is a problem in emotion regulation, specifically negative emotionality. Poor negative emotion regulation is characterized by frequent temper loss, ease in annoyance, anger, and resentment (American Psychiatric Association, 2013). This section will discuss the characteristic qualities of emotional dysregulation such as the intensity, flexibility, and organization of angry and/or irritable affect and its pervasiveness across different contexts.

Problems in emotional regulation are usually evidenced by temper tantrums in preschool children. Temper tantrums are defined as distinct episodes of excessive temper, frustration, or upset that include behaviors such as shouting, stamping, crying, violence, and/or attempts at damaging self, others, or property (Egger & Angold, 2004). Since temper tantrums are a behavioral result of an inability to control the intensity and duration of angry affect, it is important to review anger modulation as a significant factor of disruptive behavior. Although it is important to note that anger can stem from other emotions such as disappointment, anxiety, loss, and other emotions. Anger modulation can be defined as the intensity, flexibility, and organization of angry/irritable affect that is manifested as upset, negative mood, and/or angry behavior. Intensity refers to the strength and force, or “arousal level,” of anger (Wakschlag et al., 2007; Hernandez et al., 2015). For example, lower intensity angry behavior includes whining, pouting, and frowning while moderate level intensity includes sullenness, irritability, annoyance, or angry facial expressions. Higher intensity angry affect is characterized by tantrums, yelling, or throwing of objects (Wakschlag et al., 2002). Research has shown that high-intensity irritable/angry behavior is an important indicator of problematic disruptive behavior (Wakschlag et al., 2007).
Flexibility refers to the degree that angry affect is ingrained or pliable and environmentally responsive (Wakschlag et al., 2007). Can a child modify their angry affect based on environmental cues such as the help of their parent? Or is the angry affect so entrenched that a child is incapable of modifying their behaviors based on changes in their surroundings? In other words, is the child characteristically negative? Inflexibility of behavior has been shown to be an important indicator of clinical concern (Angold & Costello, 2000). Predominance of angry affect is often examined to determine the flexibility of anger. Children with clinical levels of disruptive behavior are 3.5 times more likely to display highly predominant negative affect compared to those without disruptive behavior concerns (Wakschalg et al., 2007). These findings highlight the importance of the high predominance of negative affect in disruptive behavior.

Lastly, organization of angry affect relates to the pacing, duration, and predictability of angry behavior. For example, normative tantrum behavior lasts approximately five minutes in 4-year-olds, according to parent report (Potegal et al., 2010). However, tantrums of longer duration may have clinical significance because children with disruptive behavior problems have longer duration of tantrums than children without disruptive behavior problems, which reflects poor organization of angry affect. The organization of angry affect is often examined through the elicitation, escalation, and recovery of angry/irritable behavior. When negative affect is more easily elicited, it may indicate a clinical problem (Wakschlag et al., 2007). Additionally, rapid escalation of angry behavior is indicative of disruptive behavior. When children typically get angry rapidly, as opposed to gradually, it can be a characteristic of problematic behavior. Lastly, the ability to recover from irritable or angry behavior is determined by how long and how much help (likely from a caregiver) a child needs to return to a neutral or positive mood. Disruptive children typically need more time and/or adult support in order to recover from their irritable or
angry behavior. Overall, the quality of anger modulation distinguishes children with disruptive behavior from subclinical and nondisruptive children through high intensity, poor flexibility and poor organization of angry affect (Wakschlag et al., 2007). After emphasizing the importance of anger modulation qualities, the pervasiveness of poor anger modulation should be given equal attention.

Maladaptive behavior that occurs in multiple contexts more accurately indicates a cause for clinical concern compared to behavior that occurs in only one setting (Angold & Costello, 2000). If a child misbehaves in only one context, there may likely be other explanations to their behavior than assuming it is disruptive. For instance, if a preschool child only has predominant, high intensity, easily elicited irritable behavior at school and not at home, they may be suffering from separation anxiety. Therefore, the pervasiveness of angry and irritable behavior is important to consider. Research has shown that the presence of pervasive behaviors related to anger modulation significantly differentiates clinically disruptive behavior from subclinical and nondisruptive behavior (Wakschlag et al., 2007).

This section highlighted the characteristic qualities of the intensity, predominance, elicitation, escalation, and recovery from angry/irritable behavior that reflect clinically significant disruptive behavior within the emotion regulation domain. A preschool child’s impaired ability to modulate anger is a defining aspect of problematic disruptive behavior. However, disruptive behavior is also determined by problems in behavior regulation.

**Problems in Behavior Regulation**

In addition to emotion regulation, problems in behavior regulation may also indicate disruptive behavioral problems. Problems in behavior regulation include stubborn defiance, passive noncompliance, rule-breaking, annoying behavior, bossiness, deliberate destructiveness,
and behavioral inflexibility (Wakschlag et al., 2002; Wakschlag et al., 2008a). They reflect an individual’s inability to control behavior to align with social rules and norms. Each behavior will be detailed and examined further, emphasizing the aspects that reflect disruptive behavior. These behaviors will include defiance, passive noncompliance, rule-breaking behavior, deliberately “annoying” behavior, argumentative behavior, deliberate destruction of property, and behavioral inflexibility.

When an adult issues a command or direction to a preschool child, the child can either comply or defy. Defiance would be the active and direct refusal to comply with the request. Verbal defiance could be a child telling the adult “no,” while nonverbal defiance would be exhibited by the child continuing with the prohibited behavior without a verbal response. Moderately problematic defiance occurs when a child is actively defiant, argumentative, or stubbornly refuses an adult’s commands and then may later respond to adult prompting. When children are continuously defiant after multiple adult prompts, this shows a highly problematic defiant behavior (Wakschlag et al., 2002). Research indicates that defiant behavior differentiates clinical and subclinical children from nondisruptive children, highlighting the importance of the quality of defiance (Wakschlag et al., 2007). For example, does the child say “no” while carrying out the requested task (low level defiance) or does the child stubbornly refuse, even after multiple commands are subsequently given by the adult (high level defiance)?

Another problematic disruptive behavior is passive noncompliance, which has subtle differences from defiance. When an adult gives a command and the child delays compliance or ignores the adult, this is considered passive noncompliance. Defiance is considered active noncompliance whereas passive noncompliance is less confrontational. A child may drag their feet to comply with a task or pretend to not hear their parent who has commanded them to pick
up their toys. While seemingly less disruptive than defiant behavior, passive noncompliance differentiates clinically disruptive behavior from nondisruptive behavior by quality and persistence (Wakschlag et al., 2007). In other words, children with disruptive behavioral problems show more persistent passive noncompliance than children without disruptive behavioral problems, indicating a problem in behavior regulation.

Rule-breaking is when a child knowingly does not obey rules. If a child has a rule about not hitting their sibling and the child hits their sister, they have broken a rule. Rule-breaking is considered disruptive when it is persistent and uninhibited. If a child does not attempt to inhibit the behavior that breaks a rule, and this occurs persistently, a child exhibits clinically concerning rule-breaking behavior. An inability to follow the rules indicates a problem in regulating behavior to fit social rules. However, there is an important distinction between rule breaking behavior that hurts others (i.e., hitting) versus instances without a victim and has implications for daily functioning. Research has shown that behavioral coding of rule-breaking behavior in preschool children uncovers significant differences in rule-breaking between clinically disruptive and non-clinical children (Wakschlag et al., 2007). Children with concerning disruptive behavior problems engage in significantly more rule-breaking behavior than children who are non-clinical. Rule-breaking behavior is relatively easy to observe, but “annoying” behavior must look more abstractly at the purpose of the behavior.

Classification of annoying behavior depends on the child’s purpose for engaging in the behavior. A characteristic of annoying behavior depends on the purpose: When a child exhibits annoying behavior with the purpose of annoying or irritating another person, they are exhibiting annoying/irritable disruptive behavior (Wakschlag et al., 2002). The negative attention-seeking behavior is not meant to cause harm, but to catch the attention of the adult. Persistence is key
when determining if annoying behavior is clinically concerning or not. Keenan and Wakschlag (2004) compared 79 children referred to a clinic for aggression, temper tantrums, or noncompliance to 50 non-referred children. The base rate of deliberate, annoying behavior for referred children was 58.2%, which was significantly higher than the base rate of 8.0% for non-referred children. Behavior that is intentionally annoying/irritating is commonly exhibited by preschool children who have been referred for disruptive behavior problems (Keenan & Wakschlag, 2004). Another example of disruptive behavior within the behavioral regulation domain is bossy or argumentative behavior.

When a child is bossy or argumentative, this indicates the child is trying to control someone else’s behavior (Wakschlag et al., 2002). They are attempting to impose their will on another individual by bossing them around and telling them what to do. Clinically concerning bossy and argumentative behavior depends on its persistence. Are they constantly trying to control another individual’s behavior by bossing them around? Are they always arguing with their caregiver? Keenan and Wakschlag (2004) compared the rates of arguing with adults between referred and non-referred preschool children. Children who were referred for behavior problems had significantly higher rates of arguing with adults (58.2%) compared to children who were not referred for behavior problems (2.0%). Persistent argumentative and bossy behavior from preschool children may be indicative of a disruptive behavior problem. Persistent arguing and bossiness are verbal behaviors that distinguish disruptive behavior from nondisruptive behavior. Destruction of objects, on the other hand, are physical behaviors that are helpful for distinguishing the difference between disruptive and nondisruptive behavior in children.

Deliberate destruction of objects reflects physical aggression towards objects. Moderately destructive behavior (i.e., spitting on or banging objects) and very destructive behavior (i.e.,
throwing, biting, or smashing objects) reflects clinically concerning behavior regulation problems. Keenan and Wakschlag (2004) found that referred children had significantly higher base rates for destruction of property than children who were not referred for behavior problems. Moderate and extreme levels of destructiveness towards objects is indicative of a disruptive behavioral problem.

Overall, the quality, intent, and predominance of defiance, passive noncompliance, rule-breaking, annoying behavior, bossiness, and destructiveness in preschool children are essential for determining whether disruptive behavior is clinically concerning or not. These concerning behaviors reflect an inability to regulate behavior based on societal rules and norms. However, it is important to consider the developmental stage that preschool children are in to fully understand the nature of disruptive behavior.

Developmental Considerations

Developmentally, preschool children are developing self-awareness, becoming more autonomous, and becoming aware of the effects their behaviors have on others (Campbell, 2002). Self-awareness is the differentiation of self from primary caregiver and the realization that one can act independently and affect others. A preschool child is no longer dependent on the caregiver for mobility and decision-making. They can make decisions about what they want to do and when they want to do it. However, the emotion and behavior regulation of preschool children is not yet mature and can result in frustration and anger manifested as defiance, aggression, or behavioral inflexibility. In other words, the newfound independence that preschool children utilize acts as a catalyst for tantrums, crying spells, and oppositional behavior (Keenan & Wakschlag, 2000). Parents also begin setting more rules and limits on their child’s behavior due to the increased autonomy their preschooler exhibits and for natural socialization purposes.
The combination of emergent autonomy and increased rules/limits contributes to the rise in disruptive behavior in preschool children (Campbell, 2002). Since the developmental period is characterized by markedly disruptive but normative behavior, the previously discussed qualities and determination of pervasiveness become the tools to differentiate “normative misbehaviors” from clinical disruptive behavior. The next section will be devoted to discussing the prevalence and stability of disruptive behavior.

Prevalence and Stability of Disruptive Behavior

Disruptive behavior in preschool children is the most common reason for mental health referral in this age group (Bufferd et al., 2012; Wakschlag & Danis, 2004). However, the number of referrals relate to only a proportion of preschool children who actually exhibit concerning behavioral problems since only a small percentage of children actually receive appropriate services (Scahill, 2001). Prevalence rates for disruptive behavior in preschool children vary based on assessment methods and sample characteristics. Lavigne and colleagues (1996) recruited 3,860 preschool children from a primary care sample to determine the prevalence of behavior problems. They found the prevalence rate of severe behavioral symptoms was 8.3%, determined by those who received scores above the 90th percentile on the Total Problems scale of the Child Behavior Checklist (CBCL). A study in London found that 15% of their preschool sample showed mild problems and 7% showed moderate to severe behavioral problems (Richman et al., 1982). Overall, Campbell (1994) reported a consensus that approximately 10-15% of preschool children have mild to moderate behavioral problems. This prevalence range for preschool children reflect similar rates of behavioral problems in older children and adolescents. Roberts et al. (2007) reported a prevalence of disruptive behavior disorders at 6.45% among youth aged 11 to 17. The seemingly lower prevalence rate is most likely due to the strict
diagnostic criteria of the *DSM-IV*, which the prevalence rate was based on, and not solely on the presence/frequency/intensity of behavioral problems. Looking at a classroom of 30 children, prevalence rates suggest that at least three of the children are exhibiting behavioral problems that may be impairing their development. As mentioned earlier, sample characteristics affect prevalence rates such that different demographics may influence the probability that concerning behavioral problems develop. Specifically, the effects of socioeconomic status on prevalence rates will be examined further.

Socioeconomic status (SES) has been consistently shown to affect the risk for the development of behavior problems with children from lower SES communities showing an increased risk (Holtz et al., 2015). While prevalence for behavior problems among preschool children generally range from 8 to 15% (as listed above), the rates among those from lower SES backgrounds have been shown to range from 20 to 33% (Kaiser et al., 2000; Qi & Kaiser, 2003). Feil and colleagues (2000) reported behavioral problem statistics for 126 Head Start preschool children, who are from families with incomes below the poverty guidelines. The teacher ratings indicated that 43 to 52% of the children had externalizing problems while parent ratings indicated 57% exceeded cutoff criteria for externalizing behaviors. When prevalence rates for disruptive behavior in preschool children double or triple based on SES, it is important to understand the pathways in which poverty operates.

Children living in poverty have been shown to suffer greater incidences of poor outcomes than non-poor children, including diminished physical health, learning disabilities, developmental delays, limited school achievement, and greater rates of emotional and behavioral problems (Brooks-Gunn & Duncan, 1997). The way in which poverty influences child outcomes is important for understanding the effects of poverty on child development. Health and nutrition
may act as a pathway for poverty to influence child outcomes. Specifically, children from low SES families have increased rates of low birth weight, which has been shown to be associated with later disruptive behavior problems (Brooks-Gunn & Duncan, 1997; Minde et al., 1989). Another potential mechanism that links low SES with behavioral problems is home environment. Lower levels of income have been shown to be associated with home environments that may have fewer opportunities for learning, less warm interactions between the parent and child, and poorer physical condition of the home (Brooks-Gunn & Duncan, 1997). Poorer home environment has been shown to account for some of the effects that poverty has on the development of behavior problems. Since parental interactions with children constitute a large part of the home environment, it should be understood as a major pathway which poverty influences child outcomes. There is evidence that poverty is linked to poorer-quality parent-child interactions and increased use of harsh punishment, which leads to increased rates of disruptive behavior (Brooks-Gunn & Duncan, 1997; Maccoby & Martin, 1983; Miller et al., 1993; Campbell, 1995; Lee & Bates, 1985; Lytton, 1990; Patterson, 1980; Webster-Stratton, 1990; Campbell, 2002). Lastly, neighborhood conditions are another possible pathway that link poverty to child behavior problems. Low income status constrains individuals to certain neighborhoods that may be characterized by social disorganization and limited resources for child development. Both of these elements may have direct and indirect effects on the development of emotional and behavioral problems in children from low SES backgrounds. Overall, preschool children from lower SES backgrounds have a greater risk for developing behavioral problems than children from higher SES families (Qi & Kaiser, 2003). Not only is it important to know how many children may exhibit these behavioral problems, but it is important to understand the stability of these behaviors as well.
If problematic behaviors were transient during early childhood and likely to diminish as children grow older, then the stability of behavioral problems would be low. However, research has shown that behavior problems in preschool children have high stability over 1- and 2-year periods and high stability from preschool to elementary school (Campbell, 1995). Findings suggest that children identified as hard-to-manage at age three or four have a greater probability of continuing to exhibit behavioral difficulties throughout elementary school and into early adolescence (Campbell et al., 1982; Campbell, 1995; McGee et al., 1984). More recently, longitudinal correlations of 0.31 to 0.70 for externalizing problems indicate moderate to strong stability (Briggs-Gowan et al., 2006). Disruptive behavior that begins in the preschool years has relatively high rates of stability and may likely continue into later childhood. With the prevalence and stability reflecting common and continuous rates of disruptive behavior in preschool children, the outcomes of these disruptive behaviors are important to understand.

**Outcomes of Disruptive Behavior**

Research has shown that disruptive behavior in childhood may have adverse effects on outcomes such as school difficulties, mental health problems, substance use, crime, and unemployment (Fergusson et al., 2005). Proposed mechanisms for the associations between disruptive behavior and adverse outcomes include stability of disruptive behavior, complex causal chain processes, and contextual factors that reflect greater risk for and the maintenance of disruptive behavior (i.e., SES disadvantage, adverse family environments, low IQ, or attentional difficulties). Each outcome will be discussed in further detail within this section.

Academic achievement influences future employment, job functioning, and SES in adulthood (Sayal et al., 2015). Studies have shown that academic achievement and high school completion are significantly lower when disruptive behavior is present in early childhood.
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(Fergusson & Lynskey, 1998; Fergusson & Horwood, 1998). Children with emotional and behavioral dysregulation may struggle to follow classroom instructions. If children have difficulty with instructions, they may become more discouraged, spend more time off task, and dedicate less time to academics than children with higher regulation abilities (Claessens & Dowsett, 2014).

Other outcomes of childhood disruptive behavior include later mental health difficulties and adult criminality. Mental health problems in adulthood increase the risk for occupational difficulty, poverty, cardiovascular disease, other chronic conditions, and suicide (World Health Organization, 2012). Therefore, it is important to understand the relationship between early disruptive behavior and adult mental health problems. There is strong support for the association between early childhood behavior problems and later psychopathology. Early disruptive behavior has been shown to be a risk factor for adulthood disruptive behavior, mood disorders, anxiety, and substance abuse (Reef et al., 2011). Adult criminality is another potential negative outcome of early disruptive behavior. In 2007, more than 23 million crimes were committed, which resulted in an estimated $15 billion in losses to victims and $179 billion in government costs (McCollister et al., 2010). When individuals grow up with limited emotional and behavior regulation, it becomes difficult to adhere to the rules and expectations that society places on its citizens. If people are oppositional, defiant, aggressive, noncompliant, and have a low concern for others, it would explain why research has shown that children with disruptive behavior are strongly associated with adult criminality (Kratzer & Hodgins, 1997).

Early disruptive behavior impedes normative development, which can cascade into further maladaptive development later on in adolescence and adulthood. Considering the substantial risks that early disruptive behavior places on academic functioning, later mental
health, substance use, criminality, and unemployment, the predictors for preschool disruptive behavior are important to examine.

Predictors of Disruptive Behavior

Predictors and risk factors of preschool disruptive behavior are important to understand because they can be used to identify at-risk individuals who may benefit from early intervention. Multiple variables have been shown to predict child disruptive behavior in past literature. For example, prenatal exposure to alcohol, biological risk factors, temperament, parenting, and environmental adversity have been shown to be predictive of preschool disruptive behavior (Beauchaine & Hinshaw, 2017; van Os et al., 2001; Bates & Bayles, 1988; Campbell, 2002; Winslow & Shaw, 2007).

Aspects of the parent-child relationship, like attachment and parenting behavior, have been shown to be important predictors of child disruptive behavior. Infant attachment style plays an important role in the development and maintenance of disruptive behavior in children. Studies have shown that infants who are insecurely attached to their caregiver are often more noncompliant with parental requests and demands than infants who are securely attached (Campbell, 2002). While attachment style sets a precedent for a child’s future interpersonal relationships, parenting behavior affects the development of a child’s self-control and cooperation. Qualities of limit-setting have been shown to be predictive of preschool disruptive behavior. Maladaptive limit-setting practices that foster noncompliant behavior include physical restraints, threats, and parental statements/behaviors that convey irritation and anger (Belsky et al., 1996; Campbell, 2002). Parenting is included as a family risk factor for early emergent disruptive behavior; however, more distal factors such as neighborhood characteristics may contribute to risk as well.
Neighborhood characteristics and the quality of those physical and social environments influence toddler behavior directly and indirectly through the effects on caregivers. Specifically, research shows that disadvantaged neighborhoods have consistent effects on behavior problems in school-age children and adolescents (Winslow & Shaw, 2007; Heberle et al., 2014). Disadvantaged neighborhoods often lack social and material resources that confer psychological distress to their residents. These neighborhoods predominately consist of low-income, single parenthood households with high rates of unemployment, and other aspects of disadvantage. Neighborhoods that are disadvantaged may have more violence and conflict exposure, which has been shown to be related to excessive irritability in toddlers along with other behavioral challenges (Briggs-Gowan et al., 2010). Other factors that impact the development of children from disadvantaged neighborhoods include less green space, dangerous playgrounds, and poor housing quality (Evans, 2004). These factors may limit the opportunities that children have for socialization and active play, which may contribute to the risk for development of disruptive behavior. Additionally, residential density, which refers to the intensity that land is populated, is associated with greater parental distress, conferring greater risk for disruptive behavior in children through pathways of harsher parenting (Evans et al., 1989; Heberle et al., 2014). These family and neighborhood risk factors are important to examine and understand as predictors and maintainers of problematic disruptive behavior.

Summary

In summary, disruptive behavior in preschool children is characterized by deficits in emotion and behavior regulation including irritability, anger, defiance, aggression, temper loss, and noncompliance. However, due to the unique developmental preschool period, marked by developing autonomy and increased parental limit-setting, the differentiation between normative
misbehaviors and pathological disruptive behavior is difficult. The study of these behaviors warrants careful and specific measures to determine the subtle nuances between normative and atypical behavior. Additionally, the literature described above highlights the negative effects that early disruptive behavior may have on later functioning. The negative outcomes associated with preschool disruptive behavior should compel researchers to further examine the predictors of such behaviors in order to aid in detection, diagnosis, and intervention.

Predictors of disruptive behaviors in children, like parenting behaviors and neighborhood characteristics, need to be studied more fully to understand risk and resilience in low-income communities. The following sections will focus on research that has examined the relationship between parenting and preschool disruptive behavior as well as the effects that neighborhood characteristics may have on preschool behavior.

**Parenting**

**Definition of Parenting**

The American Psychological Association (2019) describes parenting behaviors as having three main goals: ensuring child health and safety, readying children for life beyond the family system, and passing on cultural values. However, parenting behaviors can vary substantially from person to person. Differences between approaches to parenting may depend on characteristics of parents, children, and contexts that the parent-child relationship exists within (Luster & Okagaki, 1993). These variations in parenting behaviors may have differential effects on child behavior. Before parental influences on child behavior can be discussed, the current section will provide theoretical background information and definitions of parenting behaviors and dimensions.
An important perspective for viewing parenting behaviors comes from attachment theory (Bowlby, 1969). Bowlby established that parenting behaviors exist within a caregiving system that is reciprocal to a child’s attachment system. The function of the caregiving system is to protect the offspring, which ultimately increases the caregiver’s reproductive fitness (George & Solomon, 2008). Therefore, the goal of the caregiving system would be to provide protection for the offspring. Activation of the caregiving system occurs when the parent experiences internal or external cues that are perceived as dangerous or stressful for the offspring, such as separation from the child or child cues of distress or discomfort. After the caregiving system has been activated, parents utilize behaviors to provide protection to their child such as maintaining proximity, retrieval, following, observing, or smiling. This repertoire of behaviors is meant to reestablish proximity, comfort, and care to their child who may have been in danger or distressed (George & Solomon, 2008). Behaviors elicited from the caregiving system occur from the interaction of the caregiving system and other behavioral systems (i.e., attachment system, affiliative system, sexual system). Bowlby et al. (1956) and Mary Ainsworth (1968) further established that sensitive responsiveness may be the most critical parental behavior needed to establish a positive relationship with the child and for promoting positive child outcomes like secure attachment. Sensitive responsiveness refers to the caregiver’s ability to read child cues and respond to them, quickly, sensitively and appropriately (Ainsworth et al., 1978). Attachment theory, and the caregiving system specifically, provides a valuable framework for thinking about the nature of and importance of various parent behaviors. Given the repertoire of parenting behaviors associated with the caregiving system, a focus on those specific parenting dimensions or behaviors themselves is needed and is discussed more fully below.
The work of Diane Baumrind (1971) has helped to further define the role of specific parenting behaviors and a substantial amount of research on parenting has utilized Baumrind’s approach (Parpal & Maccoby, 1985; Bornstein & Tamis-LeMonda, 1989; Richman et al., 1992; Steelman et al., 2002; Landry et al., 2006; Topham et al., 2010). Baumrind asserted that parenting behaviors can be classified along two dimensions, responsiveness and demandingness. Responsiveness refers to how receptive and sensitive parents are to their child’s needs. Highly responsive parenting is characterized as prompt, contingent on the child’s behavior, and appropriate for the needs and developmental stage of the child (Baumrind, 1967; Eshel et al., 2006). The child behavior that parental responsiveness is contingent upon can vary, such as a sign of illness, a facial expression, or a verbal cue.

Two constructs that measure the core tenets of parental responsiveness include parental sensitivity and parental positive engagement. Parental sensitivity builds on the term parental responsiveness, referring to a caregiver’s ability to correctly interpret their child’s cues and then respond in a prompt and appropriate way (Ainsworth et al., 1978). Parental sensitivity is often used in a research context to measure the way in which parents are responsive to their child’s needs. Parental positive engagement emphasizes the degree of involvement and connection the parent has with their child (Harris et al., 2009). Parental positive engagement includes positive regard, parental behavior that stimulates development, and animation in facial expression, vocalizations, and tone (National Institute of Child Health and Human Development Study of Early Child Care, 1999). Examples of parental positive engagement include maintaining children’s focus of interest to further an interaction (Akhtar et al., 1991), using rich verbalizations in response to child signals (Smith et al., 2000), and taking turns during play instead of directing the child during play. In summary, parental responsiveness and its associated
constructs pertain to being receptive and supportive of the needs of the child in order to promote optimal development. In addition to the responsiveness dimension, parenting behaviors can also be classified by demandingness.

Baumrind’s (1991) second parental dimension of demandingness refers to the degree to which a caregiver controls their child’s behavior or expects their child to behave maturely. Parental demandingness behaviors include monitoring child behavior, setting limits, enforcing rules, and utilizing discipline. Caregivers that are high in demandingness are more watchful of their child’s behavior, set more limits, and implement consistent and contingent discipline (Salkind, 2005). Demands are given and appropriate child behavior is expected to follow to assure that children will develop into mature and responsible adults. Lower demandingness is characterized as being more permissive with fewer efforts towards controlling child behavior. The method that a parent chooses to use to control their child’s behavior has important ramifications. While parenting reasonably high in demandingness is ideal, it must be accompanied by warmth and positive engagement. Without warmth and positive engagement, parental efforts to control the interaction become more authoritarian and restricts a child’s developing autonomy. Highly controlling parental behavior that is devoid of warmth and positive engagement may include parental verbal or physical interference and intrusiveness. Each of these constructs measure the extent to which a parent attempts to control the interaction with their child via verbal or physical means. Demandingness encompasses a wide variety of parenting behaviors that attempt to control or limit child behavior. However, as described above, demandingness may have differential outcomes based on the responsiveness of a parent. It is important to study these two constructs in tandem to fully understand their relationship with child behavior.
In summary, the caregiving system interacts with other child behavioral systems to produce parental and child behaviors. Again, the particular behaviors expressed by parents can be categorized along two dimensions: responsiveness and demandingness. These dimensions are determined by parental sensitivity and control. Parental behaviors and styles can have differential effects on child behaviors, making them critical to study and understand. Within the following section, research on parenting and disruptive behavior in children will be reviewed.

**Influence of Parenting on Disruptive Behavior**

The caregiver-child relationship is a primary social context affecting the preschool age child’s development. Therefore, it is understandable why parenting behaviors are thought of as a main contributor to the development and persistence of behavior problems in young children (Campbell, 2002). There is extensive research linking the influence that parenting has on behavior problems in Caucasian children, however, there is less definitive and concrete evidence for the influence of parenting on behavior problems in African American families (Querido et al., 2002; Baumrind & Black, 1967; Lamborn et al., 1991; Baumrind 1971; Kuczynski et al., 1987; Patterson, 1980; Zahn-Waxler et al., 1979; Webster-Stratton, 1990). This section will review research regarding parenting and child disruptive behavior generally and more specifically within African American families.

Parenting that is high in warmth, responsive, and proactive has been found to be associated with fewer child externalizing problems and lower rates of child noncompliance (Maccoby & Martin, 1983; Miller, Cowan, Cowan, Hetherington, & Clingempeel, 1993; Campbell, 1995; Combs-Ronto et al., 2009). Pinquart’s (2017) recent meta-analysis that included over 1,400 studies revealed parental warmth and authoritative parenting (high in responsiveness and demandingness) had negative concurrent and longitudinal associations with aggression,
disruptiveness, and defiance. In other words, parents that engaged in warm, highly responsive, and highly demanding behaviors at one time point were associated with children who engaged in less disruptive behavior at that same time point and future time points. However, parenting that is arbitrary, inconsistent, negative, or uninvolved has been found to be associated with noncompliance and defiance (Lee & Bates, 1985; Lytton, 1990; Patterson, 1980; Webster-Stratton, 1990; Campbell, 2002). Inconsistent parenting has been linked to the emergence of child aggressive and oppositional behavior (Stormshak et al., 2000). Gardner (1989) carried out an observational study that showed that mothers who had children with behavior problems were less consistent with following through on their commands than mothers who had children without behavior problems. Furthermore, Pinquart’s (2017) extensive meta-analysis showed that harsh, controlling, authoritarian, permissive, and neglectful parenting was associated with more disruptive behavior. Overall, there is consensus in developmental psychology research that parental sensitivity and positive engagement are negatively associated with child disruptive behaviors while demandingness devoid of warmth and responsiveness is positively associated with child disruptive behaviors.

Within African American families, there is conflicting research regarding parenting behaviors and their association with behavior problems in children. Baumrind’s original work in 1972 compared parenting styles of Caucasian families to African American families, giving us an initial idea of how diversity may moderate the parenting-child behavior relationship. Baumrind found that within Caucasian families, the authoritarian parenting style (low responsiveness, high demandingness) was associated with negative behavioral outcomes for children, including child resistance and hostility. However, Baumrind (1972) found that African American children with authoritarian parents were more likely to produce self-assertive,
independent children rather than resistant, hostile children. These findings call into question whether parenting research that consists of majority Caucasian participants can apply to African American families.

Parenting behaviors varying by culture or ethnicity is not atypical (Amato & Fowler, 2002; Bornstein, 2012). For example, research has shown that African American families may utilize authoritarian style strategies at a higher rate than Caucasian parents. More specifically, the use of physical punishment may be used more frequently than it is for Caucasian parents (Deater-Deckerd et al., 1986; Dexter et al., 2013). Harsh parental control through the use of physical discipline, such as spanking or hitting, has been shown to lead to more externalizing problems (Patterson et al., 1992). However, the majority of research examining this relation consists of middle-class, Caucasian families. Within two studies that examined the differences between physical punishment of Caucasian and African American children, physical discipline was associated with externalizing behavior problems and disruptive behavior for Caucasian families only (Deater-Deckerd et al., 1986; McLeod et al., 1994). This suggests that the relationship between parent physical discipline and child behavior problems may be different for Caucasian and African American children.

While there is research to support the differences in parenting on child outcomes in different ethnic groups, there is also research that suggests there is no difference. Querido et al. (2002) examined parenting and child behavior of African American preschool children. They found that warmth and control was most predictive of fewer disruptive behavior problems. On the other hand, permissive parenting (low warmth and low control) and authoritarian parenting (low warmth and high control) were associated with greater intensity of disruptive behavior. This finding directly contrasts previous findings that authoritarian parenting in African American
families was not associated with child behavior problems. Instead, the findings suggest that varying levels of warmth and control in African American and Caucasian families may have similar child outcomes. Another study by Amato and Fowler (2002) found that a common core of parenting behaviors are associated with positive child outcomes, regardless of race, ethnicity, family structure, or class. In other words, they found that optimal parenting does not vary across racial contexts. After reviewing the literature on the influence of African American parenting on child behavior problems, it is apparent that further research is warranted to establish the influence that parenting has on child outcomes.

Parenting is involved in the ecological system of child development and is considered a main contributor to the development and maintenance of disruptive behavior in young children. However, the parent-child relationship is just one system in a larger, multisystemic contextual model (Bronfenbrenner, 1979). Considering other contextual influences on child outcomes is imperative for a deeper understanding of development. The neighborhood in which children and parents interact is also an integral part of the ecological system, influencing children’s interactions with family members and peers. These interactions with environment (i.e., neighborhood), family members, and peers are considered among the most powerful influencers of child development (Bronfenbrenner & Morris, 2006). Therefore, the next section will cover previous research on the relationship between neighborhood characteristics and child disruptive behavior. Additionally, specific neighborhood characteristics of interest will be defined and discussed.

**Neighborhood Direct and Indirect Effects on Child Disruptive Behavior**

Bronfenbrenner’s bioecological model (1979) describes human development as influenced by multiple, embedded, environmental systems. Development occurs through
complex reciprocal interactions between the developing person and other people, objects, and symbols in the immediate environment called proximal processes. These proximal processes vary systematically as a function of the characteristics of the developing person and their environment, both immediate and remote. The developing person’s ecological environment consists of nested structures including microsystems, mesosystems, exosystems, macrosystems, and chronosystems (Bronfenbrenner, 1994). Each system comprises linkages and processes between settings, becoming further removed from the immediate interaction with the developing individual. The current project proposes to include aspects from the microsystem and exosystem. The microsystem consists of a pattern of activities, social roles, and interpersonal interactions that the developing person experiences in a face-to-face setting. Examples that exist within the microsystem include family, school, and peer group. Preschool children spend the majority of their time with their caregivers and at preschool. These proximal processes operate to produce and sustain development (Bronfenbrenner, 1994). The exosystem consists of the linkages and processes that take place between two or more settings, with at least one of the settings not containing the developing person. For a preschool child, the processes that take place between their caregivers and the neighborhood constitute the exosystem. Therefore, parenting may be considered within the microsystem and neighborhood characteristics may be considered within the exosystem. The caregiving system was described above, including how it influences child behavior. Next, the neighborhood system will be described.

There is substantial research that links neighborhood danger, poverty, and social disorganization to children’s externalizing behaviors (Leventhal & Brooks-Gunn, 2000; McBride Murry et al., 2011; Sampson et al., 2002; Li et al., 2017). Notably, some of the strongest evidence to support the link between neighborhood and child behavior problems comes from
research designs that include residential mobility programs. These programs randomly assigned housing vouchers to residents to promote moving to different neighborhoods, initially for the purpose of desegregation (Li et al., 2017). Research methods such as these allow for the manipulation of children’s neighborhood quality and conditions, which provides stronger support for the causal relationship between variables. Compared to children that stayed in poverty-ridden and segregated neighborhoods, Keels (2008) found that boys who moved to low-poverty, less segregated suburbs significantly reduced their involvement with the criminal justice system. Another housing program in the 1990s provided housing vouchers to relocate residents to low-poverty neighborhoods. People who used their vouchers had improved mental health and reduced arrest rates for girls and reduced property crimes among boys (Gennetian et al., 2012; Kling et al., 2007). These studies that examined the residential mobility programs focused on adolescents, who often have more direct interactions with their neighborhood and community. However, the relationship between neighborhood and child disruptive behavior during early child development is limited. Specifically, there are only a few studies that examine neighborhood processes and resulting child behavior for children under the age of 7 (Brooks-Gunn et al., 1993; Caughy et al., 2003; Caughy et al., 2004; Chase-Lansdale & Gordon 1996; Kohen et al., 2002; Silk et al., 2004; Xue et al., 2005; Caughy et al., 2008; Heberle et al., 2014). Within the limited research conducted on early childhood and neighborhood, the earliest work (Brooks-Gunn et al., 1993; Chase-Landsdale & Gordon, 1996) focused on neighborhood socioeconomic characteristics from census data such as proportion of affluent residents and male joblessness. This type of research demonstrates the contribution of neighborhood context on child development, however, it does not help researchers understand the processes by which
neighborhoods affect child well-being. Early childhood research regarding neighborhood context will be reviewed.

Heberle and colleagues (2014) examined the relationship between neighborhood and disruptive behavior in toddlers. Since toddlers may not begin to interact independently with their community until they reach preschool or kindergarten, the influence that neighborhood characteristics have on child behavior may be indirect through effects on parents (who have more independent interactions with their neighborhood), fitting with Bronfenbrenner’s theoretical concept of the exosystem. Comparing socially disadvantaged and non-disadvantaged neighborhoods (based on areas with men not attached to the labor force, high school dropouts, families headed by women, and households dependent on public assistance), investigators found that there were significant differences between the presence of disruptive behaviors, with disadvantaged neighborhoods reporting more child disruptive behavior. Notably, parent depression, overreactivity, and permissiveness also differed between neighborhood types, with parents reporting more depressive symptoms, overreactivity, and permissive parenting in disadvantaged neighborhoods compared to non-disadvantaged neighborhoods. These results suggest that neighborhood may impact disruptive behavior in toddlers and preschool children directly or indirectly through effects on parent well-being.

Research has indicated that parenting may impact youth differently depending on neighborhood characteristics (Beyers et al., 2003). Within risky neighborhoods, parent’s that exert more restrictive control are associated with better cognitive and achievement outcomes in youth than within safe neighborhoods (Baldwin et al., 1990; Gonzales et al., 1996). Similarly, within an elementary-school population, one study found that children who were less closely supervised were rated by their teachers as acting out less, but only for those that resided in low-
crime neighborhoods (Coley & Hoffman, 1996). The relationship was not significant for those who resided in high-crime areas. Another example of a moderation effect of neighborhood on parents and child/youth outcomes involves observational data of adolescent autonomy. McElhaney and Allen (2001) examined interactions between parents and their adolescents for exhibitions of autonomy. They found that exhibitions of autonomy were associated with greater delinquency among low-income families living in urban neighborhoods. However, the relationship was not significant for youth who were from higher income and/or nonurban neighborhoods. Thus, neighborhood moderated the relationship between autonomy exhibited with parents and delinquency. These studies show that parenting strategies and other relationship qualities may vary depending on different neighborhood characteristics. Each moderation study described involves older children in elementary school or adolescence. Fewer studies have been conducted to determine the moderation of neighborhood on parenting and younger children. Consistent with the literature on neighborhood, examining risk characteristics, like residential density (or crowding) and crime, may be important factors. Conversely, more positive characteristics of the neighborhood, like access to recreational facilities may reduce risk. These specific characteristics are discussed more fully below.

**Residential Density**

Residential density, or residential crowding, refers to the intensity that land is populated, which is more likely to occur in low-income, ethnic minoritized family homes and neighborhoods (Evans & Saegert, 2000). Numerous studies have linked residential density with psychological symptoms in adults (Evans et al., 1989; Gabe & Williams, 1987; Gove & Hughes, 1983; Lepore et al., 1991). The positive link suggests that the more densely populated an area, the greater the psychological symptoms, including mild depression and anxiety. Further evidence
emerged for the adverse association between residential density and psychological health when child outcomes were examined after controlling for socioeconomic status. Evans and colleagues (1998) found that children who lived in more crowded homes had more behavioral problems at school than children who lived in less crowded homes. Other studies found that children and parents who lived in crowded homes were engaged in more conflict (Booth & Edwards, 1976; Saegert, 1982). When parenting behaviors were studied, it was found that parents living in more crowded homes were more critical and less responsive to their children (Bradley & Caldwell, 1984; Evans et al., 1999). As discussed previously, more critical and less responsive parenting is associated with increased risk for disruptive behavior problems in children.

While higher residential density has been found to be associated with older children’s poor psychological health, partially due to their independent interactions with their “crowded” community, research regarding the association between residential density and preschool children’s behavior problems is limited. Given that crowding in the home has been shown to be related to increases in behavior problems and less optimal parenting, residential density may directly and indirectly influence child psychopathology through effects on parenting in the preschool age.

In summary, residential density has been shown to be associated with adverse outcomes in psychological health in adults and older children. Preschool children may have similar experiences within crowded homes, however, the crowding of the neighborhood may have an indirect impact on child behavior problems because of their lesser direct interaction with their community.
Access to Recreation Facilities

Exposure to green spaces are believed to reduce stress, improve social interactions, and have a positive impact on mental health (Sturm & Cohen, 2014). Therefore, children and caregivers that have access to green spaces such as beaches, lakes, bike/hiking/walking trails, public parks, and playgrounds will benefit from this positive relationship. According to data from the National Longitudinal Survey of Youth and the National Household Education Survey, children from low SES families have less access to a large variety of recreational and learning materials from infancy past adolescence (Bradley et al., 2001). Having less access to cognitively stimulating materials and experiences (i.e., indoor recreation facilities, basketball courts, swimming pools) has been shown to limit children’s cognitive growth and reduce a child’s chances of benefitting from school (Bloom, 1964). Access to these recreational/learning materials has been found to mediate the relationship between SES and child intellectual and academic outcomes (Bradley & Corwyn, 2002). In other words, children living in low SES families influenced their access to recreational facilities which negatively impacted their intellectual and academic achievement. While access to recreational facilities has been shown to mediate the relationship between SES and child outcomes, there has been limited research conducted to determine whether access or lack of access to recreational facilities affects child behaviors directly and via the effects on parenting. Overall, access to recreational facilities has a positive influence on child development and adult well-being. However, families living in low-income areas are less likely to have access to green spaces and stimulating contexts. Access to recreational facilities may impact child behavior directly and indirectly through parenting.
Crime

Crime rates and concerns for safety encompass an overarching sense of danger within a neighborhood or community. Cuellar et al. (2015) conducted a review of parenting across neighborhood contexts including crime or sense of danger. They found mixed findings that suggested a positive relationship between neighborhood danger and positive parenting, a negative relationship between the variables, and null associations. Studies that found a positive relationship between the variables showed that within higher crime neighborhoods, parents were engaging in more positive parenting and monitoring behaviors (Jones et al., 2005; Vieno et al., 2010). One explanation for this relationship was that parents engaged in greater monitoring in order to provide greater protection for their child due to a more dangerous neighborhood. Studies that indicated a negative relationship between parenting and neighborhood crime showed that caregivers in areas of higher crime were engaging in lower levels of positive parenting, warmth, and behavioral control (Chung & Steinberg, 2006; Pinderhughes et al., 2001). A reason the authors gave for this negative association was that the high levels of danger within the neighborhood acted as a chronic stressor for parents, impeding their ability to parent effectively (Cuellar et al., 2015). Null findings may suggest the presence of a third variable that needs to be considered in order to better understand the relationship between neighborhood crime and parenting. Since community violence is often associated with poverty, overcrowding, scarcity of community resources, and parental unemployment (Cicchetti & Lynch, 1993), there are plenty of third variable options that may impact the relationship between crime and parenting. Another possibility may be that crime acts as a moderator between parenting and child behavior. Within high crime environments, harsh parenting may have a stronger association with child outcomes.
or vice versa. Further research needs to be conducted in order to elucidate the relationship that crime has on child development.

There is limited research that has looked at neighborhood characteristics as a mediator or moderator to the relationship between parenting and preschool child disruptive behavior. Specifically, residential density, access to recreational facilities, and neighborhood crime should be examined to determine whether parenting mediates the relationship between neighborhood characteristics and child behavior problems or whether parenting and child behavior operate differently depending on neighborhood contexts.

Summary

The most common reason for mental health referral in the preschool population is disruptive behavior (Wakschlag & Danis, 2004). Low-income, minoritized preschool children have an increased risk for displaying disruptive behavior problems, evidenced by a prevalence jump from 8 to 33% when SES and race are considered. There is substantial literature available that links parenting behaviors, such as sensitivity and control, and disruptive behavior in children. Specifically, parenting that is high in warmth, responsive, and proactive has been associated with fewer disruptive behavior problems while arbitrary, inconsistent, negative, or uninolved parenting has been associated with greater disruptive behavior problems (Maccoby & Martin, 1983; Miller et al., 1993; Campbell, 1995; Lee & Bates, 1985; Lytton, 1990; Patterson, 1980; Webster-Stratton, 1990; Campbell, 2002). Previous research has shown that certain neighborhood characteristics mediate or moderate the relationship between parenting behaviors and child behaviors. One important limitation to the literature is the lack of exploration into additional neighborhood characteristics such as residential density, access to recreational facilities, and crime. Additionally, much of the research has been done with older children who
engage more independently with their outside environment. Preschool children engage much differently with their environment and thus may experience the effects of different neighborhood aspects in different ways. This study seeks to address these limitations by examining parenting as a mediator between neighborhood aspects and child behavior and neighborhood aspects as a moderator between parenting and child disruptive behavior, in addition to the effect that neighborhood directly has on preschool children.

The Present Study

The purpose of the current study was to examine the relationship between parenting, neighborhood characteristics, and disruptive behavior in low-income, African American preschool children. Specifically, neighborhood and parenting variables were examined as direct predictors of child behavior and parenting was examined as a potential mediator between neighborhood characteristics and child behavior. Additionally, neighborhood characteristics was examined as potential moderators to the relationship between parenting and disruptive child behavior. Previous research has examined the effects of neighborhood on parenting and child behavior through census data or by creating neighborhood disadvantage factors. However, research looking at specific neighborhood characteristics, such as residential density, access to recreation facilities, and crime, is limited. Additionally, previous research has examined parenting and child behavior through the administration of questionnaires. To date, there is no known study that observationally examines both parenting and preschool child behavior as it is affected by neighborhood characteristics. Therefore, the current study seeks to contribute novel neighborhood variables and observational methodology to the examination of child disruptive behaviors, parenting, and neighborhood. Lastly, the current study examined this relationship
within a sample of low-income, African American children, which is a population that is understudied.

The following hypotheses were derived from the existing literature

**Hypotheses**

1. Child disruptive behavior will be negatively associated with positive parenting (i.e., parental sensitivity and positive engagement).

2. Child disruptive behavior will be positively associated with non-optimal parenting (i.e., parental verbal interference/intrusiveness/hostility).

3. Negative neighborhood characteristics (e.g., more crowding, less green space, and higher crime) will be positively associated with child disruptive behavior and non-optimal parenting. Negative neighborhood characteristics will be negatively associated with positive parenting.

Given past literature has shown evidence for both the mediating role and moderating role of neighborhood characteristics in understanding the relation between neighborhood, parenting and disruptive behavior, the following two hypotheses were explored:

4. Parenting will partially mediate the relationship between neighborhood characteristics and child behavior. Specifically, neighborhood (i.e., less access to recreational facilities, greater residential density, and less crime safety) will negatively impact parenting which will increase child disruptive behavior.

5. Neighborhood characteristics may moderate the relationship between parenting and child characteristics such that in more disadvantaged neighborhoods, harsher parenting (i.e., low caregiver sensitivity and positive engagement, high
verbal/physical interferences, intrusiveness, and hostility) may be less harmful to child development than in advantaged neighborhoods.

**Method**

**Participants**

Participants for the current study were drawn from a larger, longitudinal study that enrolled parents and children from urban Head Start preschool centers in Detroit, Michigan. The longitudinal study examined the effectiveness of a health intervention program; however, data for the present study utilized baseline data collected before randomization to intervention was completed. Eligibility criteria for the larger study was as follows: (a) children had to be between the age of 3 years 0 months and 5 years 11 months, (b) children had to be enrolled in a Detroit Head Start at the time of recruitment, (c) the child had to be low-income and have a minoritized ethnic status, (d) children were over-recruited for a high child body mass index (BMI) status at or above the 85th percentile, (e) study participant had to be the primary caregiver with whom the child primarily lives with, (f) study participant had to be fluent in both verbal and written English, and (g) participant home had to have minimal safety hazards to allow for the study team to conduct home visits.

Participants consisted of 52 parent-child dyads, with a majority being mother-child dyads (91.1%). The other dyads consisted of father-child, grandparent-child, and aunt-child. On average, children in the study were 3.75 years (SD = .56) old. Approximately half of the children (55%) were female. Caregiver age ranged from 21 to 66 years old (mean age = 30.6 years) and 95% of the participants were Black or African American. Reported annual household income ranged from less than $5,000 to $49,999. The majority of participants reported an annual income
of $14,999 or less with 38.5% reporting less than $5,000, 21.2% reporting between $5,000 and $9,999, and 19.2% reporting between $10,000 and $14,999.

Procedure

The current study utilized data that had been collected from a larger, randomized clinical trial that sought to examine the effectiveness of a nutrition and activity intervention program for overweight preschool children. Only the baseline data was examined in the current study. Participants were recruited from Head Start preschools in Detroit, Michigan.

Recruitment

The Head Start nutrition coordinators at each location identified preschool children that met criteria for higher weight status (BMI at or above the 85th percentile). These children were sent home with a flyer detailing study information and a plan to be contacted by project coordinators (see Appendix A). Potential participants that received the flyer were instructed to inform their Head Start coordinator if they did not wish to be contacted by research personnel. Those who did not express disinterest and met eligibility criteria were contacted by phone by the project manager or research assistants. During the recruitment phone call, potential participants were given information about compensation, the two potential arms of the intervention program (intervention or attention control), and they were given an opportunity to ask questions. Caregivers that were interested in participating in the program were scheduled for baseline appointments to acquire informed consent and other study measures. Fifty percent of eligible families agreed to participate and completed a baseline assessment.

Data Collection Procedures

Each family participated in a baseline home visit that lasted approximately two and a half hours. These visits were facilitated by two research personnel (one graduate student research
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assistant [RA] and one undergraduate student RA). At the beginning of the baseline home visit, RAs completed the informed consent process, which included the caregiver giving consent for themselves and their child’s participation in the larger study (see Appendix B). Once consented, participants completed a number of measures that were pertinent to the larger longitudinal study. The current study plans to utilize measures that include demographic information and neighborhood characteristics. Additionally, a brief 12-minute video was recorded of parent-child dyads engaging in snack time (4-minutes), play time (6-minutes), and clean-up (2-minutes). After the visit, parents were compensated $30 for their time and efforts.

**Video Procedures.** This study utilized the baseline video files for assessing child disruptive behavior and parenting behavior. As mentioned above, a video-recorded caregiver-child interaction took place over a 12-minute timespan which included three different interactions. The first interaction includes approximately four minutes for a snack time where the caregiver and child were given a healthy snack to eat, including apples and grapes. After the snack time, the participants were instructed to engage in six minutes of free play and were provided toys to play with during this time. The toys were a standard set of developmentally appropriate toys. The last interaction consisted of a two minute “clean up” task which allowed caregivers and their children to put away the toys. Caregivers and their children were given standard instructions at the beginning of the interaction paradigm which included the following:

“Now we’d like to videotape you and your child eating a snack and playing together with some of the toys that we brought along. Please feel free to play and interact with your child as you normally would. Go ahead and have a seat behind the toys and facing us. If possible, please try to keep your child around this area and these toys for the next 12 minutes. You will start by enjoying a snack together. Once you are done, or after 4
minutes (whichever comes first), we’ll let you know that it is time to stop eating and begin playing with the toys we brought. At that time, we will provide you with the basket of toys. After another 5-6 minutes, we’ll let you know that there’s about 2 more minutes left and then you and your child can clean up the toys by putting them back in the bucket. One of us will make sure the camera is working, and the other will just be setting side organizing paperwork. Ready to begin?”

Examiners allowed 10 minutes to elapse before giving the final instruction: “Okay, there are about 2 minutes left. Please stop playing with the toys and begin to put them back in the basket.”

**Measures**

**Demographic Questionnaire**

To assess participant demographics, participants were asked to provide information on their age, ethnicity, household income, information related to family structure and adults living in the home, child age, and child ethnicity. Demographic variables were utilized as control variables as needed in the current study.

**Observation-Rating Measure of Child Disruptive Behavior**

The final development of a coding manual for disruptive behavior and the actual coding of these data was conducted for the current study. The videotaped caregiver-child interactions were used to score child disruptive behavior and coding was done by trained coders (see Appendix C for coding manual). The coding system that was used was adapted from a previously developed coding system, The Disruptive Behavior Diagnostic Observation Schedule (DBDOS; Wakschlag et al., 2002). The coding system was adapted due to differences in interactional paradigms. Coders trained on the coding system viewed one interaction segment (snack, free-
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play, or clean up) per participant and rated child behaviors for that task. Nine child behavior scales were included in the current study to examine disruptive and competent child behavior. *Intensity/predominance of negative affect* measures the strength and predominance of a child’s angry/irritable affect (Wakschlag et al., 2002). *Defiance* measures the direct and active refusal to comply with the caregiver’s request or instruction. *Passive noncompliance* measures the passive refusal to comply with a caregiver’s directive. *Predominance of noncompliance* refers to the predominance of defiant and passive noncompliant child behavior. *Destructiveness* corresponds to the physical aggression a child displays. *Intensity/predominance of positive affect* measures the strength and predominance of happy and warm affect that a child displays. Lastly, *social engagement* measures the positive attempts a child makes to engage their caregiver in an interaction (Wakschlag et al., 2002). Each child behavior scale was scored on a 4-point rating scale. Higher scores were indicative of a higher prevalence or intensity of the specific behavior that was captured on video (1 = *none*, 4 = *high*). For the purpose of study analyses, these scales were combined to create an overall average disruptive behavior score, with positive affect and social engagement being reverse scored. Children who had higher scores displayed higher levels of disruptive behavior and lower levels of positive affect and social engagement, while lower scores were indicative of children that displayed lower levels of disruptive behavior and higher levels of positive affect and social engagement. The average disruptive behavior composite during the snack interval consisted of nine items (i.e., scores from the nine coded behaviors) and demonstrated acceptable internal consistency (*α* = .82). Internal consistency during the play interval (*α* = .75) and clean-up interval (*α* = .86) were also acceptable. Given that the nine child behavior codes demonstrated acceptable internal consistency across all three contexts, an overall disruptive behavior composite was justified. Furthermore, three separate variables were created
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disruptive behavior, parenting, and neighborhood from the nine child behaviors: negative affect, behavior dysregulation, and positive behaviors. Negative affect included the intensity and predominance of irritable and angry behavior. Behavior dysregulation included defiance, intensity of passive noncompliance, predominance of noncompliance, and destructiveness. Lastly, positive child behavior included intensity and predominance of positive affect and social engagement.

The video coding team included two graduate students. Training for the nine codes consisted of discussion, behavioral examples, and viewing the videotapes. Coders were trained as a group initially and subsequently practiced coding alone. The training period continued until the coder and the investigator understood each of the codes and established acceptable intrarater reliability. The investigator double-coded five of each task (snack, free-play, and clean up) for the graduate coder to establish reliability. Intraclass coefficients (ICC: single) were computed to examine reliability of the graduate coder, with an ICC of .70 or higher indicating acceptable reliability. ICC values for initial training reliability of the Snack interval were as follows: .78 for Intensity of Negative Affect, .94 for Predominance of Negative Affect, 1 for Defiance, .94 for Passive Noncompliance, 1 for Predominance of Noncompliance, 1 for Destructiveness, .44 for Intensity of Positive Affect, .73 for Predominance of Positive Affect, and .95 for Social Engagement. Within the Play interval, ICC values were .92 for Intensity of Negative Affect, .94 for Predominance of Negative Affect, -.50 for Defiance, .83 for Passive Noncompliance, .93 for Predominance of Noncompliance, 1 for Destructiveness, 1 for Intensity of Positive Affect, .91 for Predominance of Positive Affect, and .88 for Social Engagement. Clean-up ICC values were 1 for Intensity of Negative Affect, 1 for Predominance of Negative Affect, 1 for Defiance, .90 for Passive Noncompliance, .90 for Predominance of Noncompliance, .57 for Destructiveness, 1 for Intensity of Positive Affect, .57 for Predominance of Positive Affect, and .90 for Social.
Engagement. Given that ICC values for Intensity of Positive Affect during Snack, Defiance during Play, and Destructiveness and Predominance of Positive Affect during clean-up were unsatisfactory, the investigator and graduate student discussed coding differences and settled disputes. Further videos were double-coded until interrater reliability for those specific codes were above the .70 threshold. After completion of video coding, approximately 22% of the sample was double-coded (i.e., coded by two coders) to establish interrater reliability. ICC values were as follows: .96 for Intensity of Positive Affect, .98 for Predominance of Positive Affect, .94 for Defiance, .85 for Passive Noncompliance, .90 for Predominance of Noncompliance, .79 for Destructiveness, .94 for Intensity of Positive Affect, .96 for Predominance of Positive Affect, and .93 for Social Engagement. The investigator and the graduate student coder demonstrated acceptable interrater reliability.

*Observation-Rating Measure of Parenting*

The parenting behaviors were coded by trained coders based on a coding system (Esposito, 2017; see Appendix D) that was adapted from other developed coding systems (Ainsworth et al., 1978; Crittenden, 1981; Gallagher et al., 2011). Trained coders viewed one interaction segment (snack, free-play, or clean up) per participant and rated parenting behaviors for that task. Four behavior scales were used to measure parenting behaviors. Caregiver *sensitivity* measures the caregiver’s ability to accurately interpret their child’s verbal and non-verbal communication, and respond both appropriately and promptly (Ainsworth et al., 1978). Caregiver *positive engagement* measures the degree of involvement and connection the mother has with their child during the video interaction. Caregiver *verbal interference/intrustiveness/hostility* is the extent to which a caregiver controls the interaction with their child via verbal interruptions and negative comments. Caregiver *physical*
interference/intrusiveness/hostility is the extent to which a caregiver controls the interaction with their child via physical interruptions and interference. The scales were scored on a 5-point rating scale, with higher scores representing a higher prevalence of the parenting behavior observed (1 = none, 5 = very much). Two separate scales were created to include only positive parenting behaviors (i.e., sensitivity and positive engagement) and only negative parenting behaviors (i.e., verbal and physical interference). Additionally, an overall optimal parenting score was created by combining all four behavior scale ratings, reverse scoring both verbal and physical interference scales. Exploratory factor analyses (EFA) were previously run (Esposito, 2017) in order to justify creating a parenting composite. Separate EFAs were run for each interval. Within the snack interval, a one-factor solution explained 62.3% of the variance and factor loadings ranged from .42 to .94. Results indicated that the four parenting scores were statistically related, justifying an overall parenting composite within the snack interval. The EFA of parenting behaviors within the play interval produced a one-factor solution that accounted for 55.9% of the variance. Factor loadings ranged from .43 to .99, indicating that the parenting behaviors within the play interval were statistically related and therefore, an overall parenting composite was justified. Lastly, the EFA of the four parenting scores within the clean-up interval produced a one-factor solution that accounted for 60.9% of the variance with factor loadings ranging from .36 to .94. The EFA of the clean-up parenting variables indicated that the variables were statistically related, which justified creating an overall parenting composite. Caregivers with a higher overall parenting score displayed higher levels of positive parenting practices and lower levels of verbal/physical interference. On the other hand, lower parenting scores were indicative of less positive parenting practices observed and higher levels of interference.
The coders consisted of graduate and undergraduate students. Training for the disruptive codes was consistent with the training of coders for the parenting behaviors. Therefore, training and reliability information can be found above in the Child disruptive behavior video coding system section. Approximately 20% of the sample was double-coded to establish interrater reliability. Inter-rater reliability was examined using intra-class correlation coefficients (ICC), which ranged from .62 to .90 for Sensitivity, .64 to .82 for Positive Engagement, .60 to .98 for Verbal Interference, and .62 to .96 for Physical Interference (Esposito, 2017).

**Neighborhood Characteristics**

Neighborhood characteristics were determined by the Neighborhood Environment Walkability Scale—Youth (NEWS-Y; Rosenberg et al., 2009; see Appendix E). The NEWS-Y is a 67-item measure that examines parental perceptions of different neighborhood features. The measure is broken down into nine sections that vary in response options. The sections the current study utilized included questions regarding proximity and diversity of neighborhood recreation facilities, residential density, and crime safety. For sections regarding diversity and proximity of neighborhood recreation facilities, caregivers approximated how long it would take them to walk from their homes to the nearest recreational area. Caregivers must choose between six options (1-5 min, 6-10 min, 11-20 min, 21-30 min, 31+ min, or don’t know) for each question which includes proximity to indoor recreation/exercise facility, beach/lake/river/creek, bike/hiking/walking trails/paths, basketball court, other playing fields/courts, YMCA, boys and girls club, swimming pool, walking/running track, school with recreation facilities open to the public, small public park, large public park, public playground with equipment, and a public open space that is not a park. Residential density was determined by asking how common different types of housing are within the participant’s neighborhood (1 = none, 2 = a few, 3 =
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some, 4 = a lot, and 5 = all the residences). Types of housing include separate or standalone one family homes, townhouses or rows of houses, multiple family or duplex homes, and apartments or condo buildings. Crime safety asked caregivers to circle a response that best applies to their neighborhood and included statements such as “There is a high crime rate in our neighborhood,” “The crime rate in our neighborhood makes it unsafe for my child to go on walks at night,” and “I am worried about letting my child play outside alone around my home because I am afraid of them being taken or hurt by a stranger.” The crime safety portion asked participant to report how much they agree with the different statements regarding neighborhood crime (1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, and 4 = strongly agree). Acceptable test-retest reliability for the NEWS-Y has been established and ranges from (ICC range = .73 to .87) after approximately 27 days between time 1 and time 2 testing (Rosenberg et al., 2009).

Each subscale is scored differently. The neighborhood recreation facilities scale assigns the following scores to each response: 1-5 min (1), 6-10 min (2), 11-20 min (3), 21-30 min (4), 31+ min (5), and don’t know (5). A “don’t know” is coded as a “5” because if a participant does not know whether the facility is within walking distance, then the actual walk is likely greater than 31 minutes. All items are reverse coded. The score of the subscale is the mean of all items. A higher score denotes closer access to a variety of recreational facilities. Residential density assigns the following scores to each response: none (1), a few (2), some (3), most (4), and all (5). The score of the residential density subscale is found by weighting the answers to each question differently (i.e., C1 + (C2/12) + (C3/2) + (C4/25)), with higher scores denoting less dense residences. The crime safety subscale assigns the following scores to each response: strongly disagree (1), somewhat disagree (2), somewhat agree (3), and strongly agree (4). The subscale score is found by reverse scoring the items and finding the average of the responses to all six
questions. Higher scores on the crime safety subscale are related to greater safety within neighborhoods. A neighborhood composite was created that consisted of 24 items and yielded acceptable internal consistency (α = .84). The higher neighborhood advantage composite scores reflected “better” neighborhoods that had more access to recreational facilities, less residential density, and less crime.

**Data Analysis**

*Preliminary Analysis*

SPSS 27.0 was used to conduct all of the analyses for the current study. Before testing the primary hypotheses, individual data was screened for outliers using SPSS descriptive statistics and explore (scores exceeding 3 standard deviations from the mean were considered outliers). Data was also examined for normality using SPSS descriptive statistics. Linearity and homoscedasticity was assessed by generating scatterplots between independent and dependent variables. Data was winsorized for outliers or transformed as needed based on these preliminary analyses.

Due to the small sample size of the current study (N = 52), it was necessary to utilize and create summary scores and composites for study variables in order to reduce the number of variables used in analyses. The procedures for creating those scores were presented in the measures section of this document. The overall composite for parenting is called “overall optimal parenting,” the overall composite for neighborhood characteristics is called “neighborhood advantage,” and the overall composite for child disruptive behavior is called “overall disruptive behavior.” Overall summary scores were utilized in further analyses.
Bivariate correlations were run to determine the zero-order relationships between all study variables including demographic characteristics, parenting behaviors, neighborhood characteristics, and child disruptive behaviors.

**Multiple Regression**

Multiple regression was used to test study hypotheses. These analyses allowed for the determination of the unique predictive ability of neighborhood and parenting variables on child disruptive behaviors and allow for the examination of mediation and moderation.

**Mediation.** Assumptions of linearity must be met before running a mediation analysis because mediation fits a linear model to the data. Therefore, linearity was assessed by creating scatterplots between the parenting composite and the disruptive behavior composite. A mediation analysis was run to determine the nature of the relationship between neighborhood characteristics and child disruptive behavior through parenting behaviors. Hayes PROCESS within SPSS was used to test the study’s mediation hypothesis. This analysis estimates direct and indirect effects in single mediator models. Five thousand bootstrapped samples were used to determine the indirect effect of neighborhood characteristics on child disruptive behavior (Hayes & Rockwood, 2017).

**Moderator.** Neighborhood quality was examined as a moderator between parenting and child behaviors. Assumptions for moderation include normality and linearity. Hayes PROCESS was used in SPSS to test the moderation hypothesis. The moderation was run via PROCESS and the interaction points were plotted and interpreted.
Results

Preliminary Analyses

SPSS was utilized to perform all preliminary analyses. After examining each study variable for outliers, it was determined that there were no data points that exceeded the 3 standard deviation cutoff. Therefore, no data points were winsorized. In order to examine the assumptions of normality and linearity, each study variable was examined under SPSS descriptive statistics. Each study variable skew fell between -2 and +2, which is considered normal according to Hair and colleagues (2010) and Byrne (2010). Regarding kurtosis, each study variable fell between -7 and +7, indicating normality. Statistics for variable skew and kurtosis can be seen in Table 1. Additionally, scatterplots were generated between independent variables (i.e., neighborhood characteristics and parenting) and dependent variables (i.e., child disruptive behavior) to assess linearity and homoscedasticity. Scatterplots indicated that the assumptions of linearity and homoscedasticity were adequately met.

Data were also screened for missing data. One participant was missing the snack portion of the video assessment and one participant was missing the clean-up portion of the video. If participants were only missing one segment of the video (i.e., missing snack, or play, or clean up), total disruptive behavior scores were averaged with the available two video segments. Two families did not fill out the entire neighborhood measure (NEWS-Y), which resulted in missing neighborhood data for two participants. Additionally, one participant did not complete the residential density and crime safety portion of the NEWS-Y in its entirety. Multiple imputation within SPSS was utilized to handle the missing data for the neighborhood measure, the child and parent snack codes for the participant missing the snack interval, and the child and parent clean-
up codes for the participant missing the clean-up interval. Five imputation samples were utilized to create pooled values.

**Descriptive Analyses**

**Child Disruptive Behavior**

Study variables were examined to identify measures of central tendency (see Table 1). For the overall composite outcome variable of child disruptive behavior, higher scores indicated more disruptive behavior and less positive affect/social engagement. Child disruptive behaviors were scored on a scale from 1 to 4 across all three contexts (i.e., snack, play, and cleanup). Scores of 1 indicated the absence of a disruptive behavior, a score of 2 indicated low disruptive behavior, a score of 3 indicated moderate levels and scores of 4 indicated high levels. Overall, the average child disruptive behavior score fell in the low range (Overall Disruptive Behavior $M = 2.00, SD = .43$, range 1.33 to 3.07), indicating low intensity of disruptive behavior. Table 1 also shows the descriptive statistics for the overall disruptive behavior variables separately for each context (snack, play, and clean-up). The most disruptive behavior observed occurred during the clean-up portion of the video assessment ($Mean = 2.37, S.D. = .68$). When examining the three different contexts separately, disruptive behavior occurred at higher rates and intensity during the clean-up task compared to the snack task, $t(51) = -4.48, p < .001$, $M (SD)_{\text{cleanup}} = 2.37 (.68)$ and $M (SD)_{\text{snack}} = 1.91 (.53)$, and compared to the play task, $t(51) = -6.88, p < .001$, $M (SD)_{\text{play}} = 1.71 (.46)$. Disruptive behavior during the snack task was also significantly greater than disruptive behavior during the play task, $t(51) = 3.18, p = .003$.

The child behavior outcome variable was broken down further into three components: negative affect, behavior dysregulation, and positive behavior. Negative affect included the intensity and predominance of irritable and angry behavior. On average, across all three contexts,
Children were observed to demonstrate low levels of negative affect (Child Negative Affect $M = 1.65$, $SD = .61$, range 1-3). Regarding behavior dysregulation, which included defiance, intensity of passive noncompliance, predominance of noncompliance, and destructiveness, children were observed to demonstrate low levels of behavior dysregulation on average (Child Behavior Dysregulation $M = 1.70$, $SD = .45$, range 1-2.58). Lastly, average positive child behavior was also observed at low levels across social engagement and the intensity/predominance of positive affect (Positive Child Behavior $M = 2.39$, $SD = .57$, range 1.22 to 3.67). Positive behavior was significantly more prevalent than negative affect, $t(51) = 5.49$, $p < .001$, and behavior dysregulation, $t(51) = 5.74$, $p < .001$. All in all, these children demonstrated low levels of disruptive behavior, with higher rates and intensities of disruptive behavior when greater demands were placed on the children (i.e., issuing a cleanup task or engaging in snack time versus a free play).

**Parenting Behavior**

When observing parenting behaviors, overall optimal parenting scores were utilized to determine levels of parenting practices on a scale of 1-5. Higher scores denoted greater parenting sensitivity and engagement and lower verbal/physical interference. Table 1 shows the descriptive statistics for all parenting subscales and overall optimal parenting behavior. Within the current sample, parenting scores fell generally in the moderate range. The overall optimal parenting variable fell in the moderate range (Overall Optimal Parenting $M = 3.12$, $SD = .45$, range 2.08 to 4.08). Parenting behavior was also broken down into two components: positive parenting behaviors and negative parenting behaviors. Positive parenting behaviors included the average of caregiver sensitivity and caregiver positive engagement. Within the current sample, average positive parenting was moderately low (Positive Parenting $M = 2.57$, $SD = .55$, range 1.50 to
Negative parenting included the average of verbal interference and physical interference. Negative parenting scores fell in the moderately low range (Negative Parenting $M = 2.44$, $SD = .73$, range 1.33 to 4.00). Paired t-tests were computed to examine whether or not parenting behavior significantly differed based on video behavior context. When examining the parenting behavior across contexts, parenting scores did not significantly differ in the snack portion compared to the play portion, $t(51) = -.13$, $p = .90$, the snack compared to the clean-up, $t(51) = -.31$, $p = .76$, and the play compared to the clean-up, $t(51) = -.25$, $p = .81$. In summary, positive and negative parenting behaviors were observed at a moderately low rate relatively consistently across observational contexts.

**Neighborhood**

Neighborhood was examined as the other predictor variable within the current study. A neighborhood composite was created that added the three neighborhood characteristics together (i.e., access to recreational facilities, residential density, and crime safety). Greater neighborhood scores indicated a neighborhood with greater resources, less density, and greater safety from crime. Lower scores indicated access to fewer resources, greater residential density, and greater crime. Table 1 shows the descriptive statistics for all neighborhood subscales and overall neighborhood composite. Overall neighborhood composite indicated moderate neighborhood access, density, and crime (Neighborhood Advantage $M = 10.35$, $SD = 2.18$, range 4.69 to 14.76). Specifically, access to recreational facilities fell within the moderate range (Access to Recreational Facilities $M = 3.09$, $SD = 1.04$, range 1.00 to 5.00). Residential density fell in the moderate range (Residential Density $M = 4.97$, $SD = 1.57$, range 1.62 to 8.12), indicating that residences within the area were moderately dense. Lastly, crime safety fell within the moderate
range (Crime Safety $M = 2.32$, $SD = .95$, range 1.00 to 4.00), indicating moderate rates of crime and safety.

**Table 1**

*Descriptive Statistics for All Study Variables*

<table>
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<tr>
<th>Variable</th>
<th>$M$ ($SD$)</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Skewness ($SD$)</th>
<th>Kurtosis ($SD$)</th>
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<tr>
<td>Overall Disruptive Behavior</td>
<td>2.00 (.43)</td>
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<td>-.42 (.65)</td>
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<td>Play Disruptive Behavior</td>
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<td>3.00</td>
<td>.63 (.33)</td>
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<tr>
<td>Clean-up Disruptive Behavior</td>
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<tr>
<td>Overall Optimal Parenting</td>
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<td>4.08</td>
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<td>Positive Parenting Behaviors</td>
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<td>3.67</td>
<td>.25 (.33)</td>
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<td>Negative Parenting Behaviors</td>
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<td>4.00</td>
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<td>-.85 (.65)</td>
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<td>Snack Parenting</td>
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<td>4.25</td>
<td>-.51 (.33)</td>
<td>.00 (.65)</td>
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<td>8.12</td>
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<td>Crime Safety</td>
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<td>-1.06 (.65)</td>
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<td>Neighborhood Advantage</td>
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<td>14.76</td>
<td>-.35 (.33)</td>
<td>.16 (.65)</td>
</tr>
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**Correlational Analyses**

Next, study variables and demographic characteristics were examined using Pearson r bivariate correlations in order to study associations and relationships between the variables. Table 2 reports the correlations that were run within the current study. Specifically, key demographic characteristics included parent age, annual household income, and child sex.

Regarding parent age, bivariate correlations revealed a significant negative association between parent age and child negative affect, $r(49) = -.41$, $p = .003$, overall disruptive behavior, $r(49) = -.31$, $p = .03$, and a significant positive association with optimal parenting behaviors during clean-up, $r(49) = .29$, $p = .05$. Correlations between overall optimal parenting and parent age were approaching significance, $r(49) = .27$, $p = .06$. Older caregivers were associated with fewer
observations of child negative affect, fewer disruptive behavior, and greater optimal parenting behaviors during tasks that imposed greater demands on children (i.e., clean-up).

Annual household income had a significant positive association with residential density, $r(51) = .29, p = .04$, and a significant positive association with parenting during play, $r(51) = .29, p = .04$. As can be seen in Table 2, income was negatively associated with negative parenting, $r(51) = -.33, p = .02$. Higher household incomes were related to less dense neighborhoods, positive parenting behaviors, and fewer negative parenting behaviors. Regarding child sex, parents of boys in the study had lower overall positive parenting scores, $r(52) = .28, p = .05$, and displayed greater negative parenting behaviors, $r(52) = -.30, p = .03$, that did parents of girls. Due to the significant association between parent age and the outcome variable of disruptive behavior, parent age was retained as a control for each mediation analysis.

Correlation analyses were also used to do a preliminary assessment of the relational hypotheses in this study. In order to examine Hypothesis 1, child disruptive behavior and positive parenting (i.e., parental sensitivity and positive engagement) were examined via bivariate correlations to determine the direction and significance of the relationship. Table 2 displays these correlations. Overall disruptive behavior was found to be significantly negatively related to positive parenting, $r(52) = -.43, p = .001$. In other words, when children displayed more disruptive behaviors and less positive behaviors, they were more likely to have parents engaging in fewer positive parenting behaviors. Furthermore, positive parenting was significantly positively associated with the positive child behavior variable and negatively associated with all other disruptive behavior subscales (i.e., disruptive behaviors across all three contexts, negative affect, and behavioral dysregulation).
Hypothesis 2 aimed to investigate the relationship between child disruptive behavior and non-optimal, or negative (i.e., verbal and physical interference/intrusiveness/hostility) parenting. Bivariate correlations (see Table 2) revealed significantly positive associations between overall disruptive behavior and negative parenting, \( r(52) = .63, p < .001 \), indicating that greater disruptive behavior was related to greater negative parenting behaviors. The positive correlation remained significant across other child behavior variables including disruptive behavior across all three contexts, negative affect, and behavior dysregulation. Lastly, overall child disruptive behavior was significantly negatively associated with overall parenting, \( r(52) = -.65, p < .001 \), indicating that greater disruptive behavior was associated with fewer optimal parenting behaviors.

Regarding Hypothesis 3, neighborhood was examined via bivariate correlations to determine the associations between the parenting predictor variable and the overall child disruptive behavior outcome variable. Individual neighborhood characteristics and the neighborhood composite did not significantly relate to the other predictor or outcome variables in the current study. Neighborhood was not significantly associated with child disruptive behavior, \( r(52) = .03, p = .85 \), non-optimal parenting, \( r(52) = -.01, p = .96 \), or positive parenting, \( r(52) = .09, p = .54 \). Despite the lack of significant bivariate associations between neighborhood characteristics and key study variables, mediation and moderation analyses were carried out with demographic controls and all hypothesized variables in order to determine whether neighborhood would contribute uniquely to the overall proposed models.
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<td>-0.26</td>
<td>.29*</td>
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<td>.56**</td>
<td>.73**</td>
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<td>0.23</td>
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<td>.62**</td>
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<td>-.65*</td>
<td>0.11</td>
<td>0.13</td>
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<td>.71**</td>
<td>.60**</td>
<td>.81**</td>
<td>.77**</td>
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**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
†. Correlation is significant at the 0.10 level (2-tailed).


* Higher scores denote less residential density
Mediation Analysis

To examine Hypothesis 4, which posited that parenting behavior would partially mediate the relationship between neighborhood characteristics and child behavior, multiple regression was used. Specifically, the Hayes PROCESS macro for mediation model 4 was used within SPSS to analyze the hypothesized mediation model. Mediation was tested with neighborhood advantage as the predictor, overall observed optimal parenting as the mediator, and overall disruptive child behavior as the outcome. The final model with regression coefficients can be found in Figure 1. Overall, the model was significant in predicting child disruptive behaviors in preschool children, $R^2 = .45$, $F(3, 48) = 12.92$, $p < .001$. In this model, the direct path from neighborhood quality to child disruptive behavior was nonsignificant, $b = .01$, $t(48) = .48$, $p = .63$, suggesting that among this sample, neighborhood quality did not directly predict child disruptive behaviors. There was a significant direct path from parenting behavior to child disruptive behavior, $b = -.59$, $t(48) = -5.50$, $p < .001$. Parents with increased scores of positive parenting and decreased scores of negative parenting reported lower levels of child disruptive behaviors. Additionally, the path from neighborhood quality to parenting behavior was not significant, $b = .02$, $t(49) = .55$, $p = .58$. Lastly, the indirect path from neighborhood quality to child disruptive behavior through parenting behavior was found to be non-significant, $b = -.01$, 95% CI = [-.04, .03]. These results did not support the hypothesis that parenting mediated a relationship between neighborhood quality and child disruptive behavior. Regarding covariates, caregiver age significantly predicted overall observed parenting such that the older the parent, the higher the overall observed parenting score, $b = .02$, $t(49) = 2.07$, $p = .04$. Without accounting for parenting behaviors, parent age significantly predicted disruptive behavior, $b =
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-.02, \( t(49) = -2.30, p = .03 \). Once parenting behaviors were considered, parent age no longer predicted child disruptive behaviors, \( b = -.01, t(48) = -1.23, p = .23 \).

**Figure 1**

*Overall Optimal Parenting as a Mediator between Neighborhood Characteristics and Child Disruptive Behavior*

Exploratory, post hoc analyses were conducted to determine whether or not other mediation models that individually examined each neighborhood variable as the predictor (i.e., access to recreational facilities, residential density, and crime) as opposed to the overall neighborhood composite would lead to a significant relationship between any neighborhood variable and disruptive child behavior. The zero order correlation that were reported in Table 2 suggest that neighborhood variables are not related to parenting or child behavior whether considering the overall composite or the individual neighborhood components. This was confirmed in regression; recreational facilities \( (b = -.04, 95\% \ CI = [-.11, .02]) \), residential density \( (b = -.02, 95\% \ CI = [-.07, .04]) \), and crime safety \( (b = .04, 95\% \ CI = [-.03, .13]) \) did not have an indirect effect on child disruptive behavior through overall parenting. The same pattern emerged across all post-hoc mediation analyses, showing non-significant findings for neighborhood’s
predictiveness, while supporting the predictive power of parenting on child disruptive behavior. Overall, it was found that neighborhood score did not directly or indirectly predict overall disruptive child behavior nor parenting behaviors. However, parenting was found as a significant predictor of child disruptive behavior across every model tested.

Moderation Analysis

To examine Hypothesis 5, which predicted that the relationship between parenting and disruptive behavior would differ based on the different levels of neighborhood characteristics (i.e., more/less access to recreational facilities, greater/lesser residential density, and more/less crime safety), a moderation analysis was used. The moderation model with regression coefficients can be found in Figure 2. Variables were centered and PROCESS model 1 was utilized in SPSS to run the moderation model. The overall model significantly predicted child disruptive behavior, $R^2 = .50$, $F(4, 47) = 11.79$, $p < .001$. Results indicated that greater overall observed parenting score, $b = -.60$, $t(47) = -5.85$, $p < .001$, was associated with lower disruptive behavior. However, neighborhood advantage was not significantly predictive of disruptive behavior, $b = .01$, $t(47) = .56$, $p = .58$. The interaction between overall observed parenting and neighborhood advantage was significant, $b = .10$, $t(47) = 2.26$, $p = .03$, suggesting that the effect of parenting on child disruptive behavior depended on the level of neighborhood advantage. Parent age did not significantly predict child disruptive behavior, $b = -.01$, $t(47) = -.93$, $p = .36$.

Simple slopes for the association between parenting and disruptive behavior were tested for lower (-1 SD below the mean), middle (mean), and higher (+1 SD above the mean) scores of neighborhood advantage. Each of the simple slope tests revealed a significant negative association between overall observed positive parenting and overall disruptive behavior, indicating that better parenting predicted fewer disruptive child behaviors. However, this
relationship was stronger for lower total quality neighborhood scores, $b = -.79$, $t(47) = -5.77$, $p < .001$, compared to moderate quality neighborhoods, $b = -.61$, $t(47) = -5.93$, $p < .001$, and higher quality levels, $b = -.38$, $t(47) = -2.77$, $p = .01$, of neighborhood advantage scores. Figure 3 plots the simple slopes for the interaction.

**Figure 2**

*Neighborhood Characteristics as a Moderator between Parenting and Disruptive Behavior*
Discussion

The goal of the current study was to examine the relationships between neighborhood characteristics, parenting, and child disruptive behavior in a low-income, African American preschool population. Additional hypotheses explored the role of parenting behavior as a mediator between neighborhood characteristics (i.e., access to neighborhood facilities, residential density, and crime) and child disruptive behavior. Previous research suggested that neighborhood characteristics may impact a child’s behavior in early childhood through their effects on parental well-being, which in turn, was expected to affect parenting behaviors (Beyers et al., 2003; Supplee et al., 2007). Specifically, neighborhoods with less access to community facilities, greater population density, and higher rates of crime were expected to predict harsher parenting styles and higher incidents of disruptive behaviors in the child of this study. Furthermore, given the mixed findings from previous research, reported neighborhood characteristics were
hypothesized to act as a potential moderator between the association of observed parenting behaviors and observed disruptive behaviors. Previous research has shown that harsher parenting may be less harmful in higher crime neighborhoods (Amato & Fowler, 2002; Bornstein, 2012).

Results from the study are discussed below.

**Associations Between Child Disruptive Behavior and Parenting**

To address Hypothesis 1, which stated that child disruptive behavior would be negatively associated with positive parenting (i.e., parental sensitivity and positive engagement), bivariate correlations and regression were utilized. The results indicated that as child disruptive behavior increased, through intensity and predominance, caregiver sensitivity and positive engagement decreased. This suggests that positive parenting behaviors may have an impact on reducing disruptive behavior observed in children. This finding is consistent with past literature that found evidence of this relationship (Campbell, 2002). This finding is also important to consider based on the methodology used for discerning parenting and child behaviors. Specifically, parenting behaviors and child behaviors are often reported via self-report which can be amenable to reporter biases or inaccurate reporting. However, the current observational data suggests that the associative relationship between positive parenting practices and disruptive child behavior can be observed in an objective and observational manner. Furthermore, positive parenting was also found to be related to positive child behaviors. Specifically, parents that demonstrated greater sensitivity and engagement with their children were more likely to have children that demonstrated greater social engagement and intensity/predominance of positive affect.

Therefore, the current data supports Hypothesis 1, in that child disruptive behavior was negatively associated with positive parenting. The regression analyses in this study with all model variables accounted for also found a significant relationship between parenting behavior
and child disruptive behavior, such that better parenting predicted less disruptive behavior. These analyses offered further support for Hypothesis 1. However, it is important to note that the directionality of this relationship is purely theoretical based on the cross-sectional nature of the study. In other words, while the findings are understood through the lens that optimal parenting leads to fewer disruptive behavior, it is also important to consider that fewer disruptive behaviors from children may cause parents to utilize more optimal parenting strategy. Perhaps, most parents utilize relatively good parenting skills until those skills are overtaxed by a child’s disruptive behavior. At that point, the parent may feel overwhelmed and may adopt less optimal parenting strategies because they do not know how to effectively deal with the problematic behaviors of the child.

To address Hypothesis 2, which stated that child disruptive behavior would be positively associated with non-optimal parenting (i.e., parental verbal interference/intrusiveness/hostility), bivariate correlations and regression were utilized. The results indicated that as child disruptive behavior increased, non-optimal parenting behaviors also increased. This suggests that non-optimal parenting may have an impact on increasing the intensity and predominance of disruptive child behavior. This is consistent with past research that has found evidence of this relationship (Campbell, 2002). As with Hypothesis 1, the regression analyses that accounted for all study variables in one model is additional support for the relationship between parenting and child behavior in this study. To further support the relationship between non-optimal parenting practices and child disruptive behavior, greater non-optimal parenting behaviors were related to greater observance of disruptive behavior across all three tasks (i.e., snack, play, and clean-up). Further, parents that demonstrated greater non-optimal parenting strategies were more likely to have children that displayed greater intensity and rates of negative affect and behavior.
dysregulation. Taken together, the current data supports Hypothesis 2, in that child disruptive behavior was positively associated with non-optimal parenting strategies.

**Associations Between Neighborhood Characteristics, Child Behavior, and Parenting**

To address Hypothesis 3, which stated that negative neighborhood characteristics (e.g., more crowding, less green space, and higher crime) would be positively associated with child disruptive behavior and non-optimal parenting and negative neighborhood characteristics would be negatively associated with positive parenting, bivariate correlations and regression were examined. The results indicated that there was no association between neighborhood characteristics as a whole and child disruptive behaviors. Furthermore, there was no significant relationship between each separate neighborhood characteristic and child disruptive behaviors. When examining the relationship between parenting variables and neighborhood variables, bivariate correlations again revealed no significant associations between the variables. The regression analyses also found no significant main effect of neighborhood characteristics and parenting or child behavior. These findings are inconsistent with past research that found a relationship between neighborhood characteristics and both parent (Pinderhughes et al., 2007) and child behaviors (Linares et al., 2001).

Explanations for the lack of significant relationships between neighborhood and key study variables include the possible lack of variability among neighborhood characteristics within the current sample. Given that the current study utilized participants from low-income neighborhoods, there may be less variability regarding access to recreational facilities. Additionally, families from low-income neighborhoods are more likely to live in denser neighborhoods with more apartments compared to stand-alone single-family homes (Evans et al., 2001). Lastly, low-income neighborhoods may be more likely to experience higher rates of crime.
within their neighborhoods. The U.S. Department of Housing and Urban Development (2016) reported that people from low-income households and racial minorities are disproportionately exposed to violent crime. Taken as a whole, participants within the current sample may have had less variability among neighborhood characteristics, which may have obscured the true relationship between neighborhood, parenting, and child disruptive behavior.

Additionally, the Neighborhood Environment Walkability Scale (NEWS-Y) was created to quantify perception of neighborhood design features that may be related to physical activity in children. Therefore, the measure may not fully capture recreational access, residential density, and crime as the study had intended. Instead, the NEWS-Y measure may be more sensitive and specific to walkability rather than the intended constructs. Further, parental perception of neighborhood is more subjective than specific census data information that is based on thousands of respondents.

**Parenting as a Mediator Between Neighborhood and Child Behavior**

Previous research is mixed with regard to the process by which neighborhood impacts parenting and child behavior (Callahan et al., 2011; Leventhal & Brooks-Gunn, 2000; McBride Murry et al., 2011; Sampson et al., 2002; Li et al., 2017; Jones et al., 2005; Vieno et al., 2010; Chung & Steinberg, 2006; Pinderhughes et al., 2001). Specifically, research has shown neighborhood characteristics may operate as a mediating or moderating variable in the contexts explored in this study (Odgers et al., 2012; Callahan et al., 2011). Therefore, mediation was examined with overall observed parenting acting as the mediator between neighborhood characteristics and disruptive child behavior. It is thought that less access to recreational facilities, greater residential density, and greater rates of crime within a neighborhood would increase the likelihood of suboptimal parenting (Cuellar et al., 2015; Chung & Steinberg, 2006;
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Pinderhughes et al., 2001). In turn, suboptimal parenting has been shown in research to affect child behavior (Pinquart, 2017). Specifically, as optimal parenting decreases, child externalizing or disruptive behavior increases. To address Hypothesis 4, which states that parenting would partially mediate the relationship between neighborhood characteristics and child behavior, a mediation analysis was conducted using caregiver age, child sex, and household income as covariates.

Overall, it was found that neighborhood characteristics did not directly influence child disruptive behavior or indirectly influence child disruptive behavior through parenting behavior. Overall, this model did not suggest that neighborhood quality was an important variable, as was also evident from the zero order correlations. Given that children in preschool interact less frequently with their neighborhood than older children and adults, it may be understandable that neighborhood was not directly predictive of changes in child disruptive behavior. However, conflicting evidence from the proposed hypothesis was found, in that neighborhood did not have indirect effects on child disruptive behavior either. Instead, the significantly predictive model relied on the strong relationship between overall observed parenting and disruptive behavior. Specifically, greater use of optimal parenting strategies (i.e., sensitivity and engagement) and lesser use of non-optimal parenting strategies (i.e., verbal and physical interference) was predictive of lesser observed disruptive behavior. Interestingly, caregiver age appeared to have influence on parenting behavior because being an older caregivers was predictive of parents utilizing a greater number of optimal parenting strategies.

The fact that the neighborhood variable did not significantly predict parenting, child behavior, or operate in the mediation model is consistent with the zero order correlations. As stated above, possible explanations include possible issues with restriction of range for
neighborhood characteristics and a potential problem with the NEWS-Y measure itself in accurately reflecting neighborhood characteristics. Additionally, there is a possibility of a third variable of importance that was not examined that could explain the mediation relationship between neighborhood characteristics, parenting, and child disruptive behavior.

**Neighborhood as a Moderator Between Parenting and Child Behavior**

Due to the mixed past research on neighborhood factors, the moderating role of optimal parenting on the association of neighborhood advantage and child disruptive behavior was also examined. Hypothesis 5 explored the potential moderating role of neighborhood characteristics on relationship between parenting style and children’s disruptive behaviors. Specifically, I wished to explore if living in more disadvantaged neighborhoods would be associate with parents’ adopting harsher parenting styles, and also if these harsher techniques might be less harmful to a child’s development than when these approaches are used with children in advantaged neighborhoods. As previously found, the results indicated that optimal parenting strategies predicted fewer disruptive behaviors while neighborhood did not have predictive power over disruptive behaviors. However, the parenting by neighborhood interaction term yielded significant predictive results. Specifically, the results suggested that the effect of parenting on child disruptive behavior depended on the level of neighborhood advantage. Contrary to the hypothesized prediction, within neighborhoods with less recreational access, more residential density, and more crime, less optimal parenting appeared to be more harmful to children’s development than when such parenting approaches are used in more advantaged neighborhoods. Instead of harsher, more interfering parenting acting as a protective factor from the systemic and often deleterious effects of living in more dangerous neighborhoods, harsher parenting was predictive of greater disruptive behavior in disadvantaged neighborhoods.
compared to when such parenting was used on children in advantaged neighborhoods. Highly disadvantaged neighborhoods appeared to amplify the expected association between harsh parenting and children’s disruptive behavior. On the other hand, the association between optimal parenting behaviors and child disruptive behaviors was amplified within more disadvantaged neighborhoods as well. Specifically, optimal parenting behaviors were predictive of fewer disruptive behaviors in disadvantaged neighborhoods compared to the effect of such parenting on children living in advantaged neighborhoods.

Support has been found in the literature for the amplification of the association between parenting behavior and child behavior within higher levels of neighborhood disadvantage (Goldner et al., 2016). Specifically, Goldner and colleagues (2016) examined internalizing symptoms and found that within neighborhoods with greater perceived danger, parental warmth was more strongly related to fewer internalizing symptoms than within more advantaged neighborhoods. Furthermore, previous research has described the rationale for disadvantaged neighborhoods amplifying the relationship between parenting and child disruptive behavior (Callahan et al., 2011). Independently, neighborhood disadvantage or negative parenting may only incrementally increase child disruptive behavior. However, exposure to both disadvantaged neighborhoods and negative parenting concurrently may be more powerful when interacting with one another (Callahan et al., 2011).

Another explanation for the finding could relate to biological sensitivity to context (Ellis & Boyce, 2008). Past research suggested that stress causes a harmful and exaggerated biological reactivity that is maladaptive to human functioning. However, recent research has found that high biological reactivity to stress may exert either harmful risk or protection from risk, depending on the context of the individual (Ellis & Boyce, 2008). Furthermore, heightened stress
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may have negative effects under adverse conditions or positive effects under favorable conditions. Within the current study, families that were exposed to heightened risk through disadvantaged neighborhoods (i.e., less access to recreational facilities, greater residential density, or more crime) had negative effects of increases in disruptive child behavior under less optimal parenting contexts but they had positive effects of decreases in disruptive child behavior under favorable conditions (i.e., greater use of optimal parenting strategies).

There does not appear to be one neighborhood characteristic driving the significant moderation model. Instead, the findings can be understood through a cumulative risk lens. For example, the effects of each disadvantaged neighborhood characteristic are not enough to impact the effect of parenting on child behavior alone. Rather, the compounded effects of the different neighborhood characteristics appear to amplify the relationship between parenting and child disruptive behavior across different levels of neighborhood advantage.

Study Strengths

The current study has a number of strengths that should be mentioned. First, the study utilized an observational assessment of parent and child behavior instead of self-report data. A large number of research studies utilize self-report data because it is less costly and less time intensive. However, self-report is susceptible to response bias and threats to validity (Donaldson & Grant-Vallone, 2002). While assessments completed by parents attempt to objectively measure child behavior, parental subjectivity is nearly impossible to limit or predict. Parental mood-state may affect the responses on report measures. Specifically, if a parent is in a good mood, they may be more apt to report on more positive child behaviors. If they are in a bad mood, they may be more likely to exaggerate negative child behaviors. Further, some report measures force parents to make inferences related to developmental norms, which indirectly
assesses the parental knowledge of typical behavior. The threshold for which parents endorse items may be significantly different among parents (Olino et al., 2014). Authoritarian parents may have expectations that their child should always be obedient and they may place extensive demands on their children. These parents may endorse “very true or often” on an item about disobedience because their expectations and frequency of demands are high. However, permissive parents may place very few demands on their child and have low expectations for follow-through. They would endorse “not true” for items regarding disobedience. Both children from authoritarian and permissive parents may have equally problematic disruptive behavior but the thresholds that parents have for endorsing items would influence the results. Compared to report measures, observational measures allow for more objective operationalization of behaviors, which reduce the occurrence of response bias. Although it is more costly and time-intensive, observational assessment of disruptive behavior and parenting offer a more objective way to examine these constructs of interest. The current study contributed underutilized observational methodology to the literature base around the relationship between neighborhood, parenting, and child disruptive behaviors.

Secondly, the study examined the relationships among neighborhood, parenting, and child disruptive behavior in a low-income, African American preschool sample. The current study aimed to examine these study variables within an understudied population in order to contribute valuable information to the literature that is typically conducted with middle-class White participants. Examining complex human behaviors and relationships within understudied populations is important as a matter of social justice. Representation in research contributes to taking steps forward in an effort to provide fairness and knowledgeability in health care and human development. While minoritized communities are affected by a disproportionate share of
the country’s problems, there are large gaps in the understanding of how environmental factors contribute to human behavior in these understudied populations. Examining relationships within an understudied population allows for generalizability and understanding of unique experiences based on the cross-section of race, income, neighborhood, parenting, and child behaviors.

Lastly, the coding schema that was adapted from a rigorous, structured, observational assessment proved useful for determining different intensities and frequencies of disruptive behavior in preschool children. The original coding manual is a multi-trait, multi-context diagnostic observation schedule that has behavioral “presses” to elicit disruptive behavior. The observational assessment is rigid and time-intensive with regard to training. However, the adapted coding manual for the current study was utilized without the structure and rigidity of a formal diagnostic observation. Instead, natural behavioral “presses,” such as the demands placed during snack and clean-up, elicited disruptive behavior and allowed for the observation of a spectrum of disruptive behaviors. Given the strong relationship between parenting variables and child variables, it was evident that the adapted coding manual was picking up on the nuances of child disruptive behavior. The current study highlights the promise of using a less rigid and structured coding schema for child disruptive behaviors, which would allow for quicker and more frequent use in clinical situations. Furthermore, the coding schema could be utilized within a school setting to determine which children are at-risk for functionally impairing disruptive behavior, allowing for quicker intervention.

**Limitations and Future Directions**

Although the study demonstrated a number of strengths, there were limitations that could be addressed with future research. The current study used a small sample of 56 parent-child dyads. Small sample sizes lead to smaller statistical power in analyses. As power decreases, there
is a larger risk of committing type II errors. In other words, the probability decreases that the test will find a statistically significant difference when such a difference exits. An important future direction would include using a larger sample size to avoid reductions in statistical power and in order to allow for more models to be run.

Another limitation was the measurement of neighborhood characteristics. Previous research examining the relationship between neighborhood, parenting, and child behavior often used census data to determine different neighborhood characteristics (Heberle et al., 2014). The current study utilized a self-report measure to ascertain perceived neighborhood characteristics. It’s possible that perception of one’s neighborhood may not have been as impactful as objective assessments. However, most hypothesized neighborhood relationships did not surface during analysis, which may be explained by the use of a self-report measure, which is often subject to response bias. Furthermore, it may be the case that the NEWS-Y is simply an inadequate measure of neighborhood quality. The measure was developed to assess walkability of a neighborhood and the items may not assess important features of the neighborhood as they pertain to parenting behavior or child disruptive behavior. This study did find a significant moderation effect with neighborhood, which is important. However, future research should include different or additional assessments of the neighborhood, including objective assessments.

Although having a sample from a low-income community was a strength of the study, it may have also created an important limitation. The lack of ability to find a direct neighborhood effect on parenting or child behavior may be due to the restricted range on neighborhood quality. All families were from low-income neighborhoods where residential density is more likely to occur, families have less access to a large variety of recreational materials, and crime rates are higher (Evans & Saegert, 2000; Bradley et al., 2001). Therefore, there is more restricted range on
the different neighborhood characteristics included in the present study. To fully disentangle the impact of the neighborhood on parenting and child behaviors, future studies would need to include a wider range of neighborhood types.

Lastly, due to the nature of the study design, there remains uncertainty about the directionality of the relationship between parenting and child behavior. Since the study was cross-sectional, data was collected at one time point and thus the directionality of the relationship could not be determined. As described above, it is possible that disruptive child behavior could predict less optimal parenting instead of the other way around. Future studies would need to utilize longitudinal data in order to determine the directionality of the relationship.

In addition to future research addressing the limitations of this study, there are other important directions for future research. Given the utility of the semi-structured child observational coding system, future research should examine the usefulness of the tool within other settings (i.e., classrooms or daycare) or other contexts (i.e., teaching tasks, peer interactions, frustrating tasks, tasks that require self-control). Due to the coding system’s flexibility, the disruptive behavior observational method could be informally utilized to determine at-risk children for disruptive behavior problems. Identifying at-risk children would allow for targeted intervention on behaviors that could continue to intensify and increase in frequency.

Another consideration for future research would include examining the interactional relationship between neighborhood and parenting on child disruptive behavior longitudinally. Longitudinal data may be able to elucidate which children are at risk for worsening disruptive behavior. Furthermore, longitudinal data may be able to shed light on the hypothetical increasing direct effect that neighborhood factors have on child disruptive behavior as children begin to
engage more independently with their environment. Tracking neighborhood factors and the
course of disruptive behaviors from early childhood to middle childhood would allow for better
understanding of the impact that neighborhood has on child behavior over time.

Implications

The current study has multiple implications for those hoping to intervene with preschool
children displaying elevated levels of disruptive behavior. One of the most important findings
from this study was the moderation effect for neighborhood. For families living in economically
poorer neighborhoods, positive parenting was a stronger predictor of fewer disruptive behaviors
in children. Furthermore, within more disadvantaged neighborhoods, harsher and less warm
parenting was a stronger predictor of more disruptive behaviors in children. Overall, the
relationship between parenting and child disruptive behaviors was amplified in neighborhoods
that had fewer recreational facilities, greater residential density, and more crime. While children
in harsher parenting households from disadvantaged neighborhoods were more likely to display
higher levels of disruptive behavior, the evidence suggests that positive parenting practices have
a stronger impact on children’s behavior within disadvantaged neighborhoods. Therefore,
interventions on parenting behavior may produce greater gains on reducing disruptive behavior
in disadvantaged neighborhoods compared to advantaged neighborhoods. Additionally, providers
that are interacting with preschoolers who are displaying elevated levels of disruptive behavior
should take neighborhood factors into consideration when understanding the reinforcing
mechanisms that are contributing to the child’s presentation.

This study also provided additional evidence for how parenting behaviors influences
children’s behaviors. Parents who engage in more positive parenting behaviors seemed to
experience fewer disruptive behaviors in their children. In other words, parents who
demonstrated greater warmth and positive engagement seemed to have children who displayed less negative affect, fewer instances of noncompliance, and both greater positive affect and social engagement. Notably, parents within the current sample displayed high levels of positive behaviors. They engaged in high levels of sensitivity and positive engagement, while engaging in low levels of verbal or physical intrusiveness. Furthermore, children within the current sample engaged in high levels of positive behaviors (i.e., positive affect and social engagement) and lower levels of disruptive behaviors. Overall, this sample of parent-child dyads that were utilized for this study were demonstrating high levels of positive behaviors and low levels of disruptive behavior. Although previous research is mixed on whether optimal parenting varies across different races and cultures, the current study provided evidence aligned with Amato and Fowler (2002), where a common core of parenting behaviors (i.e., warmth, positive engagement) are associated with positive child outcomes, regardless of race. Considering these findings, minoritized households that reside within highly disadvantaged neighborhoods might benefit from psychoeducation and intervention on the common core parenting behaviors when children are engaging in disruptive behaviors at home and/or at school. However, when optimal parenting strategies are utilized within families that live in disadvantaged neighborhoods, their children will be less likely to engage in disruptive behaviors when compared to families in advantaged neighborhoods.
DISRUPTIVE BEHAVIOR, PARENTING, AND NEIGHBORHOOD

References


DISRUPTIVE BEHAVIOR, PARENTING, AND NEIGHBORHOOD


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https://doi.org/10.1093/geront/gnr027


DISRUPTIVE BEHAVIOR, PARENTING, AND NEIGHBORHOOD


Harris, A., Andrew-Power, K., & Goodall, J. (2009). *Do parents know they matter?: Raising achievement through parental engagement*. Continuum.


Developmental trajectories of child to adolescent externalizing behavior and adult DSM-


DISRUPTIVE BEHAVIOR, PARENTING, AND NEIGHBORHOOD


Parents for Healthy Kids Project

Head Start & Eastern Michigan University

Dear Head Start Parent,

New St. Paul Head Start is actively participating in a nutrition and health program through Eastern Michigan University called the Parents for Healthy Kids Project.

This program is free and your family may be eligible to participate. By participating in this program, you will also have the opportunity to receive up to $200.

Parents for Healthy Kids Project coordinators will begin to contact eligible families starting in the next few weeks. Please let your Head Start coordinator know if you do not wish to be contacted. If you do not let your Head Start coordinator know that you do not wish to be contacted, you may receive a call in the near future.

Thank You!
Parents for Health Kids Team
(734) 487-1691
Appendix B: Informed Consent

RESEARCH @ EMU

Informed Consent Form

Study Title: Parent Focused Nutrition and Activity Intervention for Head Start Preschoolers

Principal Investigator (PI): Dr. Heather Janisse, Ph.D.
Psychology Department, Eastern Michigan University
(734) 487-0096; hjanisse@emich.edu

Funding Source: The National Institute of Diabetes and Digestive and Kidney Diseases

Purpose of the study
You and your child are being asked to take part in a research study that examines the effectiveness of a nutrition and activity intervention program designed to improve the health behaviors and outcomes of Head Start parents and children. Your child has been selected because their current weight is above the recommended weight for their age. This study is being conducted at Eastern Michigan University. The maximum number of study participants to be enrolled in the study is 100. Please read this form and ask any questions you may have before agreeing to be in the study.

The purpose of this study is to determine which program is better at helping Head Start parents improve their child’s nutrition and physical activity behaviors: a home-based program that addresses the motivation of parents or a support program that offers newsletters and telephone calls.

Study Procedures
If you take part in the study, study personnel will meet you at your home or Head Start Center and you will complete questionnaires. These questionnaires will ask about you and your child’s current nutrition and activity behaviors, your parenting behaviors, your motivation for health behavior change, and your child’s behavior. These questionnaires will take you approximately 2 ½ hours to complete. We will also take a measure of you and your child’s height, weight and blood pressure and we will ask you to have your child wear an activity measuring device on their clothes for four days (called an accelerometer). This device hooks on the clothes or belt loop. We will also take a brief video of you and your child interacting during a snack time.

Next, you and your child will be randomly assigned to receive either a home-based program or a newsletter with support program. Random assignment means that you/your child will be assigned by chance (like the flip of a coin) to receive the home-based program or the newsletter with support program.

If you are assigned to the home based program, sessions targeting improving your knowledge and your motivation for changing nutrition and activity behaviors will be provided in your home at a time convenient for your family. A community health worker will come to your home and program sessions will last about 1-1 ½ hours. There will be a total of 8 sessions provided over approximately a 4-month time period (resulting in 1 session about every other week). These home sessions will focus on a variety of topics including, understanding current nutrition and activity recommendations for your preschool age child, parenting approaches to increase healthy behaviors of your child, skills building, problem
solving and increasing motivation for health behavior change. The importance of connecting with your child’s primary care doctor will be discussed.

If you are assigned to the newsletter with support program, there will be just one home visit at the beginning of the program scheduled at a time convenient for your family. This visit will emphasize the importance of healthy nutrition and activity for your child and family and the importance of connecting with your primary care doctor will be discussed. Following this session, you will receive 7 newsletters over a 4-month time period that will include information on nutrition, physical activity, parenting behavior and community resources. You will also receive one monthly phone call for 4-months designed to review newsletter content and answer questions you may have (4 phone calls in total). Some of the sessions or phone calls will be audiotaped. The purpose of taping the sessions is to be certain that the community health workers provide the best quality program to your family. Audiotapes will be destroyed upon completion of the study.

Right after the program you participated in is complete and again six and twelve months later, study research personnel will call you to schedule a time for you and your child to complete the same measures you competed at the start of the study over again. This includes questionnaires about you and your child’s nutrition and activity behaviors, your parenting behaviors, your motivation for health behavior change and your child’s behavior. We will take another measure of you and your child’s height, weight and blood pressure and we will ask you to have your child wear the accelerometer on their clothes for four days. We will also take a video of you and your child interacting during a snack time. Half way through the program, you will receive one phone call to see if you or child has experienced any problems or concerns since being in the program. The total length of participation in the study is 16 months.

Benefits
The possible benefits to you and your child for taking part in this study are that you may improve your health behavior knowledge and you and your child’s dietary intake and physical activity. This may result in a healthier weight status for your child. However, there are no guarantees that this will occur. Additionally, the information from this study may benefit other children/families now or in the future.

Risks
By taking part in this study, you or your child may experience the following risks:

- Although behavioral programs such as the ones described in this form are generally expected to reduce distress and therefore be of minimal risk, behavior change can be difficult. Therefore, risks include the possibility of temporary increased distress during the program intervention.

- You or your child may become tired from completing questionnaires or study measures. You could also become upset from answering personal questions. You or your child may decline to answer any questions during your participation.

- Although no discomfort from wearing the physical activity monitor is expected, your child may express a dislike for wearing the monitor or may experience some discomfort or irritation. Wearing the device on the outside of the clothes and taking it off during sleep should reduce this risk.

- We are required by law to report to the appropriate authorities if at any time during the study there is concern that child abuse has possibly occurred.

Approved by the Eastern Michigan University Human Subjects Review Committee
UHSCRC Protocol Number: 738343-1
Study Approval Dates: 4/16/15 – 4/15/16
There may also be risks involved from taking part in this study that are not known to researchers at this time. In the unlikely event that distressing personal concerns arise during or after your participation in this study, please let us know and we will provide you with information on who you can contact for assistance. You may contact the Principal Investigator for this study at 734.487.0096 or you may contact the following Detroit/Wayne County service provider: 24-Hour Crisis, Information & Referral Line for Detroit, MI (313) 224-7000 or (800) 241-4949.

**Alternatives**
If you choose not to be in this study there are other options available that you can talk about with your doctor, who can assist you or provide you with more resources. Some other options include attending nutrition education classes or getting counseling for your child in your community. Head Start staff may also be able to provide you with community resources.

**Confidentiality**
All information collected about you and your child from this study will remain confidential. You and your child will be identified in the research records by a code number. Information that identifies you and your child personally will not be released without your written permission. Only the staff involved in this project will have access to the information we collect and all information will be kept in a locked office and on password protected computers and files. However, the study sponsor and the Institutional Review Board (IRB) at Eastern Michigan University may review your records.

Information we obtain may be reported in scholarly publications and presentations. When the results of this research are published or discussed in conferences, no information will be included that would reveal you or your child’s identity. We will primarily report summarized results. If any individual comments are reported, we will not disclose any information that can be identified with you. Audio and video recordings will be destroyed upon completion of the study.

**Study Costs**
Participation in this study will be of no cost to you.

**Compensation**
For taking part in this research study, you will be paid for your time and inconvenience. You will receive $30 immediately after each data collection visit you and your child complete and another $20 after your child has worn the activity monitor and it is returned, for a total of $50. Because there are 4 data collection visits, you have the potential to earn $200 if you complete all four. In addition, participants who are assigned to the home based program may receive additional incentives like cookbooks or food products.

**Voluntary participation**
Taking part in this study is voluntary. You may choose not to take part in this study, or if you decide to take part, you can change your mind later and withdraw from the study. You are free to refuse to answer any question(s) or withdraw at any time. Your decision about participation will have no effect on the services you receive from Head Start or any other service agency. Your decision will not change any present or future relationships with Eastern Michigan University or its affiliates or other services you are entitled to receive. If any new information comes up that would possibly change your willingness to participate in this study, we will let you know.

Approved by the Eastern Michigan University Human Subjects Review Committee
UHSRC Protocol Number: 738343-1
Study Approval Dates: 4/16/15 – 4/15/16
Study contact information
If you have any questions about the research, you can contact the Principal Investigator, Dr. Heather Janisse, at hjanisse@emich.edu or by phone at 734-487-0096. For questions about your rights as a research participant, contact the Eastern Michigan University Human Subjects Review Committee at human.subjects@emich.edu or by phone at 734-487-3090.

Statement of Consent
To voluntarily agree to have you and your child take part in this study, you must sign on the line below. If you choose to take part in this study, you may withdraw at any time. You are not giving up any legal rights by signing this form. Your signature below indicates that you have read, or had read to you, this entire consent form, including the risks and benefits, and have had all of your questions answered. You will be given a copy of this consent form.

Signatures

Name of Participant

Signature of Participant  Date

Permission to obtain data collected by the Head Start Program from your child
By signing below you are giving the researchers permission to access the results of the routine assessments given to your child at Head Start (The Brigance and the CORE). This additional information will allow us to look at whether our program influences these outcomes for your child.

Signature of Participant  Date

I have explained the research to the participant and answered all his/her questions. I will give a copy of the signed consent form to the participant.

Name of Person Obtaining Consent  Signature  Date

Approved by the Eastern Michigan University Human Subjects Review Committee
UHSRC Protocol Number: 738343-1
Study Approval Dates: 4/16/15 – 4/15/16
Appendix C: Disruptive Behavior Coding Manual

Intensity of Irritable/Angry Behavior
(Adapted from Wakschlag, Leventhal, Danis, Keenan, Hill, Egger, & Carter, 2002)

Angry/irritable affect may manifest as upset (e.g., pouting, whining, etc), negative mood (e.g., sullen, irritable), and/or angry behavior (e.g., screaming, throwing things, hostile verbalizations). It may range from disorganized (e.g., uncontrollable yelling) to very controlled (e.g., throwing things in the absence of observable upset). Low-level negative affect includes whining, pouting, frowning, etc. Moderate level negative affect includes sullenness, irritability, annoyance, nonverbal gestures such as crossing arms or rolling eyes, or angry facial expressions. High-level negative affect includes tantrums, yelling, angry tone of voice or verbalizations, and behaviors such as throwing or banging. Note: Manifestations of sadness (e.g. weeping) or anxiety should not be coded under this category. In addition, some children have a whiny tone of voice, making it difficult to determine if they are displaying negative affect. If a child’s tone of voice is predominantly whiny and you are not sure if it is negative affect, code conservative, unless the child clearly displays negative affect (including a distinct whine that is different from her/his tone of voice).

Some behaviors that you might see include
- Whining, pouting, frowning, etc.
- Sullenness, irritability, annoyance, nonverbal gestures such as crossing arms or rolling eyes, or angry facial expressions
- Tantrums, yelling, angry tone of voice or verbalizations, and behaviors such as throwing or banging

1. Very Little or No Irritable/Angry Behavior
Little or no evidence of irritable/angry behavior. Child does not show upset, negative mood, or angry behavior.

2. Low Intensity of Irritable/Angry Behavior
Intensity of negative affect was clear example of low level, such as sullenness, irritability, and/or annoyance. Includes any clear examples of whining, pouting (marked mainly by facial expressions), sighing, and frowning.

3. Moderate Intensity of Irritable/Angry Behavior
Intensity of negative affect was moderate. This can be expressed by behavior (e.g., pushing toys away, loud insistent whining or pouting (marked by facial expressions and/or body posture (e.g., child who pushes self back from table, crosses arms across chest, and has a pouty face)) or verbalization (loud talking or groaning).

4. High Intensity of Irritable/Angry Behavior
Intensity of negative affect was high, expressed by verbalizations and/or behavior (tantrums, yelling, shouting with angry tone, throwing things across room).
**Predominance of Angry/Irritable Behavior**

Predominance refers to the pervasiveness of the angry and irritable behavior instead of the quality. Low-level predominance of negative affect refers to negative affect displayed a few times. A child may have a tantrum for one-30 second interval but then have neutral or positive affect for the rest of the video clip. Compared to a child who has low levels of negative affect, such as whining and frowning, the entire video clip, the tantruming child would be rated lower on the scale. Moderate predominance refers to negative affect that is present multiple times but does not predominate. High predominance refers to a child who displays negative affect the entire video clip.

Some behaviors that you might see include
- Whining, pouting, frowning, etc.
- Sullenness, irritability, annoyance, nonverbal gestures such as crossing arms or rolling eyes, or angry facial expressions
- Tantrums, yelling, angry tone of voice or verbalizations, and behaviors such as throwing or banging

Now determine whether these behaviors were predominant!

1. **None**
The child does not display any angry/irritable behavior throughout the video.

2. **Low Predominance of Irritable/Angry Behavior**
The child displays negative affect a few times.

3. **Moderate Predominance of Irritable/Angry Behavior**
The child displays negative affect multiple times.

4. **High Predominance of Irritable/Angry Behavior**
The child’s negative affect predominates the context.

**Questions to ask yourself:**
Was the child angry/irritable more often than not?
How many times did the child display negative affect?
Defiance
Defiance is defined as active and direct refusal to comply with an adult’s request or direction. The child gives some sign that they have heard what the adult has told them, but does not comply with the instructions. It may be expressed verbally or nonverbally. For instance, the child may verbally respond to the adult’s directive by saying “No,” “You can’t make me,” or “I don’t want to,” or by laughing while engaging in the prohibited behavior. Defiance also includes instances where the child does not comply with the adult’s directive and states their own desire, or when the child questions the adult’s directive: for instance, “I want to play with toys now,” “Why do we have to?” or “Why?” It may also be exhibited nonverbally. For example, if a child looks directly at the adult (signaling that they attended to what the adult was saying) and does not comply with the directive or continues doing the prohibited behavior, this is coded as Defiance. Also, if the child shakes their head no (again signaling they have heard what the adult said), this is coded as Defiance. Defiance does NOT include defying social requests or suggestions (e.g., You would not code defiance if a child says “no” in response to adult suggestion to color with the blue crayon).

Some behaviors you might see include:
- Child saying “no,” to a request, even when followed with compliance
- Saying “no,” while doing what was requested
- Argumentative behavior
- Outright refusal of parental request

1. Very Little or No Defiance
Child never exhibits active defiance.

2. Low Defiance
The child displays a low level of defiance, such as
- Saying “no” followed by compliance without further prompts
- Saying “no” followed by compliance after a second prompt
- Saying “no” and never complying, but the parent never restated the direction so there was no opportunity for persistent defiance.

3. Moderate Defiance
The child is actively defiant, argumentative, and/or outright refuses. The child tests their parent’s limits, but responds to parent prompts or re-issuing of directive. This may include multiple repetitions by the adult.

4. High Defiance
The child is persistently defiant, even after several prompts from the adult.

Questions to ask yourself:
Did the parent issue a command to their child? Did the child follow-through?
Was their noncompliance active (“no!”) or passive (ignored)?
Intensity of Passive Non-Compliance

Passive noncompliance refers to a child’s passive refusal to follow a directive issued by the adult. Passive noncompliance includes delaying (e.g., dragging feet as comply) and/or ignoring the adult’s directives or prohibitions as if the adult hasn’t spoken. A directive is a statement made by an adult that tells the child what to do (“put the crayons in the box”) or what not to do (e.g., “don’t touch the toys”), regardless of how ambiguous the direction is. Some parents may state their request in the form of a question (“will you sit down,” “would you put the toys away”). These are still directions. However, social requests, such as “can I color,” “do you want to use the red one” are NOT considered a direction. Thus, you would not code ignoring suggestion (e.g., “why don’t you color with the blue one) as noncompliance.

Some behaviors you might see include:
- The child ignores their parent’s instruction.
- The child delays compliance by dragging their feet, etc.

1. No Passive Noncompliance
   No evidence of passive noncompliance.

2 Low Intensity of Passive Noncompliance
   Delayed compliance- e.g., directive is stated and child does not respond at first but eventually complies without adult needing to re-issue directive or following second issuing of directive.

3 Moderate Intensity of Passive Noncompliance
   Moderate level includes passive resistance, which involves clearly ignoring the adult’s directive OR prohibitions but responding to prompts or re-issuing directive. May include if adult asks two times and child ignores second directive.

4 High Intensity of Passive Noncompliance
   Persistent passive non-compliance even after several prompts from adult. Child may never comply with that particular task or prompt.

Questions to ask yourself:
Did the parent direct the play? And did the child willingly comply?
Predominance of Non-Compliance

Predominance refers to the pervasiveness of BOTH defiance and passive noncompliance instead of the quality.

Some behaviors that you might see include
- Child saying “no,” to a request, even when followed with compliance
- Saying “no,” while doing what was requested
- Argumentative behavior
- Outright refusal of parental request
- The child ignores their parent’s instruction.
- The child delays compliance by dragging their feet, etc.

Now determine whether these behaviors were predominant!

1. None
   The child does not display any noncompliant behavior throughout the video.

2. Low Predominance of Noncompliance
   The child displays noncompliance a few times.

3. Moderate Predominance of Noncompliance
   The child displays noncompliance multiple times but it does not predominate across the task.

4. High Predominance of Noncompliance
   The child is characteristically noncompliant. Noncompliance predominates throughout the context.

Questions to ask yourself:
Was the child noncompliant more often than not?
How many times did the child not comply with their parent’s request, either actively or passively?
Destructiveness

Low level physical aggression includes rough handling of toys, accidental damage to toys, or mild aggression, such as a child who “tosses” a puzzle piece or bubble blower into the basket, and slapping table or books. Higher levels of physical aggression may not only include more aggressive behaviors (e.g., banging, spitting, breaking) but may also have the added component of intent to cause damage. The frequency of the behavior should not be taken into account when coding physical aggression toward objects. Thus, if a child continues coloring roughly despite instruction to stop, the behavior is coded as low level physical aggression (the failure to stop coloring roughly is captured under compliance).

Some behaviors that you might see include
- Rough handling of toys
- Accidental damage to toys
- Tossing toys into basket
- Slapping table or books
- Spitting
- Intentional breaking of toys

1. None
The child does not display any aggressive behavior targeted at objects.

2. Low Destructiveness
The child displays mildly aggressive behavior such as handling toys roughly. May include destructiveness that seems to stem from carelessness.

3. Moderate Destructiveness
The child displays moderately aggressive behavior toward objects such as banging, spitting on, and/or deliberately writing on or breaking crayons. Includes destructiveness that is either deliberate or seems to stems from negative affect/frustration.

4. High Destructiveness
The child displays very aggressive behavior, such as throwing objects, attempts to tear up or angrily bite, attempting to break, and/or smashing. Should reflect deliberate and serious destructiveness.
Intensity of Positive Affect

Positive affect here refers to genuinely happy/cheerful and warm affect and may manifest as a positive tone (e.g., cheerful, warm), high level of animation (e.g., bubbly, playful), and happy behavior (e.g., smiling, beaming, laughing). Low-level positive affect includes relatively brief smiles and lilt in voice. Moderate level positive affect includes a sustained pleasant expression, brief giggles and/or laughter that are not sustained. High-level positive affect includes exuberance, excitement (e.g., clapping), and bouts of laughter. To get a 3 there should be positive affect expressed in some combination of verbal tone, facial affect and/or body movements.

This code reflects highest level of positive affect (PA) exhibited by the child. Scores should be based on highest level rather than predominant level of intensity of positive affect displayed (e.g., a child who laughs with exuberance would be coded as a 3 even if the predominant level of positive affect is low across the context). Coded regardless of how genuine the positive affect feels or whether it is socially appropriate (e.g., children who smile, laugh, etc while engaging in a behavior they know annoys the adult).

Some behaviors that you might see include:
- Positive, cheerful, warm tone
- Highly animated behavior including bubbly and playful behavior
- Smiling
- Laughing

1. Very Little or No positive Affect
Little or no evidence of positive affect.

2. Low Intensity of Positive Affect
Intensity of positive affect was low level. Includes any clear examples of smiling that is not sustained or pleasant expression that are not sustained.

3. Moderate Intensity of Positive Affect
Intensity of positive affect was moderate. May include sustained pleasant expression, OR smiles OR brief giggles OR laughter that is not sustained

4. High Intensity of Positive Affect
Intensity of positive affect was high. Includes exuberance, excitement, laughter, bouts of laughter, OR exclamations accompanied by positive affect.
Predominance of Positive Affect

Predominance refers to the pervasiveness of the positive affect instead of the quality. Low-level positive affect includes relatively brief smiles and lilt in voice. Moderate level positive affect includes a sustained pleasant expression, brief giggles and/or laughter that are not sustained. High-level positive affect includes exuberance, excitement (e.g., clapping), and bouts of laughter.

Some behaviors that you might see include
- Positive, cheerful, warm tone
- Highly animated behavior including bubbly and playful behavior
- Smiling
- Laughing

Now determine whether these behaviors were predominant!

1. None
   The child does not display any positive affect throughout the video.

2. Low Predominance of Positive Affect
   The child displays positive affect a few times.

3. Moderate Predominance of Positive Affect
   The child displays positive affect multiple times.

4. High Predominance of Positive Affect
   The child’s positive affect predominates the context.

Questions to ask yourself:
Was the child happy/positive more often than not?
How many times did the child display positive affect?
Social Engagement

Social engagement focuses on positive attempts to engage the other person and includes sharing information, showing something, asking questions, and other attempts to include the other person into the child play or experience. Low level social engagement includes sustained eye contact with the other person as well as responding to the other person’s attempts at engagement. High levels of social engagement include more active attempts to engage the other person, including initiating conversation through question asking, information sharing, etc. Talking which is not geared towards engaging another (e.g., self-talk, descriptive commenting) should not be considered “sharing information,” thus it would be acceptable to down code a child’s whose social engagement mainly reflected this type of conversation. Negative attention seeking (e.g., provocative behaviors) or negative responses to adult attempts to initiate, should not be coded as social engagement as they reflect negative attempts at engaging another person socially.

Some behaviors that you might see include:
- Sustained eye contact with parent
- Initiating conversations
- Asking questions
- Showing parent something
- Including the parent in play

1. None
The child never initiates and/or rarely responds to positive social interactions initiated by the adult (e.g., ignores social bids). No or very limited engagement in positive social interactions even with substantial adult support (does not lead or follow) OR child who predominantly engages in negative attempts to engage the other person.

2. Low Social Engagement
The child rarely initiates but is somewhat responsive to positive social interactions. Engages in some social interactions but may be somewhat limited or may not be very spontaneous or independent. May require some adult support to sustain. May include child who has a few appropriate attempts at initiating or responding to adult.

3. Moderate Social Engagement
The child sometimes initiates positive social interactions and generally is responsive to adult’s social interactions.

4. High Social Engagement
The child independently and spontaneously engages in positive social interchange as evidenced by positive affect, social initiation, conversation and responsiveness to adult’s bids. The child both initiates and responds.

Questions to ask yourself:
Does the child seek out engagement with their parent in an appropriate manner?
Appendix D: Parenting Video Coding Manual

Maternal Sensitivity

Maternal sensitivity measures the mother’s ability to accurately interpret their child’s verbal and non-verbal communication, and respond both appropriately and promptly (Ainsworth et al., 1978). A sensitive parent is in tune with his/her child and is aware of their mood, interests, and capabilities and allows this awareness to guide their interaction (rather than, the demands of the task or the presence of the camera). The sensitivity scale captures the quality of the interaction, whether the interaction is well timed, and paced with the child’s responses, which is a child centered interaction. How and what the parent plays is geared to whether or not the child seems to be enjoying the activity and engaged with the parent in that activity. The parent doesn’t persist with an activity or toy in which the child is clearly not interested, nor does she terminate an activity abruptly which the child is obviously enjoying. This scale assesses both the frequency and intensity of the behavior.

Some behaviors you might see include:

- Maintain connection to child by talking with the child or commenting on what the child is doing
- Acknowledgment of and responses to child’s affect (including positive affect)
- Evidence of good timing paced to child’s interests and arousal level (e.g., not overstimulating the child with multiple demands or rapid questions)
- Picking up on child’s interest in toys or games and following the child’s lead (i.e., joining the child in child-directed play)
- Giving the child time to explore a toy he/she is interested in and is managing competently on own
- Recognizing when the child I bored or disinterested, redirects when the child loses interests in toy (e.g., suggests a new activity)

Contingency: Mothers who respond contingent to (based upon) their child’s behaviors are scored higher here. Mothers who are more sensitive will be more attuned to their child’s needs and respond to their child’s requests and signals. It is important to see whether or not the mother’s behaviors and responses are contingent on the initial behavior of the child.

Positive behaviors: Positive behaviors such as warmth and joy are also considered here. For example, the extent to which the parent displays warmth, nurturance, and positive affection toward child and enjoys interacting with the child. It is important to look for moments of shared enjoyment between the child and parent in the interaction.

Negative Behaviors: Negative behaviors such as rejection, interference, hostility, and disengagement are important to consider here. Mothers who display many of these behaviors will often have lower levels of positive and sensitive behaviors here, which will result in a lower score.

1. Little or no Sensitivity
Little or no evidence of sensitive behavior. Mother does not show sensitivity in her interactions with the child (typically she will enter highly/somewhat intrusive or disengaged) and this is characteristic of her interaction style. Mother’s behavior is guided almost entirely by her own wishes, moods, and activity. Mother’s behaviors are very rarely contingent on the child’s behaviors or cues. For a 1, the mother should make no attempt to follow the child’s lead.

2. Low Sensitivity
Mother shows brief or mild instances of sensitive behavior (would usually be mixed with at least some unresponsiveness or intrusiveness) but typically does not interact with the child in a sensitive manner throughout the segment (e.g., does not respond contingently, appropriately, or promptly). This mother may have one or two more attempts to follow the child’s lead/interests but this is fleeting or inappropriate (e.g., intrusive, rejecting). This mother may change the toy/game once or twice by interrupting the child’s play or overwhelming the child with toys the child doesn’t indicate an interest in or by asking multiple questions (“quizzing”). She may often fail to respond appropriately and promptly. An otherwise appropriate response may be delayed to the point that it is no longer contingent upon child’s signal or a seemingly appropriate response may be disrupted prematurely, so that the interaction seems fragmented and incomplete or the mother’s responses perfunctory, half-hearted, or impatient. Despite such clear evidence of insensitivity, mother is not consistently and pervasively insensitivity as mothers rated lower.

3. Moderate Sensitivity
Sensitive behavior occurs at a moderate level, or a more prolonged and intense example of a single sensitive behavior than indicated by 2. Mothers who appear to have an equal amount (half and half) of sensitive and insensitive behaviors would be scored here. She may have some intrusiveness (e.g., by interrupting or overwhelming the child with toys or questions, or be generally controlling of the child’s behavior/movement and not let the child explore the toys at his/her own pace). Additionally, her responses to the child are sometimes in a gentle manner but are not consistently so. Responses may be prompt and appropriate in most respects, but either inappropriate or slow in other respects. This mother may be more frequently sensitive than insensitive, but may make strikingly insensitive comments.

4. Much Sensitivity
Mother interprets the child’s communications accurately and responds to them promptly and appropriately, but with less sensitivity than mothers rated higher. She may be less attuned to child’s more subtle signals. Awareness may be somewhat less than that of mother’s rated higher, but child’s clear signals are neither missed or misinterpreted. Although her responses may not be as consistently prompt or finely appropriate as those of mother’s rated higher, she is never seriously out of tune with child’s tempo and communication. She follows the child’s lead most of the time, however she may have still required the child to follow her lead. There should not be more than very few instances of mild negative behaviors.

5. Very High Sensitivity
Sensitive behavior occurs rapidly or at higher intensities than mothers who are rated at a 4. Mother is consistently child-centered in her interactions with the child and typically responds to the child’s cues. The mother is skillfully tuned to child’s signals and responds to them appropriately and promptly. When she feels that it is not best to comply with child’s demands
(e.g., when he is overstimulated, too commanding, or wants something he should not have or has to clean up) she is tactful in acknowledging his communications and in offering an acceptable alternative. She has well rounded interactions with child, so that the transaction is smoothly completed and both mother and child feel satisfied. Both the child and mother appear to be having a good time together in this interaction.

**Questions to ask yourself:**
- Is the mother child-centered?
- Who is leading/directing the interaction more?
- How quickly does the mother respond to the child’s requests?
- Is she in tune to the child?
- Are the mother’s reactions based on the child’s cues?
- Is the mother enjoying her interaction with the child?
Maternal Positive Engagement

Maternal Positive Engagement measures the degree of involvement and connection the mother has with their child during the video interaction. This is primarily a behavioral code. In this section it is important to take into account the extent to which the parent is genuinely involved in the conversation/interaction, initiates contact if necessary, and makes an attempt to facilitate the child’s behavior at a time when support or assistance would be helpful to the child. The mother allows child to direct play activities, and is a supportive presence for the child when it is clear the child could use some assistance. Parent responds to bids for assistance from the child, interprets child’s cues, and aids the child in an age-appropriate and respectful manner. The mother plays along with the child and responds to child’s comments and questions. Alternately, disengaged parents may be seen as “doing nothing,” or the parent may make some token gestures to engage the child in an activity for the benefit of the experimenter.

Some behaviors of positive engagement include:

- Mother participates in a lot of shared activity with the child rather than withdrawing
- Talks with the child, rather than talking at the child, to camera, or dead air on camera
- Mother positions her toward her child and sits on the floor/at the same level as their child
- Parent responds shortly after being asked a direct question by their child with minimal empty pauses
- Mother’s involvement in play with child is consistent and involves turn taking
- When child expressed desire for closeness, mother responds appropriately
- Mother initiates activities with her child and responds to the child’s initiation in a way that furthers the interaction

Pacing: Pacing is important to consider here. There should be no/few empty pauses between instances of stimulation, child’s questions/statements, and mother’s response or involvement in play with the child.

Body Position: The way the parent positions herself is important to consider in this scale. The mother may adjust to face the child, sit with the child and moves towards the child/is at the child’s level. Look at the way the parent positions themselves in relation to the child. Do they sit on the floor next to the child or are they on the couch watching the child?

Involvement in interactions: It is important to consider whether the mother initiates activities versus doing nothing for most of the interactions. Instead of sitting back and watching the child play alone, higher levels of engagement consist of the mother initiating the interaction in a way that promotes positive interaction (e.g., this is not giving demands or asking questions in a quizzing manner). The mother may also vocalize about/expand on play to promote interaction or extend on child’s behavior at a time when support and assistance would be helpful (e.g., showing or explaining how to use a toy). How the mother plays and directs interactions matters - is the mother seen as “doing nothing,” making token gestures, or she may be so involved in her own activity that does not respond to the child.
Length and Frequency: The length and frequency of engagement are also important to consider. All mothers will disengage momentarily, so it is important to pay attention to how long and how often a parent may be disengaged (e.g., checks phone, plays by self, sits back to watch).

1. Little or No Positive Engagement (Disengagement)
Parent is uninvolved or inactive and shows no interest in interacting with the child (may appear bored or tired), therefore participation is limited. Parent responds to comments with a brief head nod/shake or monosyllabic statement. The mother may be somewhat responsive, but is virtually never initiating interaction. Child often controls the play without involvement of mother. Mother makes an attempt to engage the child, but the child does not respond or responds negatively. Mother does not interact with the child and his/her activities, as seen by her attention on other things (e.g., distracted on phone or playing with other toys). She does not position her body appropriately, vocalize about, involve herself in and or facilitate interactions with her child. It may appear that the mother and child exist in parallel or the mother may be sitting back and indifferent to her child.

2. Briefly Positively Engaged
Parent is often uninvolved or inactive and shows some interest in interacting with their child in which participation may be limited. She may participate in the conversation, but her involvement is solicited and responsive in nature. Mother succeeds in engaging the child once or twice during the segment. The child may respond briefly but is quickly distracted or disengaged, and for most of the segment the child is not engaged as a result of their mother’s attempts. Children who are engaged in a toy alone, should be scored lower. This mother may sometimes position her body appropriately, vocalize about, involve herself, or facilitate interactions or activities on some occasions. However, there are still times where the mother and child exist in parallel. The mother may still sit back and observe the child playing, she does not initiate the interaction, she may appear bored much or all of the time. This mother may play by herself to the exclusion of the child a lot of the time.

3. Moderate or Mixed Positive Engagement
Parent is more involved. She will occasionally initiate her own interactions with the child and the topics being discussed/toys played with. Mother is engaged with child and the child responds to efforts of engagement for longer segments, but this does not characterize their interactions for the entire segment. If the mother engages with a toy and does not follow up with at least some turn taking, the highest score they would receive is a 3. If the child and mother are engaged with the same toy/activity as a result of the child’s effort, but the mother makes not eye contact or vocalization to the child, the highest score they should receive is a 3. She positions her body appropriately, vocalizes about, involves/engages herself and/or facilitates interaction and activities half of the time, where the other half of the time she may play alone or appear distracted/bored.

4. Much Positive Engagement
The parent is usually active and involved, she engages more than half of the time. She contributes her ideas and initiates new topics/suggestions for play if needed to facilitate further
involvement with the child. Mother is engaged with child and the child responds to efforts of engagement for the majority of the segment. There may be a few examples where she withdraws or limits her participation (e.g., becomes distracted, does not respond promptly), but this is not common. She positions her body appropriately, vocalizes about, involves herself in and/or facilitates interaction and activities more than half of the time.

5. Predominantly Successful Positive Engagement
Parent is consistently involved and active. She consistently initiates interactions with her child and suggests new interactions when the child appears bored. Mother keeps child engaged in play or positive interactions for nearly the entire segment. To score a 5, the mother and child should also be looking at each other and have vocalizations at least a few times in addition to playing. She also appears connected to the child. She positions her body appropriately (e.g. gets down on the floor to play), vocalizes about, involves herself in and/or facilitates interactions and activities all of the time.

Questions to ask yourself?
How much is the child positively engaged with the child?
How does the mother sit relative to the child? Is she on the same level as/oriented toward child?
How much does the mother talk with the child?
How much are they playing together?
Were there times where the mother sat back and watched or appeared disengaged? How long?
How much is there playing vs. mom giving directives/directions or quizzing?
Maternal Verbal Interference/Intrusiveness/Hostility

Maternal verbal interference/intrusiveness/hostility is the extent to which a mother controls the interaction with their child via verbal interruptions and negative comments. This is the extent to which mother redirects or overrides the child when the child is already focused on a toy, activity, or goal, or exerts control over the child and/or exhibits a directive interactive style with the child. Intrusive parents impose their agenda on the child despite signals from the child that a different activity or pace is needed. Throughout the segment, negative/hostile affect and comments implying the child is not doing what the parent wants are indicative of an overall lack of insensitivity and may accompany over controlling/intrusive behaviors. Other behaviors include expression of negative affect, offering the child a continuous barrage of stimulation or toys, verbally overwhelming the child rather than observing the interaction, not allowing the child to influence the pace or focus of play. Additionally, it is important to considered the context of the child’s behaviors. Cues from the child preceding or occurring after the mother’s behavior often indicate how the child has perceived her action if the child gets upset or reacts nonverbally (e.g., pulls away), give a higher score. This part should not carry as much weight in the coding though.

It is also important to note that this does not refer to appropriate limit-setting or structuring, but measures the degree to which the mother’s behavior interferes with rather than facilitates child’s goals.

Some examples of verbal behaviors you may see include:

- Verbally redirects child to another toy or activity when the child is already focused on something else
- Verbal zaps that restrain, restrict or prohibit the child (e.g. don’t, stop it, no no)
- Using negative, derogatory, or sarcastic sounding language (e.g., “That wasn’t the smartest move you ever made.”)
- A predominately imperative/directive verbal style (i.e., uses frequent, repeated direct commands and imperatives, such as, “put that there.”) and often doesn’t allow the child to respond
- Frequently talks over the child
- Directs the child using a harsh, annoyed, or impatient tone of voice
- Raises her voice when the child fails to respond, does not comply, or hesitates before responding
- Verbally “quizzing” the child in an interfering way (“What color is that?” “What veggie is this?” etc.). This is typically done in a repeated manner where the child is forced to respond to the parent’s question.
- During play parent directs/structures play in a way that does not allow the child to explore and decide what to play with. Parent often tells child what to play with or in some way decides what the parent/child will play with together, without regard to child’s wishes (e.g., “We’re going to play with this toy,” or “Here, you play with these blocks now.”)

Pacing: In this section it is important to look for non-contingent pacing. This is when the mother is involved and active with her child, but her pacing is not contingent on child’s rhythm or cues,
rather the mother is controlling the interaction (e.g., controls the choice and duration of the activity in spite of clear signals that the activity is not liked by the child, has been going on for too long, or is too difficult). Additionally, the mother interferes with child’s play to change or correct an activity or to limit child’s range of activity.

**Negative affect/hostility:** The extent to which the parent displays hostility, negative affect, and displeasure and annoyance toward the child should be considered in both frequency and intensity. This includes explicitly negative or scornful vocal tones (e.g., sarcasm, criticism, mocking/teasing, non-constructive critical statements, annoyance, impatience, threats, and negative affect), a clear lack of enjoyment of the child in this situation, low-level feeling of coldness (e.g., repeated failure to provide positive feedback with the child succeeds), and the content of the statements themselves, such as critical and demeaning remarks (e.g., “You don’t know anything.”; “You’re eating like a slob.”; “I don’t want to play with you, stop being such a baby.”; “Stop it or I’ll take away the toys.”). A mother scoring high on this scale shows overt and clear signs of negativity/hostility that communicates that she does not support the child emotionally or negative zaps that restrain, restrict or prohibit the child.

1. **Low to No Interference/Intrusiveness/Hostility**
Little or no sign of overcontrolling verbal behavior/intrusiveness/hostility present. Mother is involved, but no overly directive. When directions are given, it is always done in a manner that is responsive to the child’s interests and is respectful. She respects the child’s autonomy and views the child as a separate individual with his/her own needs and wishes. She exerts very little control over the child and allows the child to lead the play interaction and choose activities.

2. **Some Interference/Intrusiveness/Hostility**
The mother’s interaction is not predominately directive, hostile or controlling. She exhibits a few brief or mild signs of overcontrolling behavior or intrusiveness. However, the child does not perceive this as intrusive and does not appear to become upset (e.g., redirecting child to a new area in a poorly timed fashion, talk over child briefly). For the most part, she allows the child to control the interaction and follows the child’s lead, although there may be a few noticeable exceptions with inappropriate pacing, control of the interaction, or intrusive verbalizations.

3. **Moderate Verbal Interference/Intrusiveness/Hostility**
Mothers exhibits occasional instance of low-level intrusiveness but is not pervasive and does not characterize the entire interaction. These instances are low in intensity and the child does not become upset. Although lower level intrusiveness may occur more frequently than a mother rated at a 2, the child still has a lot of opportunities to engage in self-directed object exploration or other free play activities. Mothers rated a 3 may exhibit a directive style for half the time, but the mother often uses indirect commands and suggestions rather than imperatives, and this directiveness does not often override the child’s ongoing interests and does not show an overall lack of respect for child for the other half of the time. One clear cut (higher level) sign of overcontrolling or overriding verbal intrusiveness may occur. For instance, the mother may issue an imperative or direct command with no regard for the child’s ongoing interest or proper response.
4. Much Verbal Interference/Intrusiveness/Hostility
Some instances of higher level intrusiveness, indicating a disrespect for the child’s needs, autonomy, and interests (e.g., issue repeated directives, verbally “zaps” or quizzes child, makes hostile/sarcastic comments about the child). Alternatively, there may be 1-2 higher level intensity overcontrolling, intrusive, or hostile acts combined with more pervasive low-level intrusive interactions or a predominantly directive interaction style that may often interfere with the child’s interests and activities. She may display considerable verbal interference and does not seem to be following the child much of the time. However, there may be a few instances in which the mother does allow the child to have some control over the interaction and play, which is why they do not get scored a 5. Additionally, hostility is seen at a lower intensity level than mothers rated at 5.

5. Very High Verbal Interference/Intrusiveness/Hostility
There are several clear incidents of high-level overcontrolling behavior, intrusiveness, or hostility throughout the session (e.g., issue repeated directives, verbally “zaps” or quizzes child, makes hostile/sarcastic comments about the child) and it is clear that the mother’s agenda has precedence over the child’s wishes and interests (e.g., the mother frequently redirects the child or otherwise directs his/her behavior in an insensitive manner) combined with persistent lower-level intrusive interactions, and/or predominantly directive periods. She frequently intervenes inappropriately without cues from the child. She may display considerable verbal interference and does not seem to be following the child’s wishes at all. Additionally, the mother may demonstrate power assertive techniques to get the child to comply with her wishes and you may see hostility throughout this (as described above).

Questions to ask yourself?
How much is the parent controlling the interaction with verbal instructions/imperatives?
How often is “quizzing” or verbal “zaps” happening?
How is the child reacting to this interaction?
Who is in control of the interaction?
Maternal Physical Interference/Intrusiveness/Hostility

Maternal physical interference/intrusiveness/hostility is the extent to which a mother controls the interaction with their child via physical interruptions and interference. For example, this is the extent to which mother redirects or overrides the infant when the infant is already focused on a toy, activity, or goal, or exerts control over the child and or exhibits a directive style with the child. Intrusive parents impose their agenda on the child despite signals from the child that a different activity or pace is needed (e.g., taking a toy from the child). Additionally, some parents persist in demonstrating a toy to a child after the child has gained the child’s interest and the child obviously wants to manipulate the toy himself (the parent is unable to relinquish control). Other behaviors include overwhelming the child with a rapid succession of toys or approaches without paying attention to the child’s response, or trying to remove a toy or distract the child’s attention (e.g., putting another toy in the child’s face) to a new toy when the child has not lost interest in a current toy. Additionally, it is important to considered the context of the child’s behaviors. Cues from the child preceding or occurring after the mother’s behavior often indicate how the child has perceived her action if the child gets upset or reacts nonverbally (e.g., pulls away), give a higher score. This part should not carry as much weight in the coding though.

It is also important to note that this does not refer to appropriate limit-setting or structuring, but measures the degree to which the mother’s behavior interferes with rather than facilitates child’s goals, as shown by body control (e.g., the mother physically manipulating the child’s body to accomplish something mother wants).

Some examples of behaviors you may see include:

- Taking away objects while the child still appears interested (e.g., parent has a shorter attention span, or is annoyed by the drum)
- Intrusive physical manipulations child’s body or materials to coerce child to behavior in a certain manner (e.g., pushing child’s arms back and forth to “help” him do something, moving their body when they have turned away, pulling the child’s hand off of objects they are holding)
- Making the child manipulate an object- unless the child gives a positive response, this behavior is overcontrolling when the parent is manipulating movements of the child overrides or interferes with her child’s ongoing activity, desires, and interests
- Nonverbal “zaps” that physically restrain, restrict, or prohibit the child (e.g., grabs the child’s arms and hands and places them elsewhere, moves the child to physically perform a task, restraining the child physically, takes a toy away).
- Carries out her own actions on a joint activity before the child has finished her turn or problem solving attempt
- Seeks affection or physical contact with the child at inappropriate times or in inappropriate ways (e.g., when child is concentrating on a task)

**Pacing:** In this section it is important to look for non-contingent pacing. This is when the mother is involved and active with her child, but her pacing is not contingent on child’s rhythm or cues, rather the mother is controlling the interaction (e.g., controls the choice and duration of the activity in spite of clear signals that the activity is not liked by the child, has been going on for
too long, or is too difficult). Additionally, the mother interferes with child’s play to change or correct an activity or to limit child’s range of activity.

**Negative affect/hostility:** The extent to which the parent displays hostility, negative affect, and displeasure and annoyance toward the child should be considered in both frequency and intensity. Behaviors include mild or brief signs of irritation, annoyance, impatience (e.g., a brief cold look to the child suggesting annoyance, hands on hips in exasperation or mock exasperation, rolling eyes at child), aggressive handling of the child, and clear lack of enjoyment of the child in this situation (e.g., as shown nonverbally by a frown), and rejection (e.g., actively ignoring the child, turning away, failing to listen, holding a toy out of reach of the child). A mother scoring high on this scale shows overt and clear signs of negativity/hostility that communicates that she does not support the child emotionally or negative zaps that restrain, restrict or prohibit the child.

1. **Low to No Physical Interference/Intrusivness/Hostility**
   Little or no sign of overcontrolling physical behavior/intrusiveness/hostility present. Mother is involved, but no overly physically directive. When directions are given, it is always done in a manner that is responsive to the child’s interested and is respectful. The mother may sit by the child, but does not try to physically block access to, or have the child manipulate the toy in any way. She respects the child’s autonomy and views the child as a separate individual with his/her own needs and wishes. She allows the child to lead play and choose activities.

2. **Some Physical Interference/Intrusiveness/Hostility**
   The mother’s interaction is not predominately directive, hostile or controlling. She exhibits a few brief or mild signs of overcontrolling behavior or intrusiveness. However, the child does not perceive this as intrusive and does not appear to become upset (e.g., physically moving the child over, moving a toy away from a child briefly). For the most part she allows the child to control the interaction and follows the child’s lead, although there may be a few exceptions where she exhibits inappropriate pacing and body control.

3. **Moderate Physical Interference/Intrusiveness/Hostility**
   Mothers exhibits occasional instance of low-level intrusiveness but it is not pervasive and does not characterize the interaction. These instances are low in intensity and the child does not become upset. Although lower level intrusiveness may occur more frequently than a mother rated at a 2, the child still has a lot of opportunities to engage in self-directed object exploration or other free play activities. Mothers rated a 3 may exhibit few brief or mild signs of overcontrolling behavior or intrusiveness for half the time, but the mother often is not overly physically directive or controlling and this directiveness does not often override the child’s ongoing interests and does not show an overall lack of respect for child for the other half of the time. One clear cut (higher level) sign of overcontrolling or overriding behavioral intrusiveness may occur. For instance, the mother may take an object from the child, move the child hands or arms to another location, or use physical manipulation.

4. **Much Physical Interference/Intrusiveness/Hostility**
   Some instances of higher level intrusiveness, indicating a disrespect for the child’s needs, autonomy, and interests (e.g., take objects from the child, take over the interaction, physically manipulate the child’s body). Alternatively, there may be 1-2 higher level intensity
overcontrolling, intrusive, or hostile acts combined with more pervasive low-level intrusive interactions or a predominantly directive interaction style that may often interfere with the child’s interests and activities. She may display considerable physical interference and does not seem to be following the child much of the time. However, there may be a few instances in which the mother does allow the child to have some control over the interaction and play, which is why they do not get scored a 5. Additionally, hostility is seen at a lower intensity level than mothers rated at 5.

5. Very High Physical Interference/Intrusiveness/Hostility
There are several clear incidents of high-level overcontrolling behavior, intrusiveness, or hostility throughout the session, and it is clear that the mother’s agenda has precedence over the child’s needs and interests (e.g., the mother physically moves the child’s hands, or physically manipulates his/her body, or otherwise directs his/her behavior in an insensitive manner) combined with persistent lower-level intrusive interactions, and or predominantly directive periods. She frequently intervenes inappropriately without cues from the child (e.g., pushing child’s arms back and forth to “help” him do something). She may display considerable physical interference and does not seem to be following the child’s wishes at all. Additionally, the mother may demonstrate power assertive techniques to get the child to comply with her wishes see hostility throughout this (e.g., using physical force to control the child’s movements or activities and further described above).

Questions to ask yourself?
How much is the parent physically interfering with the interaction?
Does the parent physically move the child in any way?
Does the parent remove take toys from the child or do other things to physically control the interaction?
How is the child reacting to this interaction?
### Appendix E: NEWS-Y

#### A. Stores and other public places in the neighborhood where you and your child live

About how long would it take you to walk (on your own, without your children) from your home to the nearest stores or places listed below? Please circle the time it would take you to walk to each place, even if you don’t normally go there.

<table>
<thead>
<tr>
<th>e.g. gas station</th>
<th>1-5 min</th>
<th>6-10 min</th>
<th>11-20 min</th>
<th>21-30 min</th>
<th>31+ min</th>
<th>don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 convenience/corner store/small grocery store/bodega</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>2 supermarket</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>3 hardware store</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>4 fruit/vegetable market</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>5 laundry or dry cleaners</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>6 clothing store</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>7 post office</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>8 library</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>9 elementary school</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>10 middle or high school</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>11 book store</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>12 fast food restaurant</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>13 coffee place</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>14 bank/credit union</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>15 non-fast food restaurant</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>16 video store</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>17 pharmacy/drug store</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>18 hairdressers/barber shop</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>19 any offices/worksites</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
<tr>
<td>20 bus, subway or train stop</td>
<td>1-5 min</td>
<td>6-10 min</td>
<td>11-20 min</td>
<td>21-30 min</td>
<td>31+ min</td>
<td>don’t know</td>
</tr>
</tbody>
</table>
## B. Recreation places in the neighborhood where you and your child live

About how long would it take you to walk (on your own, without your children) from your home to the nearest recreation place listed below? Please circle the time it would take you to walk to each place, even if you don’t normally go there.

<table>
<thead>
<tr>
<th></th>
<th>Recreation Place</th>
<th>1-5 min</th>
<th>6-10 min</th>
<th>11-20 min</th>
<th>21-30 min</th>
<th>31+ min</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indoor recreation or exercise facility (public or private)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Beach, lake, river, or creek</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bike/hiking/walking trails, paths</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Basketball court</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Other playing fields/courts (e.g., soccer, football, softball, tennis, skate park etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>YMCA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Boys and girls club</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Swimming pool</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Walking / running track</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>School with recreation facilities open to the public</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Small public park</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Large public park</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Public playground with equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Public open space (grass or sand/dirt) that is not a park</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
C. Types of homes in your neighborhood

While thinking about the places where people live in your neighborhood, please circle an answer for each of the following questions. Your neighborhood is the local area around your home, within a 10-15 minute walk in any direction.

1. How common are separate or stand alone one family homes in your neighborhood?
   There are:
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>A few</td>
<td>Some</td>
<td>A lot</td>
<td>All the residences are separate one family homes</td>
</tr>
</tbody>
</table>

2. How common are connected townhouses or rows of houses in your neighborhood?
   There are:
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>A few</td>
<td>Some</td>
<td>A lot</td>
<td>All the residences are townhouses or row houses</td>
</tr>
</tbody>
</table>

3. How common are multiple family or duplex homes in your neighborhood?
   There are:
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>A few</td>
<td>Some</td>
<td>A lot</td>
<td>All the residences are multiple family/duplex homes</td>
</tr>
</tbody>
</table>

4. How common are apartment or condo buildings in your neighborhood?
   There are:
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>A few</td>
<td>Some</td>
<td>A lot</td>
<td>All the residences are in apartment or condo buildings</td>
</tr>
</tbody>
</table>
**D. Access to services**

Please circle the answer that best applies to the neighborhood where you and your child live. Both **local** and **within walking distance** mean within a 10-15 minute walk from your home.

1. Stores are within easy walking distance of our home.
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly disagree</td>
<td>somewhat disagree</td>
<td>somewhat agree</td>
<td>strongly agree</td>
</tr>
</tbody>
</table>

2. Parking is difficult in local shopping areas.
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly disagree</td>
<td>somewhat disagree</td>
<td>somewhat agree</td>
<td>strongly agree</td>
</tr>
</tbody>
</table>

3. There are many places for my child to go (alone or with someone) within easy walking distance of our home.
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly disagree</td>
<td>somewhat disagree</td>
<td>somewhat agree</td>
<td>strongly agree</td>
</tr>
</tbody>
</table>

4. From our home, it is easy for my child to walk (alone or with someone) to a transit stop (bus, subway, train).
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly disagree</td>
<td>somewhat disagree</td>
<td>somewhat agree</td>
<td>strongly agree</td>
</tr>
</tbody>
</table>

5. The streets in my neighborhood are hilly, making our neighborhood difficult for my child to walk in.
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly disagree</td>
<td>somewhat disagree</td>
<td>somewhat agree</td>
<td>strongly agree</td>
</tr>
</tbody>
</table>

6. There are major barriers to walking in our local area that make it hard for my child to get from place to place (for example, freeways, railway lines, rivers).
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly disagree</td>
<td>somewhat disagree</td>
<td>somewhat agree</td>
<td>strongly agree</td>
</tr>
</tbody>
</table>
**E. Streets in my neighborhood**

Please circle the answer that best applies to the neighborhood where you and your child live.

1. The streets in our neighborhood do not have many cul-de-sacs (dead-end streets).
   - 1. strongly disagree
   - 2. somewhat disagree
   - 3. somewhat agree
   - 4. strongly agree

2. The distance between intersections (where streets cross) in our neighborhood is usually short. (100 yards or less; the length of a football field or less).
   - 1. strongly disagree
   - 2. somewhat disagree
   - 3. somewhat agree
   - 4. strongly agree

3. There are many different routes for getting from place to place in our neighborhood. (My child doesn’t have to go the same way every time.)
   - 1. strongly disagree
   - 2. somewhat disagree
   - 3. somewhat agree
   - 4. strongly agree

**F. Places for walking**

Please circle the answer that best applies to the neighborhood where you and your child live.

1. There are sidewalks on most of the streets in our neighborhood.
   - 1. strongly disagree
   - 2. somewhat disagree
   - 3. somewhat agree
   - 4. strongly agree

2. Sidewalks are separated from the road/traffic in our neighborhood by parked cars.
   - 1. strongly disagree
   - 2. somewhat disagree
   - 3. somewhat agree
   - 4. strongly agree

3. There is grass/dirt between the streets and the sidewalks in our neighborhood.
   - 1. strongly disagree
   - 2. somewhat disagree
   - 3. somewhat agree
   - 4. strongly agree
G. Neighborhood surroundings

Please circle the answer that best applies to the neighborhood where you and your child live.

1. There are trees along the streets in my neighborhood.
   1 strongly disagree  2 somewhat disagree  3 somewhat agree  4 strongly agree

2. There are many interesting things for my child to look at while walking in my neighborhood.
   1 strongly disagree  2 somewhat disagree  3 somewhat agree  4 strongly agree

3. There are many beautiful natural things for my child to look at in my neighborhood (e.g., gardens, views).
   1 strongly disagree  2 somewhat disagree  3 somewhat agree  4 strongly agree

4. There are many buildings/homes in my neighborhood that are nice to look at for my child.
   1 strongly disagree  2 somewhat disagree  3 somewhat agree  4 strongly agree
H. Neighborhood safety

Please circle the answer that best applies to the neighborhood where you and your child live.

1. There is so much traffic along nearby streets that it makes it difficult or unpleasant for my child to walk (alone or with someone) in our neighborhood.
   - disagree
   - somewhat
   - slightly
   - strongly

2. The speed of traffic on most nearby streets is usually slow (30 mph or less).
   - disagree
   - somewhat
   - slightly
   - strongly

3. Most drivers go faster than the posted speed limits in our neighborhood.
   - disagree
   - somewhat
   - slightly
   - strongly

4. Our neighborhood streets have good lighting at night.
   - disagree
   - somewhat
   - slightly
   - strongly

5. Walkers and bikers on the streets in our neighborhood can be easily seen by people in their homes.
   - disagree
   - somewhat
   - slightly
   - strongly

6. There are crosswalks and signals to help walkers cross busy streets in our neighborhood.
   - disagree
   - somewhat
   - slightly
   - strongly

7. When walking in our neighborhood there are a lot of exhaust fumes.
   - disagree
   - somewhat
   - slightly
   - strongly
1. Crime safety

Please circle the answer that best applies to the neighborhood where you and your child live.

1. There is a high crime rate in our neighborhood.
   1 strongly disagree  2 somewhat disagree  3 somewhat agree  4 strongly agree

2. The crime rate in our neighborhood makes it unsafe for my child to go on walks (alone or with someone) at night.
   1 strongly disagree  2 somewhat disagree  3 agree  4 strongly agree

3. I am worried about letting my child play outside alone around my home (e.g., yard, driveway, apartment common area) because I am afraid of them being taken or hurt by a stranger.
   1 strongly disagree  2 somewhat disagree  3 agree  4 strongly agree

4. I am worried about letting my child be outside with a friend around my home because I am afraid my child will be taken or hurt by a stranger.
   1 strongly disagree  2 somewhat disagree  3 agree  4 strongly agree

5. I am worried about letting my child play or walk alone or with friends in my neighborhood and local streets because I am afraid my child will be taken or hurt by a stranger.
   1 strongly disagree  2 somewhat disagree  3 agree  4 strongly agree

6. I am worried about letting my child be alone or with friends in a local or nearby park because I am afraid my child will be taken or hurt by a stranger.
   1 strongly disagree  2 somewhat disagree  3 agree  4 strongly agree