Exploring the Ecology of Children's Behavioral Functioning: Maternal and Neighborhood Influences

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Abstract

Various studies have sought to understand how maternal and environmental factors relate to children's socioemotional and behavioral outcomes. According to the bioecological model, the contexts in a child's life shape developmental pathways. Family systems theory posits that the family is an interdependent system in which family members' experiences are interrelated and can mutually impact one another. Maternal perceived discrimination negatively impacts maternal mental and physical health, parenting practices, and the psychological and behavioral functioning of children. Mental health can vary according to the characteristics of neighborhoods. Neighborhood connections and cohesion can positively impact health and well-being, whereas danger and structural disadvantages in the neighborhood can place individuals more at risk for negative health outcomes. The present study explored whether maternal perceived discrimination, neighborhood danger, and neighborhood connections predicted children's behavior, peer, conduct, and emotional problems (i.e., difficult behaviors) in a sample of teen mothers and their children. Mothers reported their experiences of perceived discrimination, the level of safety and connections in their neighborhood, and their children's difficult behaviors. Greater maternal perceived discrimination predicted greater children's difficult behaviors and the association was moderated by neighborhood danger, but not by neighborhood connections. Though the effects were small, the results indicated that maternal perceptions of discrimination and neighborhood danger inform children's behavioral functioning.

Keywords: perceived discrimination, neighborhood danger, neighborhood connections, internalizing behavior, externalizing behavior, mothers, children

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Exploring the Ecology of Children's Behavioral Functioning: Maternal and Neighborhood Influences

The contexts in a child's life, both the proximal ones (e.g., relationships with family, peers, educators) and the distal ones (e.g., neighborhood), are important for informing developmental trajectories and outcomes (Bronfenbrenner & Morris, 2006; Howard et al., 2000). The bioecological model posits that human development is impacted by coactive processes that occur between the individual and different levels of their environment (Atzaba-Poria et al., 2004; Bronfenbrenner, 2001; Bronfenbrenner & Morris. 2006; Dawson et al., 2019). Spencer et al. (1997) outlined in the Phenomenological Variant of Ecological Systems Theory (PVEST) how the meaning one makes from their experiences, not only the experiences themselves, influences one's perception of oneself. Frameworks for resilience propose that the risk and protective factors that are intertwined with resilience can be considered within an ecological framework, such that risk and protective factors can present in the individual's environment at varying degrees of proximity (Gartland et al., 2019). Furthermore, under the positive youth development (PYD) framework, positive experiences, and protective factors in the context of a child's family, school, and neighborhood can act to encourage adaptative functioning in adverse contexts (Lerner et al., 2009; Wang et al., 2021).

According to the Centers for Disease Control and Prevention (CDC), 1 in 6 children aged 2 to 8 years old (17.4%) had a diagnosed mental, behavioral, or developmental disorder between 2016 and 2019 in the United States (CDC, 2022). Furthermore, the prevalence of mental and behavioral health disorders increases as children age (CDC, 2022). It is important to be guided by ideas from the bioecological model, PVEST, resilience frameworks, and PYD when examining the risk and protective factors that may impact children's health and well-being. Poor

well-being and mental health among mothers are known proximal risk factors that may hinder children's resilient functioning (Masten, 2011; Easterbrooks, 2022). Parental perceived discrimination is a significant stressor that is related to the mental health of the parent, parenting practices, and the psychological development of children and adolescents (Chung & Lim, 2016).

Considering the impact of community-level factors on health is also important (Dawson et al., 2019). Mental health can vary according to the characteristics of neighborhoods (e.g., involving differences in disadvantage or social cohesion) (Maimon & Hill, 2013). Neighborhood connections and cohesion can positively impact an individual's health and well-being, whereas danger and structural disadvantages in the neighborhood can place individuals more at risk for negative health outcomes (Dawson et al., 2019; Wang et al., 2012).

To understand how risk and protective factors inform development, the current study aimed to explore whether maternal perceived discrimination, neighborhood danger, and neighborhood connections may work together to predict children's difficult behavioral functioning. There has been a lack of research on how maternal perceptions of the neighborhood and everyday discrimination may impact children's behavioral functioning. In samples of teen mothers[1], rates of ethnic minorities, single-parent households, and poverty were found to a greater extent than in samples of older mothers; thus, there is an opportunity to examine these topics in teen mothers and their children (Goodman et al., 2011).

Using a sample of teen mothers and their children, the current study examined the longitudinal relations between maternal perceived discrimination[2] and children's difficult

[1] Note that the terminology of "teen mothers" refers to mothers who are 21 years old or younger.

[2] Going forward, the term "maternal perceived discrimination" represents maternal perceptions of everyday discrimination, but I refer to the construct as "maternal perceived discrimination" for simplicity.

behavior using resilience and risk models. The resilience model explored whether maternal perceptions of neighborhood connections may attenuate the impact of maternal perceived discrimination on children's difficult behavior. The risk model explored whether maternal perceptions of neighborhood danger may exacerbate the impact of maternal perceived discrimination on children's difficult behavior. In the literature review below, I first address the foundational theories that guide the field's understanding of how children are impacted by the people and features within their environment. Then, I summarize findings that connect perceived discrimination, children's behavioral functioning, and neighborhood factors (e.g., danger, disadvantage, connections, social cohesion, etc.). Finally, I conclude by identifying gaps in the current literature.

Literature Review

Bioecological Model

Bronfenbrenner and Morris (2006) defined development as continuity and change in the biopsychosocial characteristics of people over the life course and from generation to generation. The bioecological model posits that human development occurs through the coaction between the individual and different levels of their environment (Atzaba-Poria et al., 2004; Bronfenbrenner, 2001; Bronfenbrenner & Morris, 2006; Dawson et al., 2019). These different levels are the microsystem, mesosystem, exosystem, macrosystem, and chronosystem (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006). Bronfenbrenner also focused on the proximal processes of development, which are the enduring and persistent reciprocal relations between the individual and features in their immediate environment (e.g., family, peers, educators, etc.) (Bronfenbrenner & Morris, 2006). The stronger and richer the proximal processes are among features in the microsystem of a child's life, the better the outcomes are for

the child (Howard et al., 2000). The proximal processes that occur between a child and the people with whom they have strong emotional relationships (e.g., parents, siblings, and friends) in stable and advantageous environments are associated with positive developmental outcomes (Atzaba-Poria, 2004; Bronfenbrenner & Morris, 2006; Rosa & Tudge, 2013).

Building from the ecological systems theory, Spencer et al. (1997) conceptualized the PVEST framework, which asserts that in addition to the experiences one has in different settings, the processing of phenomena and experiences is important for influencing how one perceives oneself. The meaning a person garners from their experiences impacts how they holistically view themselves and how they view their different traits (e.g., abilities, physical and personality traits). Spencer et al. (1997) emphasized that one's perceptions of their experiences alone is not sufficient for informing identity, meaning making is necessary. Meaning making can look like responsive coping methods or corrective problem-solving strategies (Spencer et al., 1997). The meaning-making or processing that occurs in different contexts informs one's self-perceptions that will influence how they act or present themselves in future contexts (Spencer et al., 1997). Self-perceptions organize and structure a person's behaviors, thoughts, and actions (Spencer et al., 1997). Applying a phenomenological perspective to the ecological systems approach allows space for individual subjectivity and the personal interpretation of developmentally salient experiences. The bioecological model's emphasis on the developmental importance of individuals' reciprocal relations with features at different levels of their environment coincides with the attention that resilience theory affords on the presence of strengths and assets in one's environment for promoting resilience. Figure 1 shows the bioecological model.

Resilience Theory

Broadly, resilience is defined as the ability of a dynamic system to endure or recover from challenging events that pose a threat to the stability, viability, or development of the system (Masten, 2011). Resilience is not a trait, but rather, it is a process-oriented response (Masten, 2011). In the context of human development, resilience refers to positive developmental outcomes and adaptation in the context of adverse, threatening, and/or highly stressful experiences (Gartland et al., 2019; Lunthar & Cicchetti, 2000; Masten, 2011; Masten & Curtis, 2000; Spencer et al., 1997). In recent years, research has focused on exploring how resilience processes arise in individuals across different contexts; people who demonstrate resilient functioning can employ their unique strengths and environmental resources to confront and overcome adverse situations through adaptation (Gartland et al., 2019; Masten, 2011). However, resilience is not an individual process. The capability of individuals' physical and social ecologies to make resources available is critical for promoting resilience (Ungar, 2008).

Risk and Protective Factors and Resilience

Models of resilience have included components that may promote or hinder resilient functioning; these components are known as risk and protective factors (Masten, 2011). The risk and protective factors that are intertwined with resilience can be considered within an ecological framework, such that risk and protective factors can present in the individual's environment at varying levels of closeness to the individual (e.g., proximal environments, like school and family, and distal environments, like the greater community) (Gartland et al., 2019). Jessor et al. (1995) defined risk factors as "those conditions or variables that are associated with a higher likelihood of negative or undesirable outcomes...behaviors that can compromise health, well-being, or social performance" (p. 2). Most proximal are individual-level risk factors, such as

prematurity and chronic health problems; at the relational level are risk factors, such as parental mental illness and substance misuse, child abuse and neglect, and parental education level; and at the community-level are risk factors, such as socioeconomic hardship, crime, and violence (Easterbrooks, 2022; Masten, 2011). Examining risk factors in the context of resilience can be used to understand what and how adverse conditions and experiences may undermine adaptive functioning.

In contrast, protective factors serve as buffering, moderating, and compensatory agents that compete against the harmful impacts that risk experiences may have on individuals to promote adaptation and positive outcomes (Rolf, 1999). For example, the protective factor of resourcefulness is a buffer against the influence of academic stress on achievement in school-aged children because resourcefulness is an internal resource that can shield individuals by enabling them to be less harmfully affected by stress (Leung & He, 2010). Protective factors that support resilience in children and adults are internal and external strengths; protective factors have been identified at the individual, relational (e.g., family), and community levels (Gartland et al., 2019; Howard et al., 2000). For example, individual-level protective factors can include coping style, positive self-esteem, and optimism; relational-level protective factors can include positive relationships with family and friends; and community-level protective factors can include school engagement and religious/support groups (Gartland et al., 2019). Examining protective factors in the context of resilience can be used to understand how they may promote resilient or adaptive functioning in the presence of adverse conditions and experiences.

Risk and protective factors in an individual's life can act in an additive and cumulative manner (Atzaba-Poria, 2004; Howard et al., 2000; Kiff et al., 2018; Masten, 2011). Cumulative risk models reflect the degree and quantity of an individual's exposure to risk across diverse

contexts (Kiff et al., 2018; Masten, 2011). Harmful experiences may affect children in different ways, depending on the level at which they occur (e.g., family, community, school, etc.). Childhood risk experiences and exposure to stressors that involve the child's family and other contexts or systems that are directly linked to the child (i.e., from the microsystem level) are associated with more externalizing behaviors (e.g., aggression) (Atzaba-Poria et al., 2004; Houbrechts et al., 2023). Family stressors tend to occur together and have cumulative effects on child development (Houbrechts et al., 2023).

Risk experiences at the individual and exosystem levels both are associated with more internalizing symptoms (Atzaba-Poria et al., 2004). For children who encounter risk in the exosystem, they are often impacted by what is happening in their environment, even if they are not directly involved, and instead of acting out against the risk itself, the children act against themselves via internalizing behaviors (Atzaba-Poria et al., 2004). The more protective factors that are present in an individual's life, the more likely they are to show resilience and the better protected they are against the harmful impacts of adverse life events (Howard et al., 2000).

Positive Youth Development Framework

Human development is a dynamic, lifelong process that is composed of relations between the individual and elements within their specific context (e.g., school, family, community). In agreement with the bioecological model and Ann Masten's (2011) definition of resilience, the positive youth development (PYD) framework emphasizes how the person and context mutually impact each other. Further, the relations between the person and context will differ and adapt as time, culture, and context shift over the life course, indicating that human development is plastic and evolving (Lerner et al., 2005; Lerner & Callina, 2013). Adaptive and positive development arises when the bidirectional relations between the individual and the people and systems in their

social contexts are mutually beneficial (Lerner et al., 2005). Mutually beneficial relations between person and context occur when the strengths of the individual and the assets of their environment are in alignment (Lerner & Benson, 2013; Lerner & Callina, 2013).

Positive childhood experiences (PCES) are considered protective factors against mental and emotional disorders (Wang et al., 2021). Under the positive youth development framework, positive experiences and strengths in the context of a child's family, school, and neighborhood can promote adaptation and adjustments in response to adversity (Lerner et al., 2009; Wang et al., 2021). As previously stated, a safe, stable, and nurturing relationship with a caregiver is one of the most important positive experiences and protective factors in a child's life. Children who have a positive and strong relationship with their caregiver are less likely to report mental and emotional distress, even if adverse circumstances or risk factors are present in the child's life (Wang et al., 2021). Something that can disrupt the potential for a safe, stable, and nurturing relationship with a caregiver and has indirect impacts on the child is a caregiver's experience of perceived discrimination (Hou et al., 2017).

Perceived Discrimination and its Impacts on Parents and Children

Experiences of perceived discrimination are linked with adverse physical (hypertension, high blood pressure) and psychological (e.g., depression, anxiety) health outcomes in adults and children (Banerjee & Meyer, 2016; Paradies et al., 2015; Park et al., 2020; Pascoe & Richman, 2009). In the following section, I discuss forms of perceived discrimination, such as everyday discrimination, discrimination targeted toward teen mothers, and racial-ethnic discrimination, and how perceived discrimination impacts the well-being of parents and children.

Everyday Discrimination

There are different broad categories of discrimination: major and minor/everyday discrimination. Instances of major discrimination are overt, blatant, and clearly defined, which may arise only periodically throughout a person's life (e.g., while applying for a job, searching for a place to live, or new partner) (Aidenberger & Malte, 2021). Everyday discrimination refers to subtle but harmful acts of discrimination that are targeted to and experienced by members of stigmatized/minority groups on a day-to-day basis and serve as chronic stressors (Aidenberger & Malte, 2021; Deitch et al., 2003; Lewis et al., 2010). Examples of everyday discrimination include microaggressions, social exclusion, and aversion to eye contact (Aidenberger & Malte, 2021). Racial-ethnic discrimination most often occurs as "everyday" experiences rather than as major life events (Feng et al., 2021). Instances of everyday discrimination can be covert, can have unclear intent, and can be low in intensity; thus, they can be difficult for individuals to detect and react to (Aidenberger & Malte, 2021).

Everyday discrimination is an example of a chronic stressor, which is a stressful experience that is ongoing or reoccurring (Lewis et al., 2015). Chronic stressors are more strongly related to disease onset and outcomes (e.g., hypertension, poor cardiovascular health) among adults than acute stressors because chronic stressors repeatedly activate physiological stress responses that can have downstream effects on health (Cohen et al., 1995; Lewis et al., 2010; Lewis et al., 2015; Pascoe & Richman, 2009). Everyday discrimination can have similarly adverse impacts on physical and psychological health as major discrimination (Aidenberger & Malte, 2021). However, instrumental and emotional forms of social support (e.g., giving advice, offering comfort, lending money, and sharing feelings) are potential buffers against the harmful effects of discrimination on health (Brondolo et al., 2009; Pascoe & Richman, 2009).

Discrimination Faced by Teen Mothers

The sample in the current study included White and ethnic-minority mothers who became first-time parents when they were aged 20 years old or younger. Thus, many of the mothers in the sample were teen mothers, and it is important to consider the forms of stigma and discrimination faced by this demographic. Historically, there has been a widespread negative perception of teen pregnancy as being attributed to character flaws and deviant behavior that neglects to consider how systemic inequities make certain populations vulnerable to teen pregnancy and motherhood (SmithBattle, 2013; SmithBattle, 2020). However, evidence has emerged which indicates that inequities such as social disadvantage, minority status, adverse childhood experiences (ACEs), and poverty predispose individuals to teen pregnancy (SmithBattle, 2020). The risk of teen pregnancy increases as women experience more ACEs; teen pregnancy occurred in 16% of women reporting 0 ACEs but rose to 53% for women reporting 8 ACEs (Hillis et al., 2004).

Teen mothers encounter many compounding layers of stigma after giving birth for violating the age norms of parenting; teen mothers are young, disproportionately poor, single, women of color, and often regarded as "drains on public welfare" (p. 237, SmithBattle, 2013; SmithBattle, 2020). Though young maternal age is a significant predictor of adverse parent-child outcomes, even after controlling for socio-economic status, adverse outcomes can also be attributed to discrimination, insufficient social support, and poor access to healthcare (Conn et al., 2018). SmithBattle (2018) created a modified ACEs tool to evaluate the experiences of teen mothers that determined that 44% of teen mothers reported that the stigma of teen mothering was an ACE.

Teen mothers endure similar experiences of discrimination, the most common being the negative portrayal of teen mothers in the media and disapproving looks or insults from others

(SmithBattle, 2013). Teen mothers tend to be treated more disrespectfully and differently by their teachers and clinicians than are non-parenting classmates and older mothers (SmithBattle, 2013). The lack of support from educators and discrimination at school contributes to school disengagement and drop-out rates among teen mothers, which perpetuates negative stereotypes and furthers discrimination (Conn et al., 2018). During interactions with clinicians, teen mothers reported feeling disregarded and talked down to as their clinicians expressed doubt about their capacity to mother (SmithBattle, 2013). The prejudicial treatment and stigma of being an 'unfit parent' impact the mental health of teen mothers; mothers reported feeling resentment, fear, anger, shame, and worthlessness in response to experiences of discrimination (Yardley, 2008). Similarly, discrimination and poor social support have been related to depression and increased stress among ethnically diverse teen parents (Conn et al., 2018; Cox et al., 2008).

Racial-ethnic Discrimination

Racial-ethnic discrimination is characterized as differential or unfair treatment based on one's ethnicity and/or race (Feng et al., 2021; Williams & Williams-Morris, 2000). Racial-ethnic discrimination is linked with depression, anxiety, poor academic outcomes, engagement in risky health behaviors, and increased blood pressure (Feng et al., 2021). Across different racial-ethnic minority groups, African Americans are more often the target of racial discrimination and racism and thus tend to report more of those experiences than do other groups (Banerjee & Meyer, 2016). In samples of African Americans, there is a negative relation between self-reported experiences of interpersonal racial-ethnic discrimination and mental or physical health (Caughy et al., 2004).

Impacts of Perceived Discrimination on Mothers and Children

With the understanding that maternal well-being is related to children's well-being, it is important to consider how maternal perceived discrimination can impair mothers' mental health and the course of healthy and normative child development. Perceived discrimination can have direct and indirect effects; parents' experiences of discrimination can indirectly impact children's adjustment through family processes (Hou et al., 2016). African American mothers who reported high levels of perceived racial-ethnic discrimination experienced greater stressful life events, financial setbacks, psychological distress, and depression (Banerjee & Meyer, 2016; Murry et al., 2001; Odom & Vernon-Feagans, 2010). Parental perceived discrimination is associated with parental depressive symptoms; greater parental depressive symptoms in response to discrimination are negatively associated with supportive parenting quality and children's psychological adjustment (Brody et al., 2008; Chung & Lim, 2016; Ford et al., 2013; Hou et al., 2017). Parent-reported perceived discrimination experiences were directly related to internalizing problems in children (Anderson et al., 2015). Furthermore, parental perceived discrimination was positively related to depressive symptoms in adolescents and negatively related to psychological well-being (Ford et al., 2013).

The Family Stress Model (FSM) offers a perspective on the mechanisms by which parental perceived discrimination relates to children's adjustment (Hou et al., 2017). According to the FSM, family stressors may increase parental emotional distress, which can negatively impact parent-child interactions (Conger & Donnellan, 2007). The mundane extreme environmental stress (MEES) model qualifies one family member's experience of racial-ethnic discrimination as a major stressor that induces psychological distress among the members of ethnic-minority families (Peters & Massey, 1983). In the context of families, racial-ethnic discrimination is a significant stressor that is related to the mental health of the parent, parenting

practices, and the psychological development of children and adolescents (Chung & Lim, 2016). Last, family systems theory posits that the family unit is an interdependent system in which family members' experiences are interrelated and can mutually impact one another (Cox & Paley, 2003; Hou et al., 2017). The FSM, MEES model, and family systems theory can explain how parental distress in response to stressful experiences (e.g., perceived discrimination) may influence parent-child interactions and child development.

Impact of the Neighborhood Context

In recent years, there has been a shift in focus from research on the individual- and family-level predictors to the community-level factors that inform individuals' well-being (Dawson et al., 2019). Operating at the community level are factors of the neighborhood environment, such as social cohesion, neighborhood safety, and neighborhood structural disadvantage (Dawson et al., 2019). The foundational work of Faris and Dunham (1939), which examined the distribution of mental health conditions across 34,000 psychiatric patients living in Chicago, showed that higher rates of mental health conditions occurred in the most disadvantaged communities. Faris and Dunham (1939) set the stage for demonstrating that neighborhood context is important for shaping the mental health of inhabitants and that "mental health varies systematically across neighborhoods with the most disadvantaged neighborhoods having the greatest burden of psychological distress" (Maimon & Hill, 2013, p. 479-480).

Social cohesion in neighborhoods is defined as a strong sense of closeness, helpfulness, and trust among residents in a community (Dawson et al., 2019; Maimon & Hill, 2013; Wang et al., 2021). This is a component of collective efficacy, which refers to the willingness of community members to work together for the common good (Sampson et al., 1997). In contrast, neighborhood structural disadvantage refers to the lack of institutional, social, and material

resources (Dawson et al., 2019; Maimon & Hill, 2013). Indicators of social disorder in communities can include people loitering in the street, open use of alcohol and drugs, prostitution, and other criminal activity. Additionally, indicators of physical disorder in communities can include the presence of abandoned buildings, vandalism, graffiti, garbage in common spaces, and noise (Maimon & Hill, 2013). Social cohesion, neighborhood safety, and neighborhood structural disadvantage are related to mental health (e.g., depression) (Dawson et al., 2019; Kingsbury et al., 2015).

Neighborhood connections and cohesion can have a positive impact on an individual's mental health and well-being, whereas danger and structural disadvantages in the neighborhood can place individuals more at risk for negative health outcomes (Dawson et al., 2019; Wang et al., 2012). Nurturing social relationships in the neighborhood is related to decreased mental distress in parents and children (Wang et al., 2012). Positive neighborhood characteristics (e.g., perceived neighborhood social cohesion, sense of belonging, social control, and safety) are associated with more positive overall health status, socio-emotional health, and cognitive development among children (Choi et al., 2018; Eriksson et al., 2011). Children who live in neighborhoods with strong social relationships and support have lower levels of depressive symptoms and greater life satisfaction (Dawson et al., 2019; Gartland et al., 2019; Solmi et al., 2017; Wang et al., 2012). Further, socially cohesive neighborhoods are associated with reduced family ACEs, parenting stress, and peer bullying victimization, which all support positive outcomes in children (Choi et al., 2021; Wang et al., 2012). For teen parents in particular, access to and engagement with forms of social support (e.g., community teen parent programs) have been linked with positive psycho-social outcomes for parents and children (Conn et al., 2018).

On the other hand, neighborhood structural disadvantage and danger are associated with poor mental health outcomes in adults and children. Adult inhabitants of neighborhoods where there are increased crime rates and lack of safety are vulnerable to experiencing greater psychological stress, post-traumatic stress disorder (PTSD), and depression (Assari, & Caldwell, 2017; Dawson et al., 2019; Sun et al., 2020). Children growing up in neighborhoods with high social adversity and disadvantage are more likely to experience greater internalizing and externalizing symptoms and disorders (Dawson et al., 2019; Drukker et al., 2013; Gartland et al., 2019; Kingsbury et al., 2015; Mullins et al., 2020; Solmi et al., 2017). Children from disadvantaged neighborhoods more often demonstrate internalizing problems and meet the clinical threshold for more mild and severe mental health problems than their peers from more advantaged neighborhoods (Xue et al., 2005).

Living in poor, dangerous, and/or disadvantaged communities has the potential to cause harm to children's well-being (Butler et al., 2014). The family investment model can explain how disenfranchisement may lead to mental and behavioral disorders among children. The model states that "poor parents cannot afford to live in safe neighborhoods, send their children to schools in which they will thrive, or provide adequate supervision of their children's activities. Thus, poor children are more likely to be exposed to harsh and potentially traumatic conditions with lasting emotional repercussions" (Butler et al., 2014, p. 83).

Despite the knowledge that neighborhood danger and structural disadvantage are associated with decreased well-being, neighborhood social cohesion can act as a buffer to promote positive outcomes in at-risk communities. When perceived neighborhood social cohesion is high, rates of depressive symptoms are low in structurally disadvantaged neighborhoods (Dawson et al., 2019). Further, a reduction of depressive symptoms was "seen in

each quartile of neighborhood structural disadvantage, with the greatest reduction in the most disadvantaged quartile" (Dawson et al., 2019, p. 11). Perceived community support was linked with life satisfaction among children living in poverty in Hong Kong (Ng et al., 2014). Similarly, in a sample of children who lived in neighborhoods with high crime rates, children from communities with high social cohesion were more likely to be resilient to maltreatment than children from communities with low social cohesion (Jaffee et al., 2007). Taken together, strong social cohesion may protect individuals living in neighborhoods with high structural disadvantage and/or violence from greater depressive symptoms.

The theoretical framework proposed by Maimon and Hill (2013) offers a pathway for how neighborhood social cohesion can buffer the relation between a negative neighborhood environment and depression. Shown in Figure 2, the framework outlines how disorder in the neighborhood can contribute to depression among inhabitants, but that perceptions of the neighborhood can influence the relation; for example, social support (e.g., knowing that people are available to listen to one's problems) may diminish the negative impact of social and physical disorder in the neighborhood on mental health (Maimon & Hill, 2013). Overall, neighborhood social cohesion is important for promoting healthy development among children by providing opportunities for support from and engagement with others in the community (Howard et al., 2000).

Gaps in the Literature

Several gaps remain in the literature on how maternal perceived discrimination and the neighborhood context are related to children's behavioral functioning. Most of the existing literature on perceived discrimination has examined how it impacts the person targeted (e.g., the relation between children's own experiences of discrimination and developmental outcomes)

(Hou et al., 2017). There are a handful of studies that have explored the impacts of maternal experiences of racial discrimination, in particular, on children's functioning; however, possible relations between dimensions of functioning and other forms of discrimination ought to be explored (e.g., discrimination experienced by teen mothers due to their early childbearing) (Chung & Lim, 2016; Hou et al., 2017).

There is an established relation between parental perceived discrimination and depression, and there is a limited amount of research on how maternal mental health impacts children's mental health in samples of teen mothers compared to samples of older mothers and their children (Brody et al., 2008; Chung & Lim, 2016; Ford et al., 2013; Goodman et al., 2011; Hou et al., 2017). The transition to motherhood places an increased burden of responsibility upon young mothers. Oftentimes, teen women become mothers while lacking the necessary knowledge, skills, support, and resources to deal with early motherhood (Erfina et al., 2019). Teen mothers are more often racial-ethnic-minority single parents, have higher levels of parenting stress, higher rates of poverty and unemployment, and are more likely to live in impoverished neighborhoods than parents who have children later in life (Goodman et al., 2011; Menon et al., 2020). Given this information, there is a need to examine how relational and contextual risk and protective factors impact the behavior of the children of teen mothers. Studying the experiences of teen mothers and their children is important for understanding how best to support this population and promote positive developmental outcomes. A rigorous search yielded no results of studies that have investigated the relations between maternal everyday perceived discrimination, neighborhood factors, and children's behavioral functioning using a sample of teen mothers and their children.

The Current Study

I aimed to assess whether maternal perceived discrimination when children were approximately five years old predicted children's behavioral functioning when children were approximately eight years old. I utilized the risk model to explore whether maternal perceptions of neighborhood danger may exacerbate the impact of maternal perceived discrimination on children's behavioral functioning. See Figure 3 for the risk model. I utilized the resilience model to explore whether maternal perceptions of neighborhood connections may attenuate the impact of maternal perceived discrimination on children's behavioral functioning. See Figure 4 for the resilience model. I chose to examine the risk and resilience models separately (i.e., I elected not to add both neighborhood moderators to the same model) for both substantive and methodological reasoning. I do not view neighborhood danger and connections as mutually exclusive (i.e., it is possible for a person to feel unsafe in their neighborhood, but still have connections there), and thus, I wanted to assess the separate impact of each moderator on the relation between maternal perceived discrimination and children's behavioral functioning. Also, including both neighborhood moderators in the same model would require a larger sample size for more statistical power. I operationalized 'behavioral functioning' in children as 'difficult behaviors', which encompasses emotional problems, conduct problems, hyperactivity, and peer problems (Goodman & Goodman 2009).

Research Questions and Hypotheses

Question 1: Does maternal perceived discrimination predict the behavioral functioning of elementary school-aged children?

Hypothesis 1: I hypothesized that greater maternal perceived discrimination would predict greater difficult behaviors (e.g., emotional problems, conduct problems, hyperactivity, and peer problems) (Anderson et al., Ford et al., 2013).

Question 2: To what extent do maternal perceptions of neighborhood danger exacerbate the relation between maternal perceived discrimination and children's difficult behaviors?

Hypothesis 2: I hypothesized that mothers' perceptions of neighborhood danger would alter the strength of the relation between maternal perceived discrimination and children's difficult behaviors. I expected that the relation between maternal perceived discrimination and children's difficult behaviors would be stronger when mothers perceived their neighborhoods as being more dangerous (Butler et al., 2014).

Question 3: To what extent do maternal perceptions of neighborhood connections attenuate the relation between maternal perceived discrimination and children's difficult behaviors?

Hypothesis 3: I hypothesized that maternal perceptions of neighborhood connections would alter the strength of the relation between maternal perceived discrimination and children's difficult behaviors. I expected that the relation between maternal perceived discrimination and children's difficult behaviors would be weaker when mothers perceived more connections within their neighborhood (Choi et al., 2021; Wang et al., 2012).

Method

The current study utilized data that were collected as part of the Massachusetts Healthy Families Evaluation-2 (MHFE-2) study, a longitudinal, randomized controlled trial evaluation of Healthy Families Massachusetts (HFM), which was undertaken to assess program quality, measure program outcomes, and describe HFM clients.

HFM was a home visiting program for young, first-time parents. As part of HFM, parents were offered support, information, and direct services through home visits, goal setting, group activities, and referrals to other programs and resources in their community. The eligibility requirements to participate in HFM included that one had to have been a first-time parent aged 20 years old or younger, resided in Massachusetts, and been pregnant or have had a newborn child. Parents could enroll in HFM prenatally through the child's first birthday, and parents were eligible to receive services until their child was three years old (Healthy Families, 2022).

There were several requirements that participants had to meet to be eligible to participate in the Massachusetts Healthy Families Evaluation-2. Participants had to be consenting women who were 16 to 21 years of age, first-time parents, had received no HFM services in the past (i.e., no transfers or re-enrollments), could speak either English or Spanish, and were cognitively able to provide informed consent. After completing the consent process, participants were randomly assigned to either the treatment group (Home Visiting Services; HVS) or the comparison group (Referral and Information Only; RIO). Participants in the program group were offered home visiting services until their firstborn child's third birthday whereas participants in the comparison group only received information about child development and referrals to services.

Qualitative and quantitative data for the evaluation were collected at six time points (T1-T6) from 2008 to 2017. The time points included at study enrollment (T1), 12 months after enrollment (T2), 24 months after enrollment (T3), and when children were approximately five years old (T4), six years old (T5), and eight years old (T6). At each time point, mothers were asked to complete a half-hour semi-structured phone interview, in-home interview, and sign a release to allow researchers to access administrative data. Using maternal self-report,

standardized assessments, and observational measures, researchers collected data on mothers' residential circumstances, maternal and child well-being, maternal parenting practices, use of public assistance, and demographic information about each mother-child dyad. Data on mother-child dyads were also collected from several state agencies, including the Massachusetts Department of Children and Families (DCF), the Department of Elementary and Secondary Education (DESE), the Department of Public Health (DPH), and the Department of Transitional Services (DTA).

Participants

In total, 684 mothers participated in evaluation activities at T1, of which 417 (61.0%) were randomly assigned to the treatment group (HVS) and 267 (39.0%) to the comparison group (RIO). Of this original sample, 72% (n = 490) participated at T4. At the time of enrollment, mothers were, on average, 18.61 years old (*SD* = 1.30). Mothers were of diverse ethnic-racial backgrounds; 36.9% of participants identified as non-Hispanic White, 35.6% as Hispanic, 19% as non-Hispanic Black, and 8.1% as non-Hispanic "other". Of the children, 51.8% were boys. At T4, mothers were about 24 years old, and children were about 5 years old. At the last point of data collection (T6; *n* = 408), mothers were approximately 27 years of age (*M* = 26.58, *SD* = 1.37), and children were 7.78 years old on average (*SD* = .58). After excluding participants who were missing data, the final sample size for the risk model was 241 participants and the final sample size for the resilience model was 202 participants. See Table 1 for information regarding years of data collection, response rates, and sample sizes for each time point.

Measures

Maternal Perceived Discrimination

Mothers reported their perceived discrimination at T4 using Perceived Discrimination (PD) scale (Williams et al., 1997). The scale consists of 16 items, with 2 subscales: Major Perceived Discrimination (6 items), and Everyday Perceived Discrimination (10 items).

Mothers were asked to consider how often different forms of major and minor discrimination had occurred in the past year. When an experience was affirmed, mothers were also asked to identify the potential target(s) of the treatment, which included checking all that applied from the following options: (a) being a "young mom", (b) race/ethnicity, (c) class/income level, (d) religion, and/or (d) something else. Participants responded to items on the Major Perceived Discrimination and Everyday Perceived Discrimination subscales using a 6-point scale: (0) Never; (1) Once; (2) Twice; (3) Three times; (4+) Four or more times, and (7) Not this year, but in the past.

Mean scores for the Everyday Perceived Discrimination subscale were calculated; a total score was not calculated. Scores on this subscale can range from 0 to 4, where higher scores indicate a greater extent of everyday perceived discrimination. Scores on the Everyday Perceived Discrimination subscale demonstrated strong internal consistency in this sample at T4 (α = 0.85). The Everyday Perceived Discrimination subscale was used in the analyses because I expected that the distribution for this subscale would be larger, and I was more interested in exploring chronic, everyday experiences of discrimination. Table A1 contains the Everyday Perceived Discrimination subscale items.

Neighborhood Danger

Mothers' perceptions of the level of danger in their neighborhoods were measured at T4 using the Neighborhood Safety Disorder subscale of the My Neighborhood Survey (MNS) measure. The MNS was constructed by the Massachusetts Healthy Families Evaluation (MHFE)

team to assess the perceived quality of one's neighborhood. The survey included 20 items, with three subscales to assess perceptions about the following aspects of one's neighborhood: (1) Neighborhood Connections (7 items, e.g., "I believe my neighbors would help me in an emergency), (2) High School Disorder (5 items, e.g., "How much of a problem is fighting among the students?"), and (3) Neighborhood Safety Disorder (8 items, e.g., "Compared to other areas, how safe is your area?").

Participants responded to items on the MNS using a four-point Likert-type scale: (1) Strongly disagree; (2) Disagree; (3) Agree; and (4) Strongly agree. For each of the three subscales, sum and mean scores were calculated. Higher scores on the Neighborhood Safety Disorder subscale represented more disorder within the neighborhood. One missing item per subscale was permitted for raw and standardized mean scores. A full set of items was required for the sum scores. Scores on the Neighborhood Safety Disorder subscale demonstrated strong internal consistency in this sample at T4 (α = 0.90). The Neighborhood Safety Disorder subscale was used in the analyses. Table A2 contains the Neighborhood Safety Disorder subscale items.

Neighborhood Connections

Mothers' perceptions of connections in their neighborhoods were measured at T4 using the Neighborhood Connections subscale of the My Neighborhood Survey (MNS) measure. See above (i.e., "Neighborhood Safety") for further information regarding the MNS. Higher scores on the Neighborhood Connections subscale represented stronger neighborhood connections. Scores on the Neighborhood Connections subscale demonstrated strong internal consistency in this sample at T4 (α = 0.90). Scores on the Neighborhood Connections subscale demonstrated strong internal consistency in this sample at T4 (α = 0.85). The Neighborhood Connections

subscale was used in the analyses. Table A3 contains the Neighborhood Connections subscale items.

Children's Behavioral Functioning

Children's behavioral functioning was measured at T6 using the Strengths and Difficulties Questionnaire (SDQ), a 25-item questionnaire (Goodman & Goodman, 2009). Mothers reported children's behaviors on five subscales, including emotional problems (5 items, e.g., "Often complains of headaches"), conduct problems (5 items, e.g., "Often fights with other children"), hyperactivity (5 items, e.g., "Restless, overactive"), peer problems (5 items, e.g., "Has at least one good friend"), and prosocial behaviors (5 items, e.g., "Shares readily with other children"). Additionally, a total difficulty score was computed by summing each subscale except for the prosocial subscale. Participants responded to items on the SDQ using a 3-point Likert-type scale: (1) Not True; (2) Somewhat True; (3) Certainly True (Goodman & Goodman, 2009). Scores were only computed if participants responded to every item; no missingness was permitted. The scores on the SDQ demonstrated adequate internal consistency in this sample at T6 (α = 0.72). The total difficulty score that represents children's difficult behaviors was used in the analyses. Table A4 contains the items that were used to compute the total difficulty score.

Childhood Opportunity Index

The Childhood Opportunity Index 2.0 (COI) described neighborhood conditions that impact children's well-being. The index included 29 indicators across three domains: education, health and environmental factors, and social and economic factors (Noelke et al., 2020). Data were collected at the national, state, and metro levels. The current study used the health and environment domain, wherein the indicators were split into three subscales: healthy environments, toxic exposures, and health resources (Noelke et al., 2020). Data for the COI

originated from the Census Bureau, National Center for Healthy Statistics, the Department of Education, the Environmental Protection Agency, and other organizations to provide a more holistic and objective representation of the neighborhood context across different counties in the United States in 2010 and 2015 (Noelke et al., 2020). Areas were scored using a 5-point Likert-type scale: (1) Very Low; (2) Low; (3) Moderate; (4) High; (5) Very High. I computed Pearson product-moment correlations between the 2015 metro-level health and environment domain data from the COI and the neighborhood danger and connections variables to assess the extent to which the measures of a similar construct corroborated each other. Table A5 contains the health and environment domain items.

Covariates

Program status (HVS or RIO) and maternal race/ethnicity (i.e., coded dichotomously as White and Non-White) at T4 were included as covariates because projects that utilize MHFE-2EC data typically use these covariates in the analyses. There are substantive reasons for why I chose to control for program status and maternal race/ethnicity.

Analytic Plan

Table 2 contains each research question and the associated analytic method. The analytic plan consisted of descriptive analyses and two sequential multivariate linear regression models: the risk model and the resilience model. Descriptive and main analyses were conducted using SPSS version 28 (IBM, 2022). Sequential multivariate linear regression was used to test the relation between maternal perceived discrimination and children's difficult behaviors, in addition to whether maternal perceptions of neighborhood connections and danger may moderate the effects of maternal perceived discrimination on children's difficult behaviors. The values for

maternal perceived discrimination, neighborhood connections, and neighborhood danger were mean-centered.

For the moderated analyses, two interaction terms were computed: the first term was computed by multiplying the maternal perceived discrimination and neighborhood danger variables, and the second term was computed by multiplying the maternal perceived discrimination and neighborhood connections variables. The risk model implemented the interaction term with maternal perceived discrimination and neighborhood danger, and the resilience model implemented the interaction term with maternal perceived discrimination and neighborhood connections. In all the models, I controlled for two covariates: HVS/RIO condition (i.e., 0 = RIO and 1 = HVS) and maternal race/ethnicity (i.e., 0 = White and 1 = Non-White). Due to feasibility and low response rates, I did not examine whether the instances of everyday discrimination reported by mothers were due to being a "young mom", race/ethnicity, class/income level, religion, and/or something else in my models. However, I conducted frequency analyses to assess what aspects of mothers' identities were most often reported as the targets of discrimination. I also conducted frequency analyses to assess how mothers perceived danger and connections in their neighborhood versus in other neighborhoods.

Results

Preliminary Analyses

The preliminary analyses aimed to report the descriptive statistics for the variables at the time points used in the current study (i.e., T4 for perceived discrimination and neighborhood variables and T6 for children's difficult behaviors). The descriptive data focused on the means and SDs for the variables measured at these two times of testing and are presented in Table 3. It

may be noted that the mean scores for perceived discrimination, neighborhood danger, and difficult behaviors were on the low end of the respective ranges of scores reported by mothers.

I conducted frequency analyses on certain items from the measures for maternal perceived discrimination, neighborhood danger, and neighborhood connections to gain a further understanding of mothers' patterns of responding. First, I computed the response frequencies for the potential targets of discrimination mothers were asked to choose from (i.e., being a "young mom", race/ethnicity, class/income level, religion, and/or something else). Mothers could select multiple options and they most often reported that they thought the discrimination was due to them being a "young mom", their race/ethnicity, their class/income, and/or something else. Mothers did not often report that they thought the discrimination was due to their religion. Next, I computed the response frequencies for the item that asked mothers to "Think about the safety of your area. Compared to other areas, how safe is your area?". Of the 419 mothers who responded, 45.6% (191 mothers) felt that their neighborhood was safer than most, 39.9% (167 mothers) felt that their neighborhood was about the same as most, and 14.6% (61 mothers) felt that their neighborhood was less safe than most. Last, I computed the response frequencies for the item that asked mothers to "Think about neighbors who help each other. Compared to other areas, how many people help each other?". Of the 372 mothers who responded, 34.7% (129 mothers) felt that their neighborhood had fewer people who help each other than in most areas, 38.2% (142 mothers) felt that people in their neighborhood helped each other about the same as in most areas, and 27.2% (101 mothers) felt that the people in their neighborhood helped each other more than in most areas.

Pearson product-moment correlations were computed between neighborhood danger and neighborhood connections and the 2015 metro-level health and environment indicator on the

Childhood Opportunity Index (COI). On average, the areas mothers inhabited were rated low on health and environment quality in 2015 (M = 2.18, SD = 1.21). Neighborhood danger and neighborhood connections were maternal self-report variables, and the COI is a more objective measure. Thus, I wanted to assess if there was an overlap between the variables. The associations between the COI and both neighborhood danger (r = -0.21, p < .001) and neighborhood connections (r = 0.18, p < .001) were small but statistically significant, which indicated that, although statistically significant, the covariance between the measures was not substantively meaningful.

Skewness and kurtosis values for each variable were evaluated using Field's (2018) guidelines for approximately normal distributions: skew should be < | 1 | and kurtosis should be < | 3 |. All the variables had acceptable kurtosis. Maternal perceived discrimination was right-skewed (i.e., skew > 1). Children's difficult behaviors, neighborhood connections, and neighborhood danger had acceptable skew. There was a moderate relation between neighborhood connections and neighborhood danger (r = 0.45, p < .001); however, the correlation coefficient was not large enough to suggest that these variables were redundant. The correlations among the study variables are presented in Table 4.

The data were checked for univariate outliers using z-scores (i.e., z-scores greater than | 3 | were potential outliers). Maternal perceived discrimination had five potential outliers and children's difficult behaviors had two potential outliers. I computed Mahalanobis distance values to check for multivariate outliers. There were 12 cases with values beyond the critical value (i.e., X^2 = 16.81, df = 6, p < .01). I retained these cases in the sample and re-evaluated them during post-analyses diagnostics.

Main Analyses

In the risk and resilience models, the covariates (i.e., HVS/RIO condition and maternal race/ethnicity) were entered into the sequential regression first to predict children's difficult behaviors. The amount of variation in children's difficult behaviors due to HVS/RIO condition and maternal race/ethnicity was not statistically significantly different from 0 ($p > .05$) in both models.

Research Question 1: Does Maternal Perceived Discrimination Predict Behavioral Functioning in Elementary School-Aged Children?

I examined this research question using the risk and resilience models. In the risk model, the predictors of maternal perceived discrimination and neighborhood danger and covariates of HVS/RIO and maternal race/ethnicity statistically significantly predicted children's difficult behaviors ($R^2 = 0.06$, $F(4, 237) = 3.76$, $p = .006$). This model explained 4.9% additional variance in children's difficult behaviors over and above the initial model (i.e., HVS/RIO and maternal race/ethnicity) ($\Delta F(2, 237) = 6.18$, $p = .002$). The results were similar in the resilience model. The predictors of maternal perceived discrimination and neighborhood connections and the covariates of HVS/RIO and maternal race/ethnicity statistically significantly predicted children's difficult behaviors ($R^2 = 0.05$, $F(4, 198) = 2.74$, $p = .030$) in the resilience model. This model explained 4.8% additional variance in children's difficult behaviors over and above the initial model (i.e., HVS/RIO and maternal race/ethnicity) ($\Delta F(2, 198) = 5.01$, $p = .008$).

Maternal perceived discrimination was a statistically significant predictor of children's difficult behaviors in the risk and resilience models. In the risk model, the predicted difference in children's difficult behaviors given a one-unit higher score on maternal perceived discrimination, holding neighborhood danger, maternal race/ethnicity, and group condition constant, was 1.94 (β

= 0.17, p = .009). In the resilience model, the predicted difference was 2.35 points (β = 0.22, p = .003). In both models, group condition, maternal race/ethnicity, and neighborhood danger were not statistically significant predictors of children's difficult behaviors (p > .05).

Research Question 2: To What Extent Do Maternal Perceptions of Neighborhood Danger Exacerbate the Relation Between Maternal Perceived Discrimination and Children's Difficult Behaviors?

The interaction term between neighborhood danger and maternal perceived discrimination was added to the risk model with neighborhood danger, maternal perceived discrimination, and the covariates to predict children's difficult behaviors. The set of variables together significantly predicted children's difficult behaviors (R^2 = 0.08, F(5, 236) = 4.33, p < .001), and the addition of the interaction between neighborhood danger and maternal perceived discrimination to the model explained 2.4% additional variance in children's difficult behaviors (**Δ**F(1, 236) = 6.30, p = .013). The coefficient for the interaction between neighborhood danger and maternal perceived discrimination was statistically significant (B = 0.07, β = 0.16, p = .013). At higher levels of neighborhood danger, the relation between maternal perceived discrimination and children's difficult behaviors was stronger; at lower levels of neighborhood danger, the relation between maternal perceived discrimination and children's difficult behavior was significantly less. Figure 5 shows the graph of the moderator relation.

When holding maternal race/ethnicity and group condition constant and neighborhood danger constant at zero (i.e., mothers who did not report feeling unsafe in their neighborhood), maternal perceived discrimination was a statistically significant predictor of children's difficult behaviors (B = 1.55, β = 0.14, p = .038). Group condition, maternal race/ethnicity, and

neighborhood danger were not statistically significant predictors of children's difficult behaviors ($p > .05$).

Research Question 3: To What Extent Do Maternal Perceptions of Neighborhood Connections Attenuate the Relation Between Maternal Perceived Discrimination and Children's Difficult Behaviors?

The interaction term between neighborhood connections and maternal perceived discrimination was added to the resilience model with neighborhood connections, maternal perceived discrimination, and the covariates to predict children's difficult behaviors. The set of variables together statistically significantly predicted children's difficult behaviors ($R^2 = 0.06$, $F(5, 197) = 2.46$, $p = .035$). The addition of the interaction to the resilience model did not statistically significantly explain any additional variance in children's difficult behaviors ($p > .05$). Maternal perceived discrimination was a statistically significant predictor of children's difficult behaviors ($B = 2.22$, $\beta = 0.20$, $p = .005$).

Post-analyses Diagnostics

All iterations of the risk and resilience models met the OLS regression assumptions regarding collinearity, normality, and influential cases. The variance inflation factor values were less than 10 and tolerance values were greater than .1, indicating that collinearity was not an issue (Keith, 2019). The standardized residuals were normally distributed. The results were not unduly influenced by specific cases (i.e., outliers). Leverage, Cook's distance, SDBeta, and SDFit values were all within expected ranges (i.e., < |1| or |2|; Field, 2018). Scatterplots for the standardized residuals showed that their variance appeared to be consistent across values of the categorical covariates (i.e., HVS/RIO and maternal race/ethnicity) and neighborhood connectedness. Though the amount of variation in the standardized residuals across values of

maternal perceived discrimination and the predicted scores of children's difficult behaviors was even, there were more cases at lower values of these variables (i.e., the distributions were positively skewed). Consequently, I cannot draw a firm conclusion regarding whether the assumption of homoscedasticity was met for those variables.

Summary of Findings

In sum, greater maternal perceived discrimination predicted greater difficult behaviors in children in all iterations of the risk and resilience models, and neighborhood danger strengthened this relation at higher levels of maternal perceived discrimination. My first hypothesis that the children of mothers who report greater perceived discrimination would be more likely to demonstrate difficult behaviors and my second hypothesis that the relation between maternal perceived discrimination and children's behavioral functioning would be stronger when mothers perceive their neighborhoods as being more dangerous were both supported by the data. My third hypothesis was not supported.

Discussion

The objectives of this study were to assess whether maternal perceived discrimination when children were five years old was associated with children's behavioral functioning when children were eight years old, as well as whether neighborhood danger and connections would impact the relation. The study pursued these objectives using two models; the risk model explored whether maternal perceptions of neighborhood danger may exacerbate the impact of maternal perceived discrimination on children's behavioral functioning, and the resilience model explored whether maternal perceptions of neighborhood connections may attenuate the impact of maternal perceived discrimination on children's behavioral functioning. The main findings indicated a small, but statistically significant relation between maternal perceived discrimination

and children's behavioral functioning, such that more discrimination predicted more difficult behaviors. Furthermore, neighborhood danger positively moderated this relation by predicting a small amount of additional variance, such that at higher levels of neighborhood danger, the relation between maternal perceived discrimination and children's difficult behaviors was stronger.

Maternal Perceived Discrimination and Children's Behavioral Functioning

The current study focused on assessing mothers' experiences of everyday perceived discrimination, which is recognized as a chronic stressor that is associated with negative health outcomes (e.g., cardiovascular health issues, high blood pressure) (Lewis et al., 2010; Lewis et al., 2015). Family systems theories, such as the family stress model, argue that parental stressors can contribute to emotional distress in all family members and impair parent-child relationships (Conger and Donnellan 2007; Hou et al., 2017). As previously stated, maternal perceived discrimination, in general, negatively impacts children's well-being, however, less is known about the relation between maternal everyday perceived discrimination and child outcomes.

In all iterations of the risk and resilience models, maternal perceived discrimination statistically significantly predicted children's difficult behaviors in a longitudinal sample, which supports my first hypothesis. However, the amount of additional variance in children's difficult behaviors predicted by maternal perceived discrimination was very small, and statistical significance does not necessarily translate into practical meaning. It is possible that the large sample sizes present in the risk and resilience models (i.e., greater than 200 participants) contributed to the significant result. Furthermore, much of the variance in children's difficult behaviors was not accounted for by maternal perceived discrimination, thus it is important to acknowledge what other maternal and child-related factors may have been associated with

difficult behaviors (e.g., maternal history of trauma, maternal depression, children's issues with peers and at school), while still appreciating the contribution of maternal perceived discrimination.

In the current sample, mothers affirmed experiencing low levels of perceived everyday discrimination and they most often regarded being a "young mom", their race/ethnicity, and/or their class/income level as the catalyst for the discrimination. Parental perceived discrimination is related to greater internalizing problems (e.g., depressive symptoms) and worse psychological well-being in children and adolescents, respectively (Anderson et al., 2015; Ford et al., 2013). In addition to conduct problems, hyperactivity, and peer problems, the Strengths and Difficulties Questionnaire difficult behaviors subscale, which was utilized in the current study also assessed the presence of emotional problems in children (e.g., "Often unhappy, depressed or tearful") (Goodman & Goodman, 2009). To answer questions of why and how maternal perceived discrimination may impact children, we can turn to developmental theories and frameworks, like the bioecological model and positive youth development.

Perceived discrimination has been demonstrably associated with depressive symptoms among parents, which is related to less supportive parenting quality (Brody et al., 2008; Chung & Lim, 2016; Ford et al., 2013; Hou et al., 2017). As emphasized by the bioecological model and positive youth development theoretical perspectives, a stable, tight-knit, and nurturing relationship with a caregiver is a critical positive experience and protective factor in a child's life (Atzaba-Poria, 2004; Bronfenbrenner & Morris, 2006; Lerner et al., 2009; Rosa & Tudge, 2013; Wang et al., 2021). The psychological harm related to instances of perceived discrimination experienced by mothers can impair parenting quality; in turn, poor parenting quality can harm children's psychological health (Hou et al., 2017). In the current study, children's emotional

problems were considered under the umbrella of "children's difficult behaviors", but as stated previously, the presence and prevalence of children's conduct problems, hyperactivity, and peer problems were reported by mothers, and the amount of variation predicted by maternal perceived discrimination was very small. Thus, I discuss what other factors may have been related to children's difficult behaviors, which can help explain why a large portion of the variance in children's difficult behaviors was not accounted for by maternal perceived discrimination.

Mothers' adverse experiences, including adverse childhood experiences (ACEs), are related to children's developmental risk (Sun et al., 2017). At program enrollment, mothers had high rates of residential instability, high incidence of lifetime trauma, and high rates of intimate partner violence (both as the victim and perpetrator); over half of the mothers had a history of childhood substantiated maltreatment, and over one-third were clinically depressed (Easterbrooks et al., 2017). These maternal histories and experiences can harm children's well-being and functioning. For example, maternal depression is associated with elevated rates of internalizing and externalizing behavior, general psychopathology, poor psychosocial outcomes (e.g., poor school performance), difficulty in interpersonal relationships, negative affect and reduced positive affect in children from infancy through adolescence (Bureau et al., 2009; Feng et al., 2008; Goodman et al., 2011). Maternal depression is believed to disrupt optimal child development by hindering a mother's capacity to provide warm, consistent, and sensitive parenting (Barker et al., 2012; Bureau et al., 2009; Butler et al., 2014). Children's exposure to intimate partner violence is associated with emotional and behavioral problems (e.g., internalizing, and externalizing problems), such that children exposed to intimate partner violence tend to have significantly worse outcomes than children not exposed to intimate partner violence (McTavish et al., 2016).

In addition to maternal factors that impact children, it is important to also consider what else the children had going on in their lives that may have impacted their behavioral functioning. In the current study, mothers reported on their children's behavioral functioning when the children were eight years old, on average. The children were in middle childhood and likely had social relationships with peers, educators, and other adults in their school and community settings that influenced their behavior. School "is an important developmental context wherein children may encounter diverse interpersonal and non-interpersonal stressors that have detrimental effects on their mental health" (p. 1064, Bai et al., 2020). Children's tendency to react to daily school problems with a more negative mood or a less positive mood predict future internalizing and externalizing problems and depressive symptoms (Bai et al., 2020). Relationships with friends are a common source of worry for children; friend-related worries are associated with a risk for depression and conduct disorder (Low et al., 2012). Peer rejection is very hurtful and harmful to children, such that children who reacted to peer rejection with withdrawal and anxiety displayed more depressive symptoms one year later, and children who reacted with anger often showed aggressive behaviors (Zimmer-Gembeck et al., 2016). Last, the current study examined the relation between maternal perceived discrimination and children's difficult behaviors, but it is important to consider how children's own experiences of perceived discrimination impact them. In a sample of African American adolescents (i.e., 10 to 12 years old in this study), increased perceived racial discrimination was associated with increased conduct problems and depressive symptoms five years later (Brody et al., 2006). Furthermore, in a sample of 4th- to 6th-grade immigrant children, perceived discrimination was negatively related to school achievement (Guerra et al., 2019). Given these findings, I consider the potential for several child-oriented factors (e.g., school stress, friendships, and children's perceived

discrimination) that may have been associated with children's difficult behaviors in the current study.

Neighborhood Danger and Neighborhood Connections

I pursued questions of what factors may promote or hinder children's resilient functioning in the context of having a mother who has endured everyday perceived discrimination. Neighborhood danger was considered a risk factor for children's difficult behaviors in the current study. Stressors and risk factors that manifest in contexts or systems that are directly linked to the child (e.g., the neighborhood) are associated with more externalizing behaviors (Atzaba-Poria et al., 2004; Houbrechts et al., 2023). The risk model explored whether neighborhood danger would moderate the relation between maternal perceived discrimination and children's difficult behaviors. The interaction between neighborhood danger and maternal perceived discrimination predicted a very small amount of additional variance in children's difficult behavior scores. The results revealed that when neighborhood danger was higher, the relation between maternal perceived discrimination and children's difficult behaviors was stronger. However, because neighborhood danger had such a minor impact on the relation between maternal perceived discrimination and children's difficult behaviors, the question of how meaningful the contribution ought to be considered.

On the neighborhood danger measure, 85.5% of mothers felt that their neighborhood was safer or had about the same level of safety as other neighborhoods. Thus, overall, most mothers in the current sample did not report feeling unsafe in their neighborhoods; but the extent to which mothers did feel unsafe did statistically significantly impact the relation between maternal perceived discrimination and children's difficult behaviors. The results of the current study reflect previous research that found that neighborhood problems and economic deprivation were

longitudinally and cross-sectionally associated with externalizing and internalizing behaviors in children (Sampson et al., 2002; Vilsaint et al., 2013). Despite that the impact of neighborhood danger was very small and, arguably non-meaningful, the results of the risk model provide an opportunity for further exploration into these topics, which I will describe in detail in the future directions.

Neighborhood connections was considered a protective factor for children's difficult behaviors in the current study. For children, positive neighborhood characteristics (e.g., perceived neighborhood social cohesion, sense of belonging, social control, and safety) are associated with more positive overall health status, socio-emotional health, and cognitive development (Choi et al., 2018; Eriksson et al., 2011). The resilience model explored whether neighborhood connections would moderate the relation between maternal perceived discrimination and children's difficult behaviors. On the neighborhood connections measure, 65.5% of mothers felt that their neighbors were as helpful as or more helpful than neighbors in other areas. Surprisingly, neither neighborhood connections nor the interaction between neighborhood connections and maternal perceived discrimination significantly predicted children's difficult behaviors. These results were unexpected because most mothers reported a moderate level of connections in their neighborhood, and social support is identified as a possible buffer against the harmful effects of discrimination on health (Brondolo et al., 2009; Pascoe & Richman, 2009). Further, having social relationships in the neighborhood is related to decreased mental distress in parents and children (Wang et al., 2012).

A potential explanation for the results observed in the resilience model is that the My Neighborhood Survey (MNS), which was used to assess maternal neighborhood connections in the current study, focused specifically on connections with neighbors (e.g., the extent to which

mothers feel that their neighbors are helpful to them). There are several other dimensions of social support in the neighborhood that were not captured in the MNS; for example, people can feel a sense of connection to certain places or social groups in their neighborhood, and the MNS did not include items that measured friendship or the number, quality, and/or depth of mothers' connections with others. The COI, which was used to corroborate maternal self-reported neighborhood danger and connections, does not contain measures of crime, collective efficacy, and social cohesion in neighborhoods (Noelke et al., 2020).

Positive neighborhood characteristics (e.g., perceived neighborhood social cohesion, sense of belonging, social control, and safety) are linked with more positive overall health status, socio-emotional health, and cognitive development in children (Choi et al., 2018; Eriksson et al., 2011). In the context of perceived discrimination, neighborhood collective efficacy and social support longitudinally reduced the harmful impact of perceived discrimination on depression in a sample of adults (Chou, 2012). Given that there is support for the buffering impact of positive social neighborhood characteristics on fostering positive outcomes among inhabitants, future research on the impact of protective factors on the relation between maternal perceived discrimination and children's difficult behaviors could utilize a measure of social cohesion and collective efficacy in neighborhoods.

Based on the results within the current study, the first two hypotheses could be supported because there was a statistically significant positive relation between maternal perceived discrimination and children's difficult behaviors, and there was evidence that neighborhood danger moderated the relation between maternal perceived discrimination and children's difficult behaviors. However, the third hypothesis was not supported as neighborhood connections did not moderate the relation between maternal perceived discrimination and children's difficult

behaviors. Overall, the current study adds to the field's understanding of how perceived discrimination and neighborhood danger impact behavioral functioning, however, given the small effects, there is a need for replication studies with similar samples.

Limitations

Although the present study contributed additional evidence for the relation between perceived discrimination and children's behavioral difficulties and that neighborhood danger moderates this relation, several limitations concerning the measures and method ought to be noted. One limitation of the present study is that all measures were maternal self-report. I computed Pearson product-moment correlations between scores on the childhood opportunity index (COI) health and environment indicator and the neighborhood variables to assess the extent to which the responses overlapped. Though significant, the correlations between the COI and neighborhood danger and connections were non-meaningful because they were quite small in magnitude. I conducted the correlation tests because the neighborhood variables implemented in the analytical models were maternal self-report and the COI is a more objective measure of health and environment at the county level. The health and environment indicators on the COI measured structural disadvantage in the neighborhood (e.g., hazardous waste dump sites, access to green space) whereas the MNS neighborhood safety disorder subscale measured danger in the neighborhood (shootings, open drug use and drug dealing, assault) and the neighborhood connection subscale measured mothers' connections to their neighbors; these measures were assessing very different elements of neighborhoods, which is a potential explanation for why the correlations between the COI and MNS subscales were small.

All measures used in the current study relied on maternal self-report, which is prone to systematic variance. This is a limitation because mothers could be influenced by their mental

state to over- or under-report the extent to which they perceived discrimination, experienced neighborhood danger and connections, and observed difficult behaviors in their children. Maternal bias can skew the scores for the different variables and misrepresent the truth, especially when it comes to maternal reports of children's behavior. Only including maternal reports to ascertain children's difficult behaviors can be problematic because they do not consider the impact of context. For instance, children can behave differently from context to context (e.g., school versus home). Thus, a complete and comprehensive picture of children's behaviors is missing from maternal self-report data. It would be beneficial for future research in this subject area to include more varied sources of data.

Some additional limitations of the current study are that only one time point of measurement was included for each variable and that the neighborhood connections subscale focused on one form of connection (i.e., connections with neighbors). Except for neighborhood connections, the distributions of maternal perceived discrimination, neighborhood danger, and children's difficult behaviors were all right-skewed (i.e., there were more low scores than high scores). It is possible that the singular time point of data for those variables contributed to the pattern of low scores. The inclusion of additional time points would be important for introducing more variation in the scores and for learning about what might contribute to the patterns of and changes in scores. As described earlier, the measure of neighborhood connections included items that only assessed the extent to which mothers felt that their neighbors would help them (e.g., aiding in an emergency, doing favors), but there are other dimensions of neighborhood connections that one could measure (e.g., social cohesion, collective control). Thus, a more comprehensive and multifaceted measure of neighborhood connections would be useful.

Last, the measures utilized in the current study implemented Likert-type response scales and Cronbach's alpha as the measure of internal consistency and reliability. Some measurement problems arise when using Likert-type response scales and Cronbach's alpha. There is debate about whether to treat Likert-type response scales as ordinal or interval data because the perceived "distance" between response choices matters (e.g., choices varying from "Strongly Disagree" to "Disagree to "Neutral", to "Agree" to "Strongly Agree" are considered "balanced" because there are an equal number of items on either side of "Neutral"); if the response choice for an item is unbalanced on either side, then the likelihood of that item being an interval measurement is lower (Bishop & Herron, 2015). The Likert-scale is typically regarded as an antiquated ordinal scale (Rioux & Little, 2020). The type of data Likert-type responses are considered as will determine the appropriate statistical analyses. Furthermore, people tend to not select the extreme choices on Likert-type response scales (e.g., "Strongly Disagree" and "Strongly Agree") and, instead, select the more middle-ground options (Bishop & Herron, 2015). An alternative to Likert-type response scales is the visual analog scale, which consists of a continuous number line with verbal statements as endpoints and is regarded as a more valid measure of self-report data (Bishop & Herron, 2015; Rioux & Little, 2020). The visual analog scale (also referred to as the "slider scale") allows for significantly more answer options than Likert-scales, and thus, measurement bias is reduced, and precision is increased (Rioux & Little, 2020). The Cronbach's alpha value for a scale is a function of correlations among scale items; when the correlation is larger, the alpha value is higher. Some issues concerning alpha are that alpha is usually an underestimation of reliability, alpha does not consider measurement error, and alpha is incorrectly taken for granted as evidence that the items on a scale are measuring the same phenomenon or construct, but alpha does not grant this information. Cronbach's alpha

itself cannot be interpreted as a measure of internal consistency because additional information is necessary to understand what alpha represents (Sijtsma, 2009). The coefficient omega is an alternative to Cronbach's alpha; forms of omega are "estimates calculated from parameter estimates of factor-analytic models specified to represent associations between a test's items and the test's target construct" (Flora, 2020, p. 484).

Future Directions

In the following sections, I discuss several ways in which future research on the topics of maternal perceived discrimination, neighborhood safety, neighborhood connections, and children's difficult behaviors could be improved to generate more robust findings and improve generalizability.

Sample

The sample of mothers and children included in the current study were all from Massachusetts and had similar social and economic resources (i.e., low-income). Thus, the sample was not diverse in terms of neighborhood context. Furthermore, the sample was limited to teen mothers and their children, so the results are not necessarily applicable to samples of older mothers and their children. Future research should strive to include a wider demographic, both in terms of location and age.

Measurement

In terms of measurement, future studies could implement other forms of data (e.g., physiological and/or public record data), examine specific forms of everyday perceived discrimination (e.g., based on race/ethnicity, gender), and include additional time points of data in analytical models. As has been previously stated, all data in the current study were maternal self-report, thus only mothers' perspectives on perceived discrimination, neighborhood, and

children's difficult behaviors were accounted for. To provide a more holistic picture of neighborhood danger, future studies could compare neighborhood crime reports (e.g., from the news or police reports) to mothers' views of neighborhood danger or simply use crime reports as a more objective measure of danger. The current study measured maternal everyday perceived discrimination on a general basis (i.e., not specifically due to race/ethnicity, gender, class/income). To understand the impacts of different forms of everyday perceived discrimination, future research could examine how everyday perceived discrimination due to aspects of one's identity or circumstances impacts the functioning of mothers and children. Measuring mothers' and children's physical responses (e.g., cortisol secretion) to perceived discrimination and neighborhood context could corroborate self-report data and deepen our understanding of how maternal experiences relate to child outcomes. Early-life stress alters children's neuroendocrine functioning, which can impact their later emotional functioning (e.g., increased anxiousness) (Cowan et al., 2015). Everyday perceived discrimination and the feeling or perception of being in danger are stress-inducing experiences. Last, including more time points of data would allow for the exploration of how the behavior and perspectives of mothers and children change and evolve. Particularly, children's difficult behaviors (e.g., internalizing and externalizing behaviors) should also be measured at multiple time points to promote an understanding of how behavioral issues arise and develop.

Conceptual and Analytical Models

In the context of families, perceived discrimination experienced by one family member is considered a stressful experience for all members; and family stressors may increase parental emotional distress, which can negatively impact parenting quality and parent-child interactions (Conger & Donnellan, 2007; Hou et al., 2017; Peters & Massey, 1983). The conceptual model

could be improved by examining the mediating effects of maternal depression and parenting quality on the relation between maternal perceived discrimination and children's difficult behaviors. It would be interesting to assess how increases in maternal depression and decreases in parenting quality can explain the harmful impact that maternal perceived discrimination has on children's behavior.

Statistical significance does not necessarily translate into practical meaning. Given that the amount of variance in children's difficult behaviors predicted by maternal perceived discrimination and neighborhood danger was very small, though statistically significant, considering how to improve the analytical model is worthwhile. The present study utilized manifest variables in the analytical models; future research could implement latent variables to reduce error variance and increase effect size.

Conclusions

In sum, the current study tested the relation between maternal everyday perceived discrimination and children's difficult behaviors in a sample of first-time teen mothers and their children. Furthermore, this study examined whether neighborhood danger and connections would moderate the relation. This study contributes additional evidence that maternal perceived discrimination positively predicts children's difficult behaviors, and that neighborhood danger strengthens the relation when mothers perceive greater discrimination. Moreover, the present study reinforces foundational theories that discuss how maternal factors inform children's outcomes. Future studies should continue investigating the impact of different forms of maternal discrimination on children and implement measures that capture additional facets of neighborhood connections (e.g., social cohesion, collective efficacy) to assess whether

neighborhood connections may buffer the harmful effect of maternal perceived discrimination on children's behavioral functioning.

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Table 1

Data Collection Years and Response Rates

Time Point	Years of data collection	*N*
T1	2008-10	684
T2	2009-11	564
T3	2010-12	594
T4	2012-14	490
T5	2014-16	445
T6	2016-17	408

Table 2

Research Questions and Associated Analytic Strategies

Research Question	Analytic Strategy
Preliminary Analyses	Means, standard deviations, range, skew, kurtosis, univariate and multivariate outliers, scatterplots, correlations, and histograms
Question 1: Does maternal perceived discrimination predict behavioral functioning in elementary school-aged children?	Sequential multiple linear regression
Question 2: To what extent do maternal perceptions of neighborhood danger exacerbate the relationship between maternal perceived discrimination and children's difficult behaviors?	Sequential multiple linear regression with moderator
Question 3: To what extent do maternal perceptions of neighborhood connections attenuate the relationship between maternal perceived discrimination and children's difficult behaviors?	Sequential multiple linear regression with moderator

Table 3

Descriptive Statistics of Primary Variables

Construct	Variable (Collection Time Period)	*N*	Mean	Std. Dev.	Range
Maternal Race/Ethnicity	White	260 (36.9%)			
	Non-White	444 (63.1%)			
Group	HVS	271 (61.5%)			
	RIO	433 (38.5%)			
Children's Difficult Behaviors	SDQ Total Difficulties Sum Score (T6)	349	9.10	5.98	0-35
Maternal Perceived Discrimination	Everyday Perceived Discrimination Mean Score (T4)	349	.60	.58	0-2.80
Neighborhood Connections	Neighborhood Connections Standardized Mean Score (T4)	318	51.85	22.98	0-100
Neighborhood Danger	Neighborhood Safety Disorder Standardized Mean Score (T4) 2015	377	26.40	25.32	0-100

Childhood Opportunity Index: Health and Environment Domain	Childhood Opportunity Scores, Health and Environment Domain, Metro-normed	434	2.18	1.21	1-5

Table 4

Pearson Product-moment Correlations for Continuous Variables

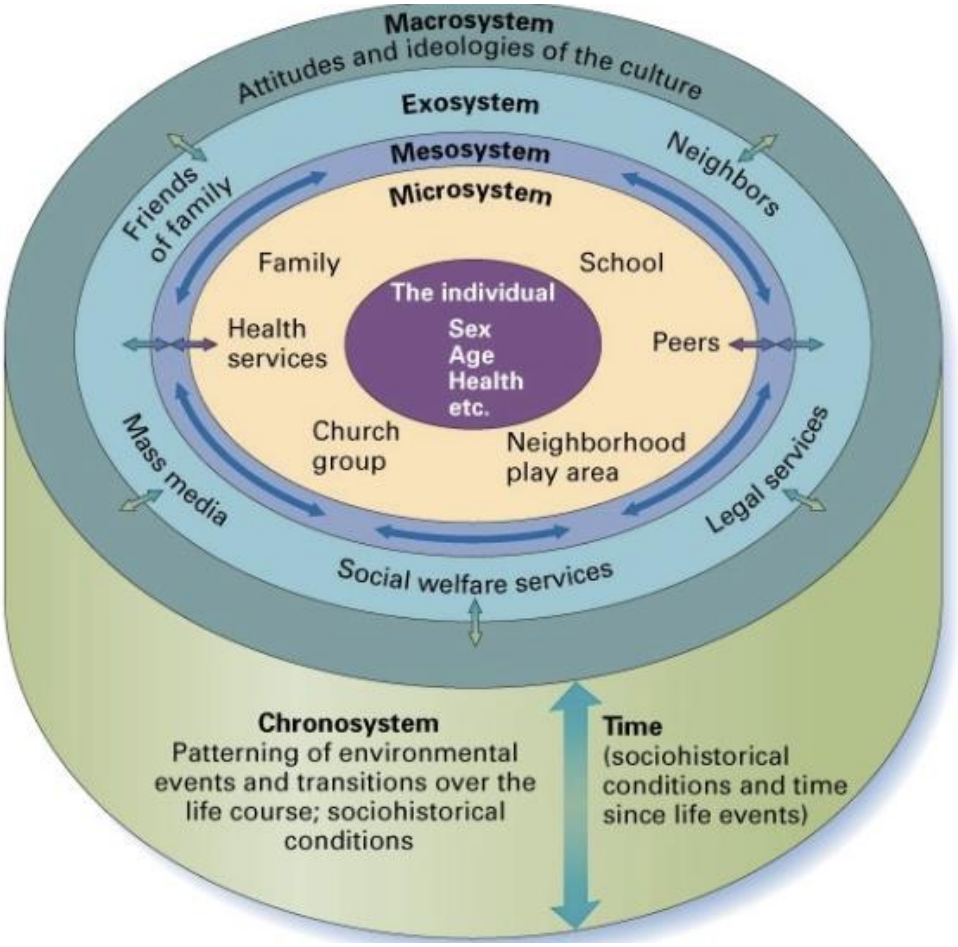
Variable	Maternal Perceived Discrimination (T4)	Maternal Perceptions of Neighborhood Danger (T4)	Maternal Perceptions of Neighborhood Connections (T4)	Children's Difficult Behaviors (T6)
Maternal Perceived Discrimination (T4)				
Maternal Perceptions of Neighborhood Danger (T4)	.262**			
Maternal Perceptions of Neighborhood Connections (T4)	-.206**	-.451**		
Children's Difficult Behaviors (T6)	.220**	.128*	-. 081	

**$p < .01$

*$p < .05$

Figure 1

Bronfenbrenner's Bioecological Model



Note: See Figure 1.14 in Santrock (2010)

Figure 2

Neighborhood Context and Mental Health Framework by Maimon and Hill (2013)

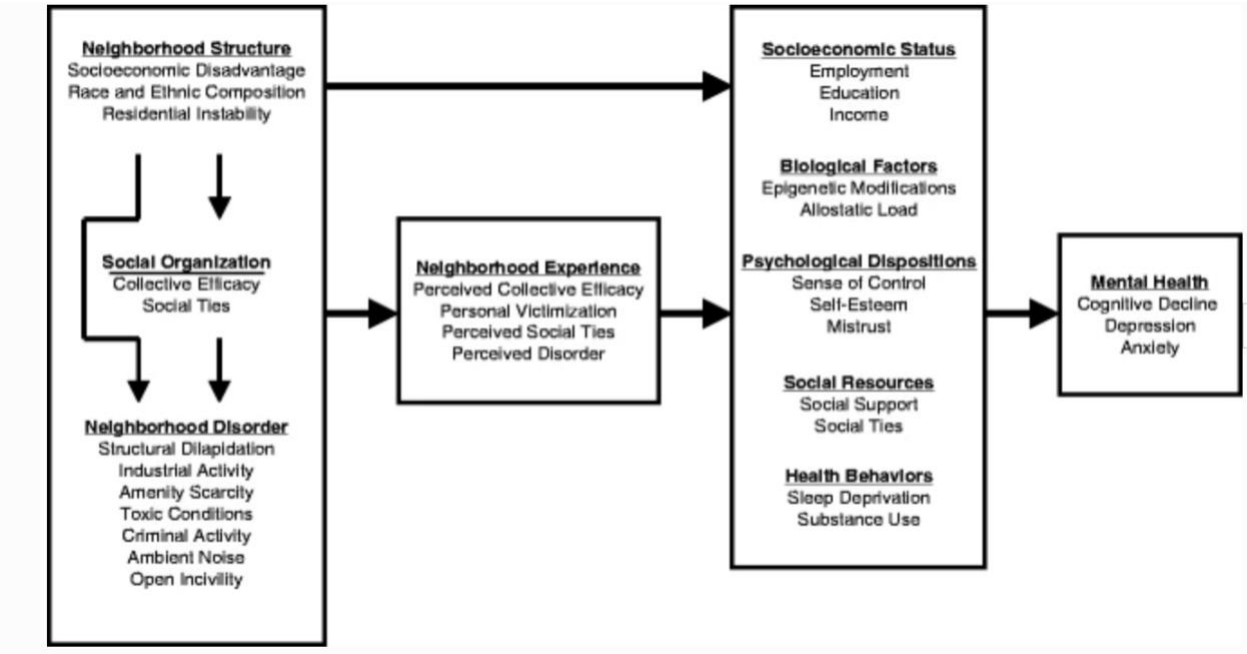


Figure 3

Risk Model

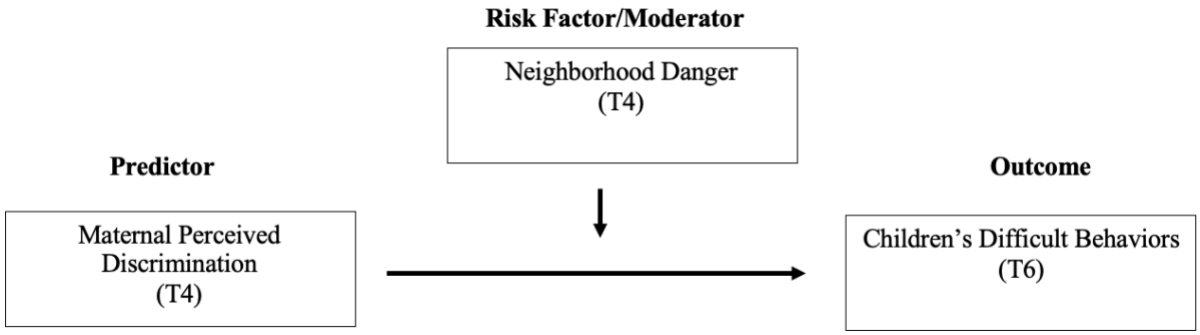


Figure 4

Resilience Model

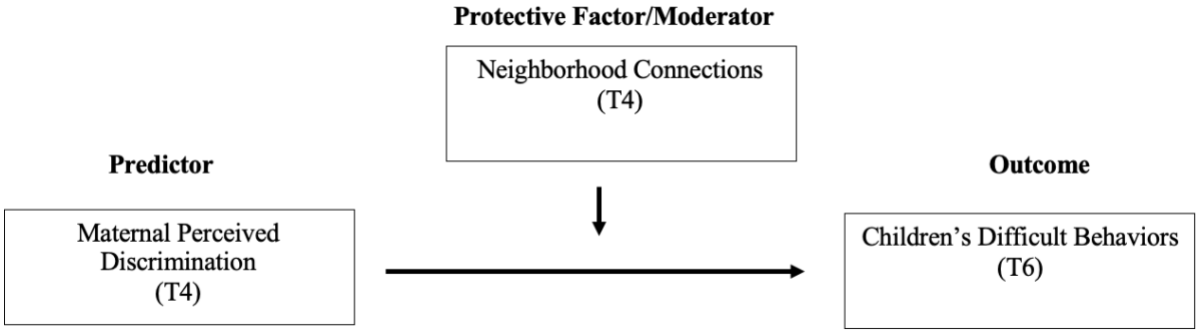
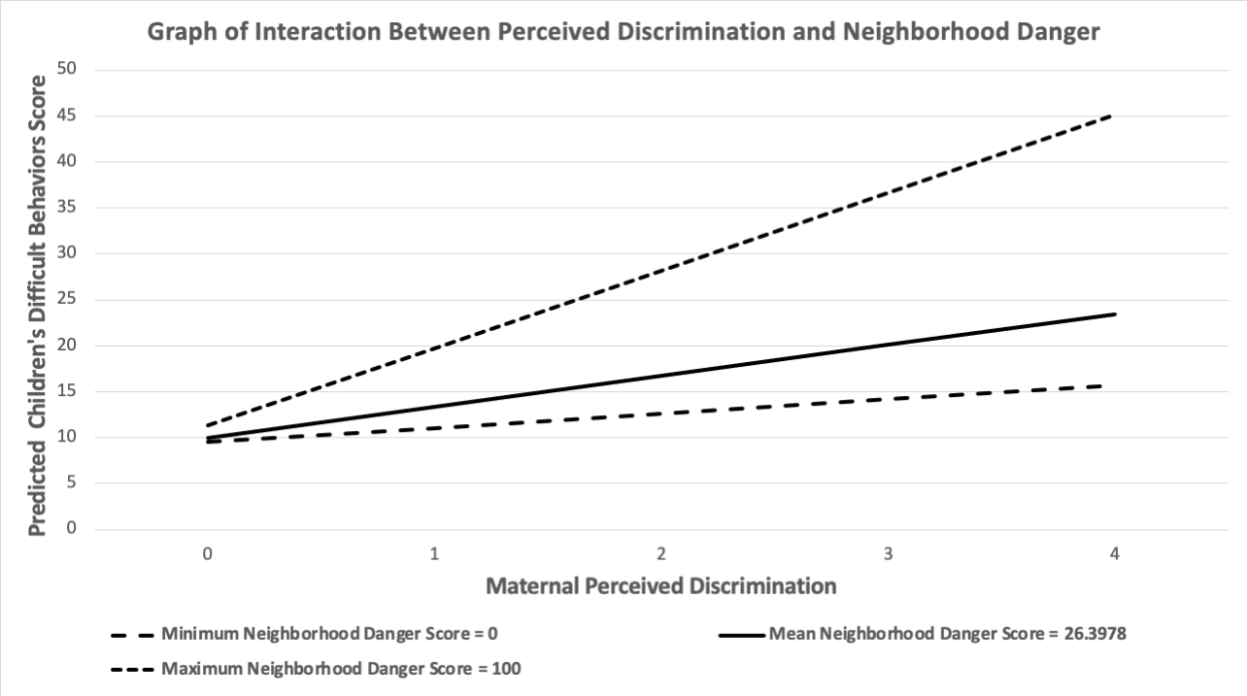


Figure 5

Graph of the Interaction Between Maternal Perceived Discrimination and Neighborhood Danger on Children's Difficult Behaviors



Appendix A

Measures Included in the Present Study

Table A1

Everyday Perceived Discrimination Subscale Items

Items
7. Being treated with less courtesy or respect than others
8. Receiving poorer service than others from service providers
9. Receiving poorer service than others in restaurants or stores
10. Feeling that people act as if you are not smart
11. Feeling that people act as if they are better than you
12. Feeling that people act as if they are afraid of you
13. Being threatened or harassed
14. Feeling that people act as if they think you are dishonest
15. Being called names or insulted
16. Concerned that your child will be treated differently, unfairly, or discriminated against.

Note. Response options included 0- *Never*, 1- *Once*, 2- *Twice*, 3- *Three times*, 4+- *Four or more times*, 7- *Not this year, but in the past.*

Table A2

Neighborhood Safety Disorder Subscale Items

Items
4. Think about the safety of your area. Compared to other areas, how safe is your area?
(Prompt): How much of a problem are each of the following in your area?
34. Different racial cultural groups not getting along
35. Vandalism, buildings, and personal belongings broken or torn up.
37. Abandoned homes
38. Open drug use and dealing
42. Assaults or muggings
43. Prostitution
44. Shootings

Note. Response options included 1- *Strongly disagree*, 2- *Disagree*, 3- *Agree*, 5- *Strongly agree.*

Table A3

Neighborhood Connections Subscale Items

Items
5. Think about neighbors who help each other. Compared to other areas, how many people help each other?
22. You and your neighborhood have similar views about how to raise your children
23. You have a close-knit area
26. There are a lot of adults that your children can look up to in your area
28. I borrow things and exchange favors with my neighbors
29. I believe my neighbors would help me in an emergency
31. How likely is it that people in your area would work together to keep children safe?

Note. Response options included 1- *Strongly disagree*, 2- *Disagree*, 3- *Agree*, 5- *Strongly agree*.

Table A4

Strengths and Difficulties Questionnaire: Emotional Problems, Conduct Problems, Hyperactivity and Peer Problems Subscales

Items	Subscale
1. Often complains of headaches, stomach-aches, or sickness	Emotional Problems
2. Many worries or often seems worried	
3. Often unhappy, depressed or tearful	
4. Nervous or clingy in new situations, easily loses confidence	
5. Many fears, easily scared	
6. Often loses temper	Conduct Problems
7. Generally well behaved, usually does what adults request	
8. Often fights with other children or bullies them	
9. Often lies or cheats	
10. Steals from home, school or elsewhere	
11. Restless, overactive, cannot stay still for long	Hyperactivity
12. Constantly fidgeting or squirming	
13. Easily distracted, concentration wanders	
14. Thinks things out before acting	
15. Good attention span, sees work through to the end	
16. Rather solitary, prefers to play alone	Peer Problems
17. Has at least one good friend	
18. Generally liked by other children	
19. Picked on or bullied by other children	

20. Gets along better with adults than with other children	

Note. Response options included 1- *Not true*, 2- *Somewhat true*, 3- *Certainly true*.

Table A5

Brandeis Childhood Opportunity Index: Health and Environment Index

Indicators
1. Access to Healthy Food
2. Access to Green Space
3. Walkability
4. Housing Vacancy Rate
5. Hazardous Waste Dump Sites
6. Industrial Pollutants in Air, Water, or Soil
7. Airborne Microparticles
8. Ozone Concentration
9. Extreme Heat Exposure
10. Health Insurance Coverage

Note. Scoring options included 1- *Very Low*, 2- *Low*, 3- *Moderate*, 4- *High*, 5- *Very High*