Understanding the Impact of Collective Efficacy and Race/ethnicity on Child internalizing and Externalizing Symptomatology

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ABSTRACT

UNDERSTANDING THE IMPACT OF COLLECTIVE EFFICACY AND RACE/ETHNICITY ON CHILD INTERNALIZING AND EXTERNALIZING SYMPTOMATOLOGY

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Neighborhood collective efficacy has emerged as an important predictor of mental health problems, specifically internalizing and externalizing behaviors, among adolescents. Existing research has shown that the association between collective efficacy and mental health problems may differ according to the child’s racial or ethnic background. The present study used structural equation modeling (SEM) to examine the direct associations between collective efficacy at age 9 and internalizing and externalizing symptoms at age 15 while controlling for several demographic variables. Subsequently, a multigroup SEM approach was utilized to explore whether associations between neighborhood collective efficacy at age 9 and externalizing and internalizing symptoms at age 15 differed among three racial and ethnic groups (i.e., non-Hispanic White, non-Hispanic Black, and Hispanic). Data were from the Fragile Families and Child Wellbeing Study (FFCWS), a longitudinal birth cohort study comprising 4,898 families. In initial models that did not explore racial/ethnic differences, collective efficacy was not significantly associated with lower internalizing or externalizing behaviors, though there were trend-level associations in the hypothesized directions. Results from the multigroup model examining internalizing symptoms demonstrated that collective efficacy was not significantly
associated with internalizing behaviors in non-Hispanic White, non-Hispanic Black, or Hispanic children. Results from the multigroup model examining externalizing outcomes demonstrated that higher levels of collective efficacy were significantly associated with lower levels of externalizing behaviors for Hispanic and non-Hispanic White children, but not for non-Hispanic Black children, for whom the link between collective efficacy and externalizing behaviors was not significant. Findings from this study highlight that associations between collective efficacy and mental health problems may differ based on a child’s cultural background. Furthermore, important differences between racial/ethnic groups were found, such that non-Hispanic Black children had higher intercept levels of self-reported delinquency, rule-breaking behaviors, and aggressive behaviors, followed by Hispanic children and then non-Hispanic White children. Additionally, differences in socioeconomic variables were found in that non-Hispanic Black mothers had the highest level of poverty and lowest level of household income and were more likely to be single, followed by Hispanic mothers and lastly by non-Hispanic White mothers. These findings highlight mean-level differences (e.g., higher levels of physical disorder, exposure to violence, and poverty in non-Hispanic Black children) that may serve to inform future prevention and intervention methods.
UNDERSTANDING THE IMPACT OF COLLECTIVE EFFICACY AND RACE/ETHNICITY ON CHILD INTERNALIZING AND EXTERNALIZING SYMPTOMATOLOGY

BY
DEMY ALFONSO

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A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE MASTER OF ARTS

DEPARTMENT OF PSYCHOLOGY

Doctoral Director:
Elizabeth Shelleby
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Mental health problems in youth present a significant public health issue, as epidemiological studies suggest that approximately 15-20% of children experience internalizing/emotional problems (e.g., anxiety, depressive symptoms, somatic complaints) or externalizing/behavioral (e.g., aggression, oppositional behavior, defiance) problems (Bayer et al., 2006; Garnefski et al., 2005). Such behavioral and emotional difficulties in youth are concerning, as studies have demonstrated increased risks for social, academic, and emotional and behavioral problems in later childhood and adolescence (Olson et al., 2000; Saluja et al., 2004; Sourander & Helstela, 2005; Thompson et al., 2011; Woodward & Fergusson, 2001). For example, with regard to internalizing problems, studies have shown an increased risk of suicide and risky sexual practices (Saluja et al., 2004) in addition to lower self-esteem, lower educational achievement, and subsequent mental health issues including major depression and anxiety disorders (Harrington et al., 1990; Sourander & Helstela, 2005; Woodward & Fergusson, 2001). With regard to externalizing problems, studies have shown an increased risk of later delinquency (Olson et al., 2000; Thompson et al., 2011) and antisocial behavior, violent behavior, and substance/alcohol use (Thompson et al., 2011).

Additionally, we know that youth from sociodemographically disadvantaged backgrounds experience internalizing and externalizing problems at higher levels than more advantaged peers (Anderson & Mayes, 2010; Bradshaw, 2020; Carter et al., 2010; Heiervang et al., 2007; Merikangas et al., 2010; Rivera, 2014). There are also disparities in experiences of
sociodemographic disadvantage between children from different racial/ethnic backgrounds, with children of color consistently overrepresented in lower SES groups. For example, 39% of Black children and adolescents and 33% of Latino children and adolescents live in poverty while approximately 14% of non-Latino White and 14% of Asian children and adolescents live in poverty (Kids Count Data Center, 2018). While SES has been shown to account for a portion of the association between race/ethnicity and mental health outcomes (Kennard et al., 2006; Kessler et al., 1997; Nguyen et al., 2007), studies have demonstrated that disparities between racial/ethnic groups are not fully explained by SES. By contrast, associations among SES, race/ethnicity, other risk/protective factors, and various health problems have been shown to be complex. For example, Kessler and Neighbors (1986) demonstrated through secondary analysis of epidemiological data that the influence of race on psychological functioning was underestimated when race-by-SES interactions were not examined. In what follows, literature examining associations between race/ethnicity and mental health outcomes will be reviewed, followed by theoretical models discussing how the environment affects mental health. Next, overall neighborhood disadvantage will be discussed, leading to a discussion of collective efficacy. Finally, the interaction between race/ethnicity and mental health outcomes relating to collective efficacy will be presented, which will inform the approach for the current study.

Race and Ethnicity in Relation to Child Problems

It is important to understand potential differences in internalizing and externalizing symptoms for children from various racial and ethnic backgrounds because it could elucidate factors that contribute to health disparities and could allow for a point of intervention that could then be tailored to specific groups of children. Studies examining associations among race,
ethnicity, and mental health problems in samples of children have conflicting findings – some studies have reported more mental health difficulties among children of color compared to White children (Merikangas et al., 2010; Riolo et al., 2005, Roberts et al., 1997) while other findings suggest that children of color have similar, or even better, outcomes compared to White children (McGuire & Miranda, 2008; Riolo et al., 2005; Samaan, 2000).

Understanding how children from different backgrounds may be more or less likely to experience mental health outcomes is of particular interest as this would help identify communities in need of additional resources. Regarding studies that have demonstrated higher rates of internalizing problems in youth of color, one study that examined prevalence rates of major depression in an ethnically diverse sample of over 5,000 middle school students aged 10 to 17 years found that African American children and Mexican American children had significantly higher rates of major depression (without impaired functioning at home, school, or with peers) when compared to White children, but only Mexican American children had significantly higher prevalence rates of having a major depressive episode (with impaired functioning at home, school, and with peers; Roberts et al., 1997). Similarly, Twenge and Nolen-Hoeksema (2002) examined 310 samples of children aged 8 to 16, totaling over 61,000 participants, and found that Hispanic children scored significantly higher on a measure of depressive symptoms (the Children’s Depression Inventory [CDI]) than White or Black children. No significant differences were found between the White and Black children, and SES did not moderate the associations. Consistent with these previous studies, Anderson and Mayes (2010) conducted a review on ethnic youth of color living in the United States and found that across three separate waves of data collection, Latino American youths and Asian American youths alike reported the highest level of depressive symptoms, followed by African American youths, and lastly by White
American youths. Furthermore, children who were multiracial/ethnic (e.g., Afro-Latino American youths) displayed higher levels of depressive symptoms than any other ethnic group. In terms of anxiety symptoms, Anderson and Mayes (2010) found that Latino American youths, African American youths, and Asian American youths all experienced higher levels of anxiety symptoms when compared to White American youths. Another study on the prevalence of mental disorders among children in the United States, though, showed that Mexican American youths had significantly higher rates of mood disorders when compared to non-Hispanic White and Black youths. Most significantly, Mexican American youths had higher rates of depression (Merikangas et al., 2010). Therefore, there is an increasingly large field of literature suggesting that internalizing problems may be occurring at disproportionately higher rates in youth of color when compared to White children.

Similar associations have been found in studies examining externalizing symptoms in children, with some findings indicating higher rates of such problems in youth of color. For example, Deater-Deckard et al. (1998) found that teacher-reported externalizing problems were significantly higher for African American children, ages 5 to 10, compared to European American children of the same age. Udry et al. (2003) showed that children in Grades 7 through 12 identifying as multiracial experienced higher levels of externalizing-related behavioral issues including substance use, sexual behavior, and negative school behavior (i.e., skipping school more than 10 times, repeating a grade, and ever having been suspended) compared to those identifying with a single race. McLaughlin et al. (2007) indicated that in terms of aggression, in a sample of 6th to 8th graders, Black boys had higher levels compared to White and Hispanic boys while Hispanic girls had higher levels compared to White and Black girls. In a sample of 9- to 15-year-olds, White and Kistner (2011) found that children of color exhibited more behaviors of
reactive aggression (“a defensive or retaliatory response to a perceived threat or provocation”) as well as proactive aggression (“an unprovoked instrumental offensive behavior driven by expectation of attainment of external rewards”) than White children.

Although some researchers have found that children of color experience higher levels of mental health issues, it is important to note that on the contrary, other studies have provided evidence of lower rates of mental health problems in youth of color. For example, Samaan’s (2000) literature review of longitudinal and cross-sectional studies examining the influences of cultural/ethnic and racial differences on the mental health of children from different racial/ethnic backgrounds found that children from marginalized ethnic and racial backgrounds had significantly lower prevalence rates of mental health problems overall, but only after controlling for poverty. Merikangas et al. (2010) also found that Mexican American youths had lower rates of ADHD when compared with non-Hispanic White youths. Thompson et al. (2011) found that African American and other youth of color were at a decreased risk for certain externalizing behaviors, such as substance use. In terms of Hispanic children, Avenevoli et al. (2013) found that Hispanic adolescents were less likely to have a depressive episode than non-Hispanic adolescents of any race. More recently, Hispanic children were also found to have lower rates of mental health hospitalizations when compared to Black and White children, who had similar rates of inpatient and emergency hospitalizations (Marrast et al., 2016).

Given the conflicting findings regarding whether there are meaningful differences across mental health problems by race/ethnicity, it is important to focus efforts on addressing limitations in this body of research that might contribute to the ambiguity. One major limitation, raised by Williams and Earl (2007), is that few studies look into the underlying mechanisms influencing the relationship in racial and ethnic disparities within mental health problems. In
addition, these authors articulated important developmental differences in that some research has suggested that there is a marked difference in mental health prevalence rates in people of color during childhood/adolescence (similar or lower rates than White counterparts) as compared to during adulthood (higher rates than White counterparts). Another limitation is that racial/ethnic groups are defined differently in various studies, which makes it difficult to compare across studies, as they may not be actually studying the same groups. Additionally, a further limitation that might relate to discrepancies in findings is that not all studies account for the same contextual variables (some control for poverty, some control for neighborhood, some control for both or neither), which highlights the important need to increase our understanding of context. Due to the mixed evidence and complex associations that have been studied, research focusing on the potential risk and protective factors on mental health disparities across individuals from different racial and ethnic backgrounds is important. As such, the current study focused on the neighborhood context, specifically on collective efficacy, which may help explain differential outcomes for youth from different racial and ethnic backgrounds.

Theoretical Models

From an ecological systems perspective, Bronfenbrenner (1992) has posited that multiple, interactive risks and protective factors work together to influence the onset and development of various developmental outcomes. These factors include characteristics of the individual themselves (i.e., focal child, genetics, biology), the immediate environment (i.e., family, household), informal networks (i.e., cultural groups, peers, neighbors), the local environment and formal networks (i.e., schools, neighborhoods, local government, parks, etc.), and the wider environment (i.e., social norms and attitudes, national economy and government, etc.). There are
multiple child-level, family-level, and broader community-level factors that influence a child’s behavioral and emotional development.

With regard to understanding development in youth from diverse racial/ethnic backgrounds, the group differences hypothesis proposed by Garcia Coll (1990) suggests that both the environmental and cultural contexts of a child’s race and ethnicity are reflected in their development. Garcia Coll (1990) studied the effects of culture, health status, SES, family structure, and biological factors as separate yet interacting forces in the development of children and found that social and cultural factors tend to be the most salient factors in a child’s early development. This, in turn, suggests that there are developmental differences (characterized through developmental goals, interactions, and milestones) between families of color and White families which place children of color at higher risk for health problems. Additionally, Garcia Coll et al. (1996) added that the central role of “minority status” impacts how children perceive their world and their social position, which is affected by “pervasive social mechanisms of racism, prejudice, discrimination and oppression” (p. 1895), which in turn can impact one’s self-worth, and, thus, mental health outcomes.

While factors such as temperament, parenting behaviors, family structure and routines, and stressful life events have been shown to be important predictors of higher internalizing and externalizing problems in early childhood, studies have shown that more distal contexts, such as the peer environment and broader neighborhood context, become more important as children become older (Brown et al., 2008; Jokela et al., 2014; Kohen et al., 2008; Steinhausen & Metzke, 2001). For example, neighborhood disadvantage, described as having higher levels of crime, poverty, and violence and lower levels of perceived support, has been shown to be associated with an increased risk for child conduct problems as children grow older, which might be
partially due to children’s increased social interactions with other children and adults in the neighborhood as they develop (Kellam et al., 1998, Shaw & Shelleby, 2014). Additionally, a link between neighborhood disadvantage and increased risk for internalizing problems as children grow older has also been found (Aneshensel & Sucoff, 1996; Leventhal & Brooks-Gunn, 2003). The risk model proposed by Spencer (1990) is a broad model that explains how universal effects of both the neighborhood and parenting could influence child behavior generally. This model also expands on the group differences model by explaining that the neighborhood affects children regardless of race. However, this model suggests that children of color experience neighborhood hazards at disproportionate rates when compared to White children, and this is what places children of color at higher risk for experiencing negative health outcomes.

**Neighborhood Disadvantage**

Neighborhood disadvantage can be conceptualized as encompassing factors such as concentrated poverty, higher levels of crime and violence, substance use in the neighborhood, physical disorder, and lack of community cohesion and efficacy (Anderson & Mayes, 2010). While there are factors in all neighborhoods that could impact children’s emotional and behavioral problems, those living in disadvantaged neighborhoods are likely exposed to more negative experiences such as discrimination, experiencing and/or witnessing violence or violent deaths, substance abuse, poverty, and teen pregnancy (Anderson & Mayes, 2010). Research has consistently demonstrated that people living in disadvantaged neighborhoods are likely to experience lower life satisfaction and more likely to experience mental health problems (Aneshensel & Sucoff, 1996; Leventhal & Brooks-Gunn, 2003).
Studies have shown that children’s perceptions of their neighborhood as threatening or dangerous, indicated by conditions of physical environment, exposure to crime and/or violence, graffiti, and substance use and drug dealing, negatively influence their mental health, regardless of race or ethnicity (Aneshensel & Sucoff, 1996; Leventhal & Brooks-Gunn, 2000). Research has also demonstrated that children in low-SES neighborhoods perceive their neighborhoods as more dangerous than their peers in high-SES neighborhoods (Aneshensel & Sucoff, 1996). Additionally, studies that have objectively assessed the dangerousness and disadvantage of neighborhoods, regardless of the residents’ perceptions, have shown that those living in neighborhoods with higher family SES levels, less physical and social disorder, and less exposure to crime and violence showed greater life satisfaction and lower symptoms of depression and anxiety (Beyers et al., 2003; Leventhal & Brooks-Gunn, 2003; Xue et al., 2005). Therefore, both the subjective and objective experiences of disadvantaged and negative environments can create a higher risk for developing internalizing symptoms.

Individuals from marginalized racial and ethnic backgrounds have been shown to reside in disordered and disadvantaged neighborhoods at disproportional rates compared to their White counterparts (Anderson & Mayes, 2010). Individuals from lower SES backgrounds are also more likely to live in disordered and disadvantaged neighborhoods (Anderson & Mayes, 2010), which have also been described as “historically disinvested neighborhoods” (Ursache et al., 2019, p.1566), a term that recognizes the structural barriers of systemic racism that have contributed to a high concentration of families having low incomes in certain neighborhoods. Researchers have suggested that it is critical to focus research efforts among children growing up in these historically disinvested and disadvantaged neighborhoods as these children tend to be at higher
risk for negative outcomes (i.e., lower mental health status, preparedness for school, and achievement) due to the different set of stressors they experience (Ursache et al., 2019, p. 1563).

As previously mentioned, research demonstrates that SES level accounts for a sizable proportion of the variability in depressive symptoms in children, and youth of color are consistently overrepresented in lower SES groups (Kennard et al., 2006; Kessler et al., 1997; Nguyen et al., 2007). However, studies have shown that the interplay among family-level indicators of socioeconomic status, of neighborhood disorder/disadvantage, and race/ethnicity as they relate to child mental health problems is complex. For example, in a study investigating the relationship between poverty and psychiatric disorder prevalence in Black and White children, Costello et al. (2001) demonstrated that Black children from disadvantaged neighborhoods reported significantly lower levels of depression when compared to White children from disadvantaged neighborhoods.

Providing strong evidence of the impact of neighborhood on development through a randomized control trial, Leventhal and Brooks-Gunn (2003) conducted an experimental study in moving families from public housing in high-poverty neighborhoods into private housing in non-poor neighborhoods and found that the children (mean age=12.62 years old) in these families were significantly less likely to report anxiety and depressive symptoms when compared to the control participants. This study also showed that residents who live in neighborhoods with higher crime and violence report less satisfaction in life and more mental health symptoms. Linares et al. (2001) found a similar relationship, such that internalizing behaviors in children were positively correlated with fear of crime, perceived crime, and witnessing violence in a sample of children aged 3 to 6 residing in high-crime neighborhoods. Furthermore, independent of SES and racial and ethnic background of residents of the neighborhoods, in a study investigating how
neighborhood factors could influence adolescent emotional and mental health, drug use and drug dealing were found to lead to a greater perception of the neighborhood as dangerous, which was then associated with higher levels of depression and anxiety in adolescents of ages 12 to 17 (Aneshensel & Sucoff, 1996). Exposure to illegal or harmful substances at the neighborhood level, but outside of the home, was found to negatively influence child and adolescent mental health (Leventhal & Brooks-Gunn, 2000).

Although limited research has been conducted on the direct effect of a neighborhood’s physical environment on children’s mental health, Leventhal and Brooks-Gunn (2003) found that residents living in neighborhoods with less physical disorder in the environment (i.e., where physical disorder is characterized as the presence of abandoned cars, abandoned houses, garbage, and graffiti) reported higher levels of satisfaction and the children (mean age=12.62 years old) were, in turn, less likely to report anxious/depressive problems. While studies have demonstrated that neighborhood contextual factors such as poverty, crime, and violence are associated with higher risk for internalizing and externalizing symptoms, research focusing on protective factors has identified other neighborhood characteristics as potentially buffering against risk. One such protective factor is collective efficacy.

**Collective Efficacy**

Collective efficacy is defined as the neighborhood residents’ shared values and beliefs, striving to positively influence the neighborhood through active collaborative engagement from the residents (Sampson, 2003). Neighborhoods with high levels of collective efficacy are also defined as having adults and children who know one another and work together to lessen crime and delinquency (Fagan et al., 2014). The adults in these communities are also more likely to
advocate for resources and services that could benefit all members of the community as well as engage in more active monitoring of the children in the neighborhoods to protect and intervene when negative behaviors are occurring (Fagan et al., 2014). One hypothesis regarding why lower levels of mental health problems may be observed in children living in communities with higher levels of collective efficacy is that children are aware they are being more actively monitored and so they are less likely to engage in delinquent or criminal behaviors, and lower depressive or anxious symptoms may be associated with feeling safer, more protected, and more supported (Fagan et al., 2014). Browning and Cagney (2002) found that in urban settings, living in neighborhoods with higher levels of collective efficacy was positively associated with higher levels of overall health.

Similarly, results from the Project on Human Development in Chicago Neighborhoods (PHDCN) community sample survey showed that higher levels of collective efficacy in neighborhoods were significantly related with better mental health and lower levels of children’s internalizing symptoms (Xue et al., 2005). Neighborhood cohesion and social cohesion, defined as the willingness of residents of the neighborhood to cooperate with one another, were also found to moderate the effect of living in disadvantaged neighborhoods on internalizing symptoms by reducing the impact of neighborhood disadvantage on children’s mental health, possibly because these adolescents tend to view their neighborhoods as safe and cohesive (Aneshensel & Sucoff, 1996). Wandersman and Nation (1998) showed a similar pattern of neighborhood social support moderating the effects of neighborhood disadvantage on mental health; neighborhood cohesion reduced the negative impact of neighborhood disadvantage on children’s mental health. Using multigroup structural equation modeling, Odgers et al. (2009) found in a sample of 5- to 10-year-olds that a main effect of neighborhood collective efficacy
was negatively associated with antisocial behavior, but this was only significant in deprived neighborhoods, which were defined as having residents with low incomes, high rates of unemployment, and more likely to be single parents. This relationship remained significant even after controlling for other neighborhood problems and family-level factors (e.g., family history of antisocial behavior, child maltreatment, domestic violence, SES disadvantage, and vandalism, drug use, robberies, and violence in the neighborhood), which indicates that collective efficacy appears to play a protective role, especially in lower SES neighborhoods (Odgers et al., 2009).

Collective efficacy can play a protective role on the development of internalizing and externalizing symptomatology in children exposed to multiple types of risk factors, including child maltreatment, drugs, and violence. Kliewer and colleagues’ (2004) study showed that for children exposed to violence, a child’s perception of higher levels of neighborhood cohesion was associated with fewer internalizing symptoms. In regard to externalizing symptoms, a study examining the relationship between maltreatment and aggression in pre-adolescents found a moderating effect of neighborhood collective efficacy such that children who experienced neglect had lower levels of externalizing behaviors, as reported by both caregiver and youth, when their neighborhoods had higher levels of collective efficacy (Yonas et al., 2010). Additionally, Maimon et al. (2010) found that the effect of family attachment and support on adolescent suicidal behaviors was also moderated by neighborhood collective efficacy, such that collective efficacy enhanced the protective effect of attachment and support.

With regard to the protective effect of collective efficacy on neighborhood risks associated with later risky behaviors (e.g., substance use and sexual behaviors), Fagan et al. (2014) found that neighborhood collective efficacy moderated the relationship between exposure to violence and later use of tobacco, alcohol, and marijuana, such that the relationship was
weaker in neighborhoods with higher levels of collective efficacy when compared to neighborhoods with lower levels of collective efficacy. Jackson et al. (2016) also identified a mediating protective effect of collective efficacy on risky drinking in young adolescents (younger than 16 years of age), but this protective effect was not present for adolescents of 16 years or older. Another study found that collective efficacy was also effective in protecting against adolescents having multiple sexual partners, which could be due to the fact that communities with higher levels of this neighborhood cohesion are more adamant about the “appropriateness” of certain risky drug, alcohol, and sexual behaviors (Browning et al., 2008).

Similarly, collective efficacy has been shown to have a protective effect against perpetration of various types of violent behavior. For example, Molnar et al. (2008) had previously found that living in neighborhoods with higher levels of resources and services for the community, an aspect of collective efficacy, was associated with lower levels of aggression in children. Maimon et al. (2010) established that collective efficacy exhibited a regulatory and beneficial effect on adolescent violence through the monitoring of group play among children in the neighborhood and through the encouragement of adult residents’ intervention when seeing children engaging in deviant behaviors. Jain and colleagues (2010) also identified a direct protective effect of collective efficacy on youth dating violence. This was explained as neighborhoods with higher levels of collective efficacy being more likely to have community members who would intervene to help victims of violence as well as advocate for resources and services to help the victims. However, they noted that higher levels of collective efficacy also reduced the risk of perpetration of dating violence, and this was especially true for males living in low- and mid-level poverty neighborhoods. Given that children of color are more likely to reside in disadvantaged neighborhoods, it is important to better understand what confers risk
and/or protects them from negative mental health outcomes through studying how specific factors of the neighborhood are related to elevated/decreased symptomatology and what differences lie between children from different racial/ethnic backgrounds.

Framed with both the group differences hypothesis (Garcia Coll, 1990) and risk model (Spencer, 1990), Ma and Klein (2018) examined whether there were differences in the effects of neighborhood collective efficacy on early child behavior (age 5) by racial and ethnic groups. Utilizing data from the Fragile Families and Child Wellbeing Study (FFCWS), the same study utilized for the current project, Ma and Klein found that Black and Hispanic families reported lower levels of neighborhood collective efficacy when compared to their White counterparts. Also important to note is there were significantly higher levels of internalizing symptoms for Hispanic children, followed by Black and White children. Ma and Klein (2018) identified that higher levels of neighborhood collective efficacy significantly predicted lower levels of externalizing problems overall, but this relationship was not statistically different across the different racial and ethnic groups. They also found that higher levels of neighborhood collective efficacy significantly predicted lower levels of internalizing symptoms overall, but there was a moderation effect for this. The positive influence of neighborhood collective efficacy on internalizing symptoms was stronger for Hispanic children than for White children. Ma and Klein (2018) suggested that Latinx’s strong focus on familismo, also known as familial connection and referring to one’s commitment to and solidarity with their family, may be the mechanism through which collective efficacy acts as a protective factor on internalizing symptoms for Latinx children, as they value a “strong sense of belonging and respect for community,” (p.3726).
Although Ma and Klein (2018) failed to find a differential effect of neighborhood collective efficacy on mental health outcomes for Black children when examining outcomes at age 5, there may be important differences during later developmental time periods, when youth spend more time in out-of-home contexts, that could suggest that higher neighborhood collective efficacy is particularly protective for Black children in the context of externalizing outcomes. In a study examining the risk and protective factors for internalizing and externalizing symptoms in African American adolescents, results showed that neighborhood collective efficacy was associated with lower levels of externalizing problems and lower levels of comorbid externalizing and internalizing problems (Liu et al., 2017). The authors suggested that because African American youth are more likely to inaugurate extended networks, neighborhood processes like collective efficacy may be especially significant in the lives of African American youth. It is important to note that Liu et al. (2017) were among the first to examine the protective effect of collective efficacy for African American youth (although it was concurrent, not longitudinal) and although Ma and Klein (2018) looked at longitudinal data, they only looked at early childhood (outcome was Year 5).

As previously mentioned, there are many gaps in the literature regarding the associations between neighborhood collective efficacy, race and ethnicity, and internalizing and externalizing symptoms in adolescents. First, not much research has been conducted regarding these exact associations and many of the studies that have taken place have demonstrated conflicting results. Even less research has been done when looking at race and ethnicity as a moderator for the association between levels of neighborhood collective efficacy and internalizing and externalizing problems in adolescents. There are certain difficulties that children of color experience at a disproportionate rate than their White counterparts that may explain the increased
risk for mental health problems. However, because of the lack of knowledge in the field of research regarding the role that race and ethnicity could play in moderating the relationship between disadvantaged neighborhoods (specifically collective efficacy) and levels of internalizing and externalizing symptoms in children, more research needs to be conducted on the associations between these constructs.

In addition to the aforementioned constructs contributing to externalizing and internalizing symptomatology in adolescents, other contextual factors have been found to be related to these outcomes. Maternal characteristics, such as higher education level (Carneiro et al., 2013; Domina & Roksa, 2012), higher socioeconomic status (Bornstein & Bradley, 2014; Bradley & Corwyn, 2013), lower levels of depression (Galbally & Lewis., 2017; Goodman et al., 2011), and marital/cohabitation status (Hadfield et al., 2018; Lehrer & Son, 2017), have been linked to lower levels of mental health problems in children. Child characteristics, such as gender (Brandlistuen et al., 2020; Paz et al., 2021; Rocchino et al., 2017) and higher levels of impulsivity (Revill et al., 2020), have also been associated with mental health problems in children. Forms of parental monitoring, such as parental knowledge and control in supportive relationships, have been shown to be linked to lower levels of substance use and delinquency (Micalizzi et al., 2019). Additionally, neighborhood characteristics, such as exposure to violence in the community (Dubé et al., 2018; Taylor et al., 2018) and physical disorder in the neighborhood (Gold & Nepomnyaschy, 2018; Li et al., 2017), are associated with higher levels of internalizing and externalizing behaviors in adolescence. Given these associations, it is important to account for these contributions to mental health in studies that focus on internalizing and externalizing outcomes.
The present study aimed to examine the relationship between neighborhood collective efficacy and internalizing and externalizing symptomatology in children. The study also aimed to determine whether these associations were moderated by race or ethnicity (as determined by maternal report of race and ethnicity). Gaining a better understanding of how this aspect of the neighborhood could influence the development of negative health symptoms in children and adolescents and how this might differ based on a child’s race or ethnicity is important because internalizing and externalizing symptoms can lead to a variety of negative outcomes, including violence and delinquency, antisocial behavior, suicide, substance use and abuse, low self-esteem, risky sexual behaviors, and future mental health issues (Donenberg & Baker, 1992; Harrington et al., 1990; Olson et al., 2000; Saluja et al., 2004; Sourander & Helstelä, 2005; Woodward & Fergusson, 2001; Zeman et al., 2002). By attaining a more holistic understanding of these associations, it would be easier to both produce and implement interventions to offset the negative impact on mental health that can be brought upon children. Furthermore, with this understanding it may be possible to identify children at higher risk for these negative mental health outcomes and understand where and how to allocate resources, such as those that bolster social cohesion, to those in disadvantaged neighborhoods to help offset unfavorable conditions.

However, more research needs to continue to be conducted in this area because of the high level of inconsistent findings reported in past studies regarding the relationship between a children’s race and ethnicity and their mental health status. Some studies have shown that children of color have higher levels of symptomatology than White children (Merikangas et al., 2010; Riolo et al., 2005, Roberts et al., 1997) while other studies’ findings suggest that youth of
color have lower or equal levels of symptomatology compared to White youth (McGuire & Miranda, 2008; Riolo et al., 2005; Samaan, 2000). Furthermore, there is not a wide variety of literature examining the interaction between neighborhood collective efficacy and children’s race and ethnicity on their development of internalizing and externalizing symptoms; therefore, more research needs to be conducted in this area as well.

The present study aimed to address current gaps in the literature by examining the associations between the neighborhood context, specifically through the use of neighborhood collective efficacy, race and ethnicity, and internalizing and externalizing symptoms in children. The current study expands on previous research by exploring these relationships and the degree to which the relationship of the neighborhood and symptomatology is moderated by race and ethnicity, extending into the adolescent period. The present study used a large and diverse sample, multiple reporters (i.e., child and mother) for outcome variables, a longitudinal design expanding over multiple years, and various individual- and community-level covariates. Further, the current study employs a multigroup-level SEM approach to explore associations between neighborhood collective efficacy at age 9 and externalizing and internalizing symptoms at age 15 and how these relationships differ between three racial and ethnic groups (i.e., non-Hispanic White, non-Hispanic Black, and Hispanic) while controlling for several demographic variables. The following hypotheses were examined:

H1: Higher levels of neighborhood collective efficacy will predict lower levels of internalizing problems, regardless of race.

H2: Higher levels of neighborhood collective efficacy will predict lower levels of externalizing problems, regardless of race.
H3: Higher levels of neighborhood collective efficacy will have a stronger positive influence on internalizing problems in Hispanic children than White or Black children.

H4: Higher levels of neighborhood collective efficacy will have a stronger positive influence on externalizing problems in Black children than White or Hispanic children.
CHAPTER 2

METHOD

Participants

The present study used data collected through the Fragile Families and Child Wellbeing Study (FFCWS), a longitudinal study following a cohort of 4,898 families from 20 large U.S. cities beginning at the birth of the child, between 1998 and 2000, until 15 years of age. However, due to attrition that is common within longitudinal studies, the sample sizes decreased at each time point, leading to the following sample sizes: 4,270 families at Year 1; 4,140 families at Year 3; 4,055 families at Year 5; 3,515 families at Year 9; and finally 3,444 families at Year 15. Participating families were recruited at the birth of the child at 75 hospitals in 20 cities around the country. Around 75% of the children were born to unmarried parents, referred to as “fragile” families because they are deemed to be at greater risk of living in poverty than those from more traditional, nuclear families (Reichman et al., 2001). Mothers and fathers were interviewed upon the birth of their child and when the children were ages 1, 3, 5, 9, and 15. During these interviews, mothers and fathers reported on various demographic variables (e.g., education, race, ethnicity), their perception of their economic standing (e.g., reported monthly income [including any government assistance or child support they reported], access and ability to provide food for themselves and their family), neighborhood characteristics (e.g., perceived neighborhood safety), parent and child health (e.g., measured weight and height, reported frequency of doctor visits), and mental health information (e.g., reported parental stress, depression symptoms). The mother
was considered the primary caregiver (PCG) if she lived with the child at least half of the time, which applies to the majority of families (98.9% of PCGs reported being the biological mother at age 3, and 87.9% of PCGs reported being the biological mother at age 15). If she did not, however, the PCG interview was conducted with the father or another adult who lived with the child at least half of the time.

The racial distribution of the mothers in the initial data collection of the FFCWS was 16% non-Hispanic White, 43% non-Hispanic Black, 23% Hispanic, and 18% other (including Asian, American Indian, and other racial groups not specified). However, the racial distribution of the mothers in the present study was 23.7% non-Hispanic White, 50.2% non-Hispanic Black, and 26.1% Hispanic. The present study sample differs from the initial sample in that only participants with data on collective efficacy (predictor variable) were included (N = 3,011). Of note, within the original study, only 12.3% of mothers who identified as Hispanic were also Black.

Power Analysis

In order to determine the recommended sample size for the present study, an a priori calculation software for structural equation modeling was used, based on the anticipated effect size, statistical power level desired, number of latent variables, number of observed variables, and the probability level desired (Soper, 2022). With a medium effect size (0.3), 80% power, and a probability level of $p = .05$, the recommended minimum sample size for the present study is 400 participants per group. Given the 3,011 families included in the study, this sample size was more than adequate in order to conduct the necessary analyses.
Procedures

As previously mentioned, participating families were recruited through 75 hospitals across 20 large U.S. cities at the birth of the child. Mothers of the children were provided with an informed consent form, which provided researchers with access to both parent and child medical records. Furthermore, they completed an initial baseline interview and then completed interviews at the child’s first year of age, third year of age, ninth year of age, and fifteenth year of age. Phone interviews with mothers took place at every time point in order to collect information regarding demographics, physical health of all family members, mental health of all family members, socioeconomic status, employment and education status, family characteristics, family relationships, parenting behavior, child behavior, and neighborhood characteristics. At years 5 and 9, teacher surveys were conducted via phone in order to collect information regarding the child’s classroom behavior and their parent’s involvement with the school and education of their child. At ages 9 and 15, child self-report data was collected to gain information from the child’s perspective regarding their relationship with parents, school, early delinquency, mental health, and behavior. Lastly, at years 3, 5, 8, and 15, in-home assessments were conducted by trained researchers and examiners in order to gather first-hand data on the children, their parents, and the home environment. The in-home examiners assessed cognitive ability of the child and parent and physical health characteristics as well as internal and external home environment. Finally, they assessed the relationship between the child and parent through parenting behaviors associated with parental harshness and parental warmth.
Assessments and Measures

Demographic Questionnaire

Starting with the baseline assessment and continuing through each additional follow-up, parents and/or primary caregivers were asked to complete a demographics questionnaire that included questions about race, ethnicity, marital status, income, employment, and education. Participants were asked which of the following categories best described their race: White, Black/African-American, Asian or Pacific Islander, American Indian/Eskimo/Aleut, Other not specified. They were also asked if they were of Hispanic or Latino origin or descent. For the present study, maternal race and ethnicity, a demographic variable collected at the baseline assessment, were categorized into the following three groups, which were utilized to define the multigroup models: 1=non-Hispanic White (N = 713), 2=non-Hispanic Black (N = 1,511), 3=Hispanic (N = 787), for a total N of 3,011. Although 18% of the original sample was characterized as “Other,” these participants were excluded from the current analysis. Due to the multiple different identities (i.e., Asian, American Indian, other non-specified identities) combined into this “Other” group, there would have been an inability to make proper inferences about the results if included.

Collective Efficacy

Neighborhood’s collective efficacy was measured using the parent report on items from the Project on Human Development in Chicago Neighborhoods (PHDCN; Sampson et al., 1997) at the child’s age 9 assessment. There are a total of eight items measuring social control and levels of cohesion and trust (Appendix A). Although PHDCN used a 5-point scale, FFCWS
elected to use a 4-point scale (1 = “Strongly agree” to 4 = “Strongly disagree” and 1 = “Very likely” to 4 = “Very unlikely”). Sample items include: “People around here are willing to help their neighbors”; “This is a close-knit neighborhood”; “If children were spray painting buildings with graffiti it is very likely they would do something or get involved.” Some items were reverse coded and then items were summed to yield a total score of neighborhood collective efficacy, where lower scores indicate more frequent responses of agreement, indicating higher levels of collective efficacy. Within the Fragile Families sample, the reliability of this scale at age 9 is $\alpha = .86$. Additionally, this measure has been shown to be reliable (i.e., internal consistency, test-retest reliability) and have good validity (Earls et al., 1997).

Child Internalizing Symptoms

Child Behavior Checklist

Internalizing symptoms were assessed at age 15 using the parent report on items from the Child Behavior Checklist for ages 6-18 (CBCL 6-18; Achenbach & Rescorla, 2001). FFWCS elected to use the CBCL because it is a widely used, standardized, multiaxial rating scale used to assess behavioral and emotional problems and proficiencies of children. The CBCL has shown to excel in regard to its psychometric properties, with multiple studies showing high levels of test-retest reliability, interrater reliability, cross-cultural validity content validity, convergent validity, factorial validity, and criterion validity (Achenbach, 1991; Achenbach & Rescorla, 2000, 2001; Dutra et al., 2004; Ivanova et al., 2007; Rogers et al., 2003). The internalizing behaviors scale, with items rated by the child’s primary caregiver, was used in order to measure the child’s internalizing symptomatology at age 15. The CBCL originally used a Likert scale of 0, 1, and 2,
indicating absent, occurs sometimes, and occurs often, respectively, but researchers from FFCWS used a Likert scale with items rated from 1 (not true) to 3 (often true). Although the CBCL typically asks about behaviors during the previous 6 months, FFCWS elected to not use a specific time frame in order to maintain the style of other questions asked in the survey. At age 15, the internalizing behaviors scale is comprised of two subscales: the anxious/depressed behavior subscale with 6 of the original 13 items (i.e., child cries a lot, child feels worthless or inferior, child is nervous/high-strung/tense, child is too fearful or anxious, child feels too guilty, and child worries) and the withdrawn subscale with two of the original eight items (i.e., child is underactive/slow moving/lacks energy, and child is unhappy/sad/depressed). The items from both of these subscales were summed in order to create a composite CBCL Internalizing Behaviors score, with higher values representing higher levels of internalizing behaviors. Within the Fragile Families sample, the reliability of this scale at age 15 is $\alpha = .79$.

To account for continuity in internalizing symptoms, the CBCL internalizing subscale at age 9 was included in the study. The age 9 internalizing subscale was created combining all 13 original items of the anxious/depressed behavior subscale and all 8 original items of the withdrawn subscale. Items from these subscales were summed in order to create a composite CBCL Internalizing Behaviors Year 9 score, with higher values representing higher levels of internalizing behaviors at that time. Within the Fragile Families sample, the reliability of this scale at age 9 is $\alpha = .88$.

**Brief Symptom Inventory**

Internalizing symptoms were assessed at age 15 using the teen’s self-report on items from the Brief Symptom Inventory (BSI; Derogatis & Savitz, 2000). FFWCS created a modified
version using six of the items from the 18-item version of the BSI. FFWCS also asked teens to rate their symptoms over the past 4 weeks using a 4-point scale ranging from strongly agree to strongly disagree, whereas the original BSI asked for ratings of symptoms over the past 7 days on a 5-point scale from 0 (not at all) to 4 (extremely). The six items used within this study are: “I have spells of terror or panic”; “I feel tense or keyed up”; “I get suddenly scared for no reason”; “I feel nervous or shaky inside”; “I feel fearful”; “I feel so restless I can’t sit still.” The six items were summed in order to create a composite BSI Anxiety score, with higher values representing higher levels of anxiety. Within the Fragile Families sample, the reliability of this scale at age 15 is $\alpha = .76$. Additionally, this measure has been shown to have good internal consistency and convergent validity within a sample of adolescents and young adults (Lancaster et al., 2016).

Center for Epidemiologic Studies-Depression Scale

Internalizing symptoms were also assessed at age 15 using the teen’s self-report on items from the Center for Epidemiologic Studies – Depression Scale (CES-D; Radloff, 1977). FFWCS created a modified version using 5 of the 20 original items from the CES-D (Appendix B). FFWCS also asked teens to rate their symptoms over the past 4 weeks using a 4-point scale ranging from strongly agree to strongly disagree, whereas the original CES-D asked for ratings of symptoms in the past week using a 4-point scale ranging from never or rarely to most/all of the time. The five items used within this study are: I feel sad; I feel happy (reverse coded); I feel life is not worth living; I feel depressed; and I feel I cannot shake off the blues, even with help from my family and friends. The five items were summed in order to create a composite CES-D Depression score, with higher values representing higher levels of depression. Within the Fragile Families sample, the reliability of this scale at age 15 is $\alpha = .76$. This measure has consistently
been found to have good reliability, validity, and factor structure across a variety of socio-demographic characteristics (Radloff, 1991).

**Child Externalizing Symptoms**

**Child Behavior Checklist**

Externalizing symptoms were assessed at age 15 using the parent report on items from the Child Behavior Checklist for ages 6-18 (CBCL 6-18; Achenbach & Rescorla, 2001). The externalizing behaviors scale, with items rated by the child’s primary caregiver, was used in order to measure the child’s externalizing symptomatology at age 15. The CBCL originally used a Likert scale of 0, 1, and 2, indicating absent, occurs sometimes, and occurs often respectively, but researchers from FFCWS used a Likert scale with items rated from 1 (not true) to 3 (often true). Within the Fragile Families sample, the reliability of this scale at age 15 is $\alpha = .89$. At age 15, the externalizing behaviors scale is comprised of two subscales, the aggressive subscale and the rule-breaking subscale, which will be analyzed separately. Items from each subscale were summed in order to create a composite Aggressive subscale score and a composite Rule-Breaking subscale score, with higher values representing higher levels of those behaviors.

**Aggressive Subscale.** The aggressive subscale at age 15, comprising 11 of the 18 original items, includes items such as: bullies, destroys others’ things, disobedient at home, disobedient at school, many fights, physically attacks, stubborn/sullen/irritable, temper tantrums, threatens people, unusually loud, and argues a lot.

**Rule-Breaking Subscale.** The rule-breaking subscale at age 15, comprising 9 of the original 17 items, includes items such as: doesn’t feel guilty, hangs around others who get in
trouble, lies/cheats, runs away from home, sets fires, steals at home, steals outside home, swears, and vandalizes.

Delinquency

Externalizing symptoms were also assessed at age 15 using the teen’s self-report on items measuring delinquent behavior during the past 12 months adopted from measures in the National Longitudinal Study of Adolescent Health (Add Health; Chantala & Tabor, 1999). FFWCS used 13 of the 15 original items from the Add Health questions. Each item is rated on a 4-point scale (never, 1 or 2 times, 3 or 4 times, 5 or more times). FFWCS coded these questions 1-4, whereas Add Health coded them 0-3. Items include questions about painting graffiti, damaging property, stealing, physical fights, hurting someone, using or threatening to use weapons, and selling drugs. The items were summed in order to create a composite Delinquency score, with higher values representing higher levels of delinquent behavior. Within the Fragile Families sample, the reliability of this scale at age 15 is $\alpha= .74$. This measure has been extensively studied and shown good reliability and validity throughout different age groups (Chase-Lansdale et al., 1991).

To account for continuity in externalizing symptoms, the CBCL externalizing subscale at age 9 was included in the study. The age 9 externalizing subscale was created combining all 18 original items of the aggressive subscale and all 17 original items of the rule-breaking subscale. Items from these subscales were summed in order to create a composite CBCL Externalizing Behaviors Year 9 score, with higher values representing higher levels of externalizing behaviors at that time. Within the Fragile Families sample, the reliability of this scale at age 9 is $\alpha= .91$. 
Covariates

As research has shown that sociodemographic factors are typically associated with mental health symptomatology in children and adolescents (Bradley & Corwyn, 2013; McLoyd, 1998; Pinderhughes et al., 2007), they were accounted for as covariates in this study. The following sociodemographic variables were included in analyses (see Table 1 for descriptive statistics): child gender (male vs. female), maternal education (less than a high school education vs. high school or greater; Appendix C), maternal baseline marital/cohabitation status (married/cohabitating vs. not married and/or cohabitating; Appendix C), and maternal household income (Appendix C) and poverty category (measured through household income and number of people living in the home; Appendix C). Individuals who were between 0-49% of the poverty line were coded as 1, those between 50-99% were coded as 2, those between 100-199% were coded as 3, those between 200-299% were coded as 4, and those at 300% or above were coded as 5. Maternal depression over the past 12 months (met criteria vs. did not meet criteria for depression, measured using 15 items from the Composite International Diagnostic Interview-Short Form; Kessler et al., 1998) was also controlled for. Sample items include: “Has there ever been a time when you felt sad, blue, or depressed for two or more weeks in a row?” “During those two weeks, did you lose interest in most things like hobbies, work, or activities that usually give you pleasure?” (Appendix D).

The teen’s report of parental knowledge and regulation of their activities (adapted from the National Longitudinal Survey of Youth – Youth Questionnaire; Chase-Lansdale et al., 1991) at age 15 was also included as a covariate, where teens report whether parents or teenagers (or both) set limits about whether they are allowed to do certain things. Sample items include: “How
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<th>Range</th>
<th>Skew</th>
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<td>8 – 23</td>
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late you can stay out at night?” “What kinds of TV shows and movies you can watch?” “Who you can hang out with?” (Appendix E). Impulsivity at Year 15 was controlled for in order to avoid confounding characteristics of externalizing behaviors already accounted for by the outcome variable. Sample items include: “not thinking before speaking or acting,” “getting into trouble,” and “not considering consequences” (Appendix F). As noted previously, internalizing and externalizing symptoms at Year 9 (measured through parent report on the CBCL 6-18; Achenbach & Rescorla, 2001) were controlled for by creating a sum score of all of the original items for each subscale.

Additionally, community violence (adapted from the Home Observation for Measurement of the Environment (HOME) Caldwell & Bradley, 1979) of the neighborhood at Year 9 was controlled for in order to avoid confounding characteristics of disadvantaged neighborhoods. Sample items for community violence include: “how often you see a person get hit, slapped, punched” and “how often you see a person attacked with a weapon” (Appendix G). The items were summed in order to create a composite Community Violence score, with higher values representing higher levels of violence in the community. The physical environment (adapted from the HOME; Caldwell & Bradley, 1979) was also controlled for at Year 9. Sample items for the physical environment include: “Is there garbage, litter, or broken glass on the street, sidewalks, or yards?” “Are there vacant, abandoned, or boarded-up buildings on the block?” (Appendix G). The items were summed in order to create a composite Physical Environment score, with higher values representing higher levels of physical disorder in the neighborhood.
Data Analysis Plan

Preliminary analyses were first conducted in order to test for skewed and leptokurtic variables. Descriptive statistics and correlations between variables were also assessed. Missing data was analyzed for randomness using Little’s MCAR test.

The first two models included two separate confirmatory factor analyses (CFA) to examine the factor structure of the proposed latent dependent variables (i.e., age 15 internalizing and age 15 externalizing problems). Factor loadings were considered adequate when observed indicator loadings were above 0.30 and significant.

Then, structural equation modeling (SEM) and multigroup SEM were used to analyze the hypothesized models. Model fit was examined using several fit indices including the chi-square statistic test, root mean square error of approximation (RMSEA; Browne & Cudeck, 1993), Tucker-Lewis index (TLI; Tucker & Lewis, 1973), confirmatory fit index (CFI; Bentler, 1990), and standardized root mean square residual (SRMR; Hu & Bentler, 1999). Two types of fit indices were examined: 1) absolute fit indices and 2) incremental fit indices. Absolute fit indices examine how appropriately the data fits the estimated model (e.g., CFI, TLI, chi-square, SRMR) and the incremental fit indices measure how well the model aligns with the overall fit (e.g., RMSEA). A non-significant chi-square statistic test indicates good fit, although this index is sensitive to model complexity and sample size and may not actually indicate poor model fit. As such, when the chi-square is significant, fit is examined within other indices. RMSEA less than 0.06, TLI greater than 0.95, CFI greater than 0.95, and SRMR less than .08 also indicate good model fit (Hu & Bentler, 1999).
The first two SEM models used to test Hypotheses 1 and 2 included the direct pathway between neighborhood collective efficacy at age 9 and internalizing and externalizing behaviors at age 15, respectively. These models also included pathways from the covariates (child gender, maternal depression, parental knowledge, maternal poverty category, maternal household income, maternal education, maternal marital status, prior internalizing behaviors, physical environment of the neighborhood, and exposure to violence) to the outcome variables of internalizing and externalizing symptoms. The pathway between the covariate of impulsivity and the outcome variable of externalizing symptoms was also analyzed in the model for Hypothesis 2.

The two multigroup SEM models used to test Hypotheses 3 and 4 included the direct pathway between the predictor variable, neighborhood collective efficacy, and the outcome variables, internalizing and externalizing symptoms, respectively, for the three main racial/ethnic groups: Non-Hispanic White, Non-Hispanic Black, and Hispanic. Pathways from the aforementioned covariates and the outcome variables were analyzed, as were pathways from those covariates and the predictor variable of neighborhood collective efficacy. As with the first SEM models, the pathway between the covariate of impulsivity and collective efficacy as well as the pathway between impulsivity and externalizing symptoms was also included in the model for Hypothesis 4.
CHAPTER 3

RESULTS

Descriptive/Preliminary Analyses

As this study used a longitudinal dataset, various missing data points were found across all variables. Therefore, missing data was analyzed for randomness. Data were not missing completely at random (MCAR), as Little’s MCAR test was significant ($\chi^2 = 5202.701, p < .001$). T-tests were conducted and indicated that missingness was associated with several demographic variables, such that there was a greater percentage of missing data on externalizing and internalizing outcomes in children with mothers who reported higher levels of depression and poverty and lower household income. Missing data on collective efficacy was predicted by other variables within the study, including lower levels of parental knowledge, higher levels of physical disorder, and lower levels of exposure to violence. As such, this suggests that the data can be considered to be missing at random (MAR). Therefore, these demographic variables were included in the models. Subsequently, full information maximum likelihood (FIML) was used in order to address missing data. FIML utilizes likelihood techniques to estimate missing values for each individual using variables with data. As such, this process attempts to estimate missing values (Newman, 2003). Data screening results showed several variables to be skewed and/or leptokurtic, and as such, a maximum likelihood estimator with robust standard errors (MLR) was utilized. This has consistently been shown to be robust against nonnormality (Hox et al., 2010). Descriptive statistics were shown in Table 1 and bivariate correlations can be found in Table 2.
## Table 2
Correlations

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Primary Analyses

Measurement Models

Structural equation modeling (SEM) was first utilized to examine two separate confirmatory factor analysis (CFA) models, one for each of the latent dependent variables (i.e., internalizing behaviors at age 15 and externalizing behaviors at age 15). The first model represented the latent construct of internalizing behaviors, which included the observed variables of (1) the parent-report CBCL internalizing subscale, (2) teen-report BSI anxiety, and (3) teen-report CES-D depression. Standardized coefficients are reported. All indicators significantly loaded onto this latent factor, as the parent-report CBCL internalizing subscale had a loading of 0.344 ($p < .001$), teen-report BSI anxiety had a loading of 0.748 ($p < .001$), and teen-report CES-D depression had a loading of 0.871 ($p < .001$). Regarding model fit, the model was saturated ($df = 0$) and displayed perfect model fit: TLI = 1.00, CFI = 1.00, RMSEA = 0.00, and SRMR = 0.00.

The second model represented the latent construct of externalizing behaviors, which included the observed variables of (1) the parent-report CBCL rule-breaking behaviors, (2) the parent-report CBCL aggressive behaviors, and (3) teen-report delinquent behaviors. All indicators significantly loaded onto the latent factor, as the parent-report CBCL rule-breaking behaviors had a loading of 0.855 ($p < .001$), the parent-report CBCL aggressive behaviors had a loading of 0.755 ($p < .001$), and teen-report delinquent behaviors had a loading of 0.395 ($p < .001$). Regarding model fit, this model was also saturated ($df = 0$) and displayed perfect model fit: TLI = 1.00, CFI = 1.00, RMSEA = 0.00, and SRMR = 0.00.
Hypothesis 1: Collective Efficacy and Internalizing Symptoms

It was predicted that neighborhood collective efficacy and internalizing symptoms in adolescents would be significantly associated, regardless of race (Hypothesis 1). A full SEM was utilized in order to assess this direct pathway, which also included exposure to violence, the physical environment of the neighborhood, prior internalizing behaviors at age 9, maternal marital status, maternal education, maternal household income, maternal poverty category, maternal depression, parental knowledge, and child gender as covariates (Figure 1). Standardized coefficients are reported. Regarding model fit, the chi-square was significant ($df = 22$) = 54.936, $p < .001$, which is typical with large datasets; however, the other model fit statistics indicated that the model displayed good model fit: TLI = 1.00, CFI = 1.00, RMSEA = 0.01, SRMR = 0.04. Although not statistically significant, there was a trend-level association between higher levels of neighborhood collective efficacy at age 9 and lower levels of internalizing problems at age 15 ($B = 0.180, p = .057$). Gender was significantly associated with internalizing symptoms in adolescents, such that at age 15, girls experienced higher levels of internalizing symptoms than boys, overall ($B = 0.132, p < .01$).

Hypothesis 2: Collective Efficacy and Externalizing Symptoms

Additionally, it was also predicted that neighborhood collective efficacy and externalizing symptoms in adolescents would be significantly related, regardless of race (Hypothesis 2; Figure 2). SEM was used to examine this pathway in a full model that also included exposure to violence, the physical environment of the neighborhood, prior externalizing behaviors at age 9, maternal marital status, maternal education, maternal household income,
Figure 1. Pathway from collective efficacy to internalizing problems. Note: All reported values are standardized.
Figure 2. Pathway from collective efficacy to externalizing problems.

Note: All reported values are standardized.
maternal poverty category, maternal depression, parental knowledge, impulsivity, and child
gender as covariates. Standardized coefficients are reported. Although the chi-square statistic
was significant ($df = 24) = 317.180, p < .001$, other model fit statistics suggested that the model
displayed good model fit: $CFI = .998, TLI = .996, RMSEA = 0.05, SRMR = .053$. As with
internalizing behaviors, although not statistically significant, there was also a trend level
association between higher levels of collective efficacy at age 9 and lower levels of externalizing
outcomes at age 15 ($B = 0.133, p = .067$). Higher levels of prior externalizing behaviors ($B =
0.430, p < .001$) and current levels of impulsivity ($B = 0.212, p < .001$) were significantly
associated with higher levels of externalizing symptoms at age 15. Gender was also significantly
associated with externalizing symptoms in adolescents, such that at age 15, boys experienced
higher levels of externalizing symptoms than girls overall ($B = -0.072, p < .05$).

**Hypothesis 3: Collective Efficacy, Internalizing Symptoms, and Race/Ethnicity**

Multigroup-level SEM was then utilized in this study in order to delineate distinct direct
pathways within and differences among the non-Hispanic White group, non-Hispanic Black
group, and Hispanic group. This also allowed for analysis of how pathways from covariates to
outcome variables may differ by group. As is typical for multigroup models, all parameters were
first constrained to equality as to represent the most conservative model. Subsequently, Satorra-
Bentler chi-square difference tests were conducted in order to determine whether paths differed
and should therefore be individually freed or they should remain constrained. Standardized
coefficients are reported.

The model examining whether higher levels of neighborhood collective efficacy were
more strongly associated with lower internalizing problems in Hispanic children compared to
White or Black children (Hypothesis 3) is presented in Figure 3. Only significant pathways are depicted. Regarding model fit, the chi-square was significant, ($df=107) = 244.801, p < .001, which is typical with large datasets; however, the other model fit statistics indicated that the model displayed good model fit: TLI = 0.99, CFI = 0.99, RMSEA = 0.03, SRMR = 0.03.

Based on preliminary tests, loadings, intercepts, and residual variances that significantly differed were allowed to vary freely across groups in this and all subsequent multigroup models. The CBCL internalizing subscale loadings varied across the three groups and had a higher loading onto the latent factor for Hispanic children (loading = 0.435) compared to non-Hispanic White children (loading = 0.377) and non-Hispanic Black children (loading = 0.308). For the BSI anxiety scale, there was a higher loading onto the latent factor for Hispanic children (loading = 0.771) compared to the non-Hispanic Black children (loading = 0.766) and non-Hispanic White children (loading = 0.743). Regarding the CES-D depression scale, there was a higher loading onto the latent factor for non-Hispanic White children (loading = 0.950), followed by Hispanic children (loading = 0.826), and lowest in non-Hispanic Black children (loading = 0.818). Intercepts showed higher levels of collective efficacy (reverse scored such that lower scores indicate higher levels of collective efficacy) in Hispanic children (estimate = 3.973), followed by non-Hispanic White children (estimate = 4.039), and lowest in non-Hispanic Black children (estimate = 4.748). Non-Hispanic Black children also showed the highest level of variance in this variable (estimate = 0.976), followed by Hispanic children (estimate = 0.958), and lowest in non-Hispanic White children (estimate = 0.971). Intercept levels for the CBCL internalizing behaviors subscale were highest in non-Hispanic White children (estimate = 3.688), followed by non-Hispanic Black (estimate = 3.992), and lowest in Hispanic children (estimate = 4.163). There was a higher level of variance in non-Hispanic White children (estimate = 0.858),
Figure 3. Moderation by race/ethnicity on internalizing problems.

Note. All reported values are standardized. W represents the non-Hispanic White group, B represents the non-Hispanic Black group, and H represents the Hispanic group.
followed by Hispanic children (estimate = 0.811), and lowest in non-Hispanic Black children (estimate = 0.805). Intercept levels of anxiety, as assessed by the BSI, were highest in Hispanic children (estimate = 2.453) compared to non-Hispanic Black and White children (estimate = 2.326), which were not significantly different from each other. There was also higher variance in this variable in non-Hispanic White children (estimate = 0.448), compared to Hispanic and non-Hispanic Black children (estimate = 0.405), which did not statistically differ from one another. Hispanic and non-Hispanic Black children were not statistically different from one another and had higher intercept levels of depression (estimate = 0.602), measured through the CES-D, compared to non-Hispanic White children (estimate = 0.481). Similarly, there was higher variance in this variable within the Hispanic and non-Hispanic Black groups (estimate = 0.317) when compared to the non-Hispanic White group (estimate = 0.097).

Subsequent to the preliminary tests, the primary pathways in the model were examined for potential differences across the groups. The pathway between collective efficacy and internalizing behaviors significantly differed for non-Hispanic Black children when compared to Hispanic and non-Hispanic White children (which did not differ from one another), as the Satorra-Bentler chi-square difference test was significant. Specifically, the association was neither significant in the non-Hispanic White group or in the Hispanic group ($B = 0.031, p = 0.157$) nor for the non-Hispanic Black group ($B = 0.039, p = 0.111$), but the magnitude of the association differed, leading to the significant chi-square difference test.

Analyses between covariates and outcome variables were also explored and this model revealed many significant associations between covariates and internalizing behaviors that did not differ across the three groups (e.g., Hispanic, non-Hispanic Black, and non-Hispanic White children). Higher levels of maternal poverty were significantly associated with higher levels of
internalizing behaviors ($B = -0.067, p < .01$). Maternal depression was significantly associated with internalizing behaviors, such that children of mothers who met criteria for MDD experienced higher levels of internalizing symptoms ($B = 0.030, p < .05$). Higher levels of parental knowledge, as reported by the adolescent, were significantly associated with lower levels of internalizing behaviors ($B = -0.067, p < .001$). Child gender was also significantly associated with internalizing symptoms with differences across groups, such that girls experienced higher levels of internalizing behaviors than boys ($B = 0.138$ for Hispanic and non-Hispanic White children, $B = 0.087$ for non-Hispanic Black children, $p < .001$). Maternal education, maternal household income, maternal marital status, the physical environment the child lives in, and exposure to violence were not significantly associated with internalizing behaviors.

Additionally, specific pathways between variables and collective efficacy were examined. This model showed that children of mothers who met criteria for MDD experienced lower levels of collective efficacy ($B = 0.031$ for Hispanic and non-Hispanic Black children, $B = 0.007$ for non-Hispanic White children, $p = < .05$). Child gender was also linked to collective efficacy, such that Hispanic girls experienced lower levels of collective efficacy ($B = 0.071, p < .001$); however, this association was not significant for non-Hispanic Black or non-Hispanic White children ($B = -0.021, p = .235$). Hispanic and non-Hispanic White children who experienced higher levels of internalizing behaviors at age 9 also experienced lower levels of collective efficacy ($B = 0.071, p < .05$), whereas non-Hispanic Black children who experienced higher levels of internalizing behaviors at age 9 experienced higher levels of collective efficacy ($B = -0.052, p < .05$). This model also revealed many significant associations between covariates and collective efficacy that did not differ across the groups. Worse physical environment of the
neighborhood they lived in was significantly associated with lower levels of collective efficacy \((B = 0.046, \ p < .05)\). Additionally, greater level of exposure to violence was also significantly associated with lower levels of collective efficacy \((B = 0.046, \ p < .01)\). Children of mothers who were single also experienced lower levels of collective efficacy \((B = 0.033, \ p < .001)\). Maternal education, maternal income, maternal poverty, and youth’s report of parental knowledge were not significantly associated with collective efficacy.

**Hypothesis 4: Collective Efficacy, Externalizing Symptoms, and Race/Ethnicity**

The model examining whether higher levels of neighborhood collective efficacy were more strongly associated with lower externalizing problems in non-Hispanic Black children than non-Hispanic White or Hispanic children (Hypothesis 4) is presented in Figure 4. Only significant pathways are depicted. Regarding model fit, the chi-square was significant, \((df = 116) = 360.12, \ p < .001\), which is typical with large datasets; however, the other model fit statistics indicated that the model displayed good model fit: \(TLI = 0.99, CFI = 0.99, RMSEA = 0.04, SRMR = 0.026\).

Based on preliminary tests, intercepts and residual variances that significantly differed were allowed to vary freely across groups in this and all subsequent multigroup models. Loadings for the latent externalizing behavior factor were constrained as indicated by the non-significant Satorra-Bentler chi-square. It should be noted that although loadings were constrained to equality, the values for the standardized loadings vary slightly because of the variances used to calculate them. As such, loadings on the CBCL rule-breaking behavior indicator were not significantly different from one another for the non-Hispanic White (loading = 0.844), non-Hispanic Black (loading = 0.820), and Hispanic group (loading = 0.856). The CBCL
Figure 4. Moderation by race/ethnicity on externalizing problems.
Note: all reported values are standardized. W represents the non-Hispanic White group; B represents the non-Hispanic Black group; H represents the Hispanic group.
aggressive subscale for non-Hispanic White (loading = 0.851), non-Hispanic Black (loading = 0.896), and Hispanic children (loading = 0.846) also did not differ statistically. Lastly, there was no significant difference in the delinquency subscale loadings between the non-Hispanic White (loading = 0.413), non-Hispanic Black (loading = 0.377), and Hispanic group (loading = 0.330).

Intercepts showed higher levels of collective efficacy (reverse scored such that lower scores indicate higher levels of collective efficacy) in non-Hispanic White children (estimate = 4.716), followed by Hispanic children (estimate = 4.058), and lastly non-Hispanic Black children (estimate = 4.011). Similarly, there was less variance within this variable in non-Hispanic White children (estimate = 0.955), followed by Hispanic children (estimate = 0.979), and highest in non-Hispanic Black children (estimate = 0.997). Intercept levels of teen-reported delinquency was highest in non-Hispanic Black children (estimate = 0.263), followed by Hispanic children (estimate = 0.092) and then non-Hispanic White children (estimate = 0.028). Variance was higher in this variable within the non-Hispanic Black group (estimate = 0.891), followed by the Hispanic group (estimate = 0.858), and then the non-Hispanic White group (estimate = 0.829).

Rule-breaking behavior intercept levels were higher among non-Hispanic Black children (estimate = 5.050) when compared to Hispanic and non-Hispanic White children (estimate = 4.025), which were not significantly different from each other. There was more variance in this variable within the non-Hispanic Black group (estimate = 0.327), followed by the non-Hispanic White group (estimate = 0.287), and lowest in the Hispanic group (estimate = 0.267). Intercept levels of aggressive behaviors were highest in non-Hispanic Black children (estimate = 3.728), then non-Hispanic White children (estimate = 3.278), and lowest in Hispanic children (estimate = 2.946). Variances for this variable were not significantly different among the three groups and were therefore constrained across the three groups (estimate = 0.284).
Subsequent to the preliminary tests, the primary pathways in the model were examined for potential differences across the groups. The pathway between collective efficacy and externalizing behaviors significantly differed between the groups, as indicated by the significant Satorra-Bentler chi-square difference test, such that higher levels of collective efficacy were significantly associated with lower levels of externalizing behaviors for Hispanic children \( (B = 0.051, p < .05) \) and non-Hispanic White children \( (B = 0.049, p < .05) \), whereas this association was not significant for non-Hispanic Black children \( (B = 0.001, p = .971) \).

Specific associations between covariates and outcome variables were also explored and this model revealed that prior externalizing symptoms at age 9 were significantly associated with externalizing symptoms at age 15 for Hispanic \( (B = 0.244, p < .01) \), non-Hispanic Black \( (B = 0.364, p < .001) \), and non-Hispanic White children \( (B = 0.418, p < .001) \). Although this pathway was significant across all groups, the magnitude of the association differed between groups. This model revealed many significant associations between covariates and externalizing behavior that did not differ across the groups (e.g., Hispanic, non-Hispanic Black, and non-Hispanic White children). Impulsivity was significantly associated with externalizing behaviors, such that higher levels of impulsivity were significantly associated with higher levels of externalizing behaviors \( (B = 0.278, p < .001) \). Higher levels of poverty were also significantly associated with higher externalizing behaviors \( (B = -0.063, p < .05) \). The youth’s self-report of parental knowledge was significantly associated with externalizing behaviors, such that higher levels of parental knowledge were significantly associated with lower levels of externalizing behaviors \( (B = -0.072, p < .001) \). Maternal marital status was significantly associated with externalizing behaviors, such that children who had single mothers experienced higher levels of externalizing symptoms \( (B = 0.060, p < .001) \). Child gender was significantly associated with externalizing behaviors, such that...
behavior, such that boys experienced higher levels of externalizing outcomes than girls across all groups ($B = -0.061, p < .001$). Maternal education, maternal income, maternal depression, exposure to violence, and the physical environment of the neighborhood were not found to be significantly associated with externalizing behaviors.

Additionally, analyses between collective efficacy and covariates revealed that Hispanic girls experienced lower levels of collective efficacy ($B = 0.066, p < .001$), whereas the association between gender and collective efficacy was not significant in non-Hispanic White or non-Hispanic Black children ($B = -0.017, p = .327$). This model also revealed many significant associations between covariates and collective efficacy that did not differ across the groups. A worse physical environment in the neighborhood was significantly associated with lower levels of collective efficacy ($B = 0.046, p < .05$). Additionally, a greater level of exposure to violence was significantly associated with lower levels of collective efficacy ($B = 0.047, p < .01$). Maternal marital status was also associated with collective efficacy, such that children who had single mothers also experienced lower levels of collective efficacy ($B = 0.032, p < .05$). Maternal depression was linked to collective efficacy, such that children of mothers who met criteria for MDD also experienced lower levels of collective efficacy ($B = 0.024, p < .001$). Impulsivity, maternal education, maternal income, maternal poverty, teen’s report of parental knowledge, and externalizing behaviors at age 9 were not linked to collective efficacy.

**Post Hoc Analyses**

In order to further understand potentially meaningful differences across the groups, one-way ANOVAs and Tukey’s HSD (honestly significant difference) tests were conducted to explore potential differences in means in variables across the three groups (i.e., non-Hispanic...
Analyses revealed significant differences in both variables related to the neighborhood context: the physical environment and exposure to violence. There were significantly higher mean levels of physical disorder for non-Hispanic Black children \( (m = 6.631) \), followed by Hispanic children \( (m = 6.328, \ p < .01) \), with the lowest level of physical disorder reported for non-Hispanic White children \( (m = 5.6693, \ p < .001) \).

Mean levels for exposure to violence were also significantly higher for non-Hispanic Black children \( (m = .9363, \ p < .001) \) compared to Hispanic \( (m = .3976) \) and non-Hispanic White \( (m = .2352) \), which were not significantly different from each other \( (p = .06) \).

Socioeconomic variables, including maternal household income and maternal poverty category, also showed significant differences between groups. There was a significantly higher mean level of household income in non-Hispanic White mothers \( (m = 75,029.11) \), which was significantly higher than in Hispanic mothers \( (m = 38,757.27, \ p < .001) \). This was, in turn, significantly higher than in non-Hispanic Black mothers \( (m = 32,855.09, \ p < .001) \). Relatedly, there was a significantly higher mean level of poverty category (income-to-needs ratio), indicative of lower levels of poverty, in non-Hispanic White mothers \( (m = 3.728) \), which was higher than in Hispanic mothers \( (m = 2.859, \ p < .001) \), which was then higher than in non-Hispanic Black mothers \( (m = 2.686, \ p < .001) \). The individual-level factor of impulsivity also revealed significant differences between groups. Non-Hispanic Black children exhibited significantly higher mean levels of impulsivity \( (m = 3.794) \) than Hispanic children \( (m = 3.574, \ p < .001) \) and non-Hispanic White children \( (m = 3.562, \ p < .05) \), which were not significantly different from each other \( (p = .085) \).

Additionally, chi-square tests were conducted in order to compare categorical variables across the three groups. There was a significant relationship between marital status (where a
score of 1 = married and a score of 2 = not married) and a child’s racial/ethnic background ($df = 2$) = 504.75, $p < .001$. Specifically, 45.39% of married mothers were non-Hispanic White, 27.12% were non-Hispanic Black, and 27.49% were Hispanic. For mothers who were not married, 14.75% were non-Hispanic White, 56.49% were non-Hispanic Black, and 28.76% were Hispanic.
CHAPTER 4
DISCUSSION

Internalizing and externalizing behaviors are common mental health problems experienced by children. The neighborhood context has emerged as an important predictor of these mental health problems among children, and there is evidence to support that these associations may differ according to the child’s racial or ethnic background (Liu et al., 2017; Ma & Klein, 2018). However, few studies have examined the relationship between the neighborhood and mental health while specifically looking at collective efficacy with a longitudinal design and a diverse adolescent sample. The present study aimed to understand the relationship between neighborhood collective efficacy and internalizing and externalizing problems in adolescents and how these relationships may differ based on race or ethnicity while controlling for several demographic variables (i.e., maternal depression, maternal cohabitating status, child gender).

Hypotheses 1 and 2: Collective Efficacy and Internalizing and Externalizing Symptoms

Contrary to Hypothesis 1, neighborhood collective efficacy was not significantly associated with lower internalizing behaviors in the initial model that did not explore potential differences by race/ethnicity, although there was a trend-level association in the expected direction. Similarly, contrary to Hypothesis 2, neighborhood collective efficacy was not significantly associated with lower externalizing behaviors in the initial model that did not explore potential differences by race/ethnicity, although again, there was a trend-level
association in the expected direction. Ma and Klein (2018) examined these specific links in early childhood (5-year-old children) using the same FFCWS dataset used in the present study and found that collective efficacy was significantly associated with lower internalizing and externalizing behaviors overall, regardless of racial or ethnic background. However, it is possible that these associations may not generally translate into adolescence for all children, as some may begin to shift their priorities in relationships from the family to their peers in their middle childhood to adolescence, some of whom may not reside within their same neighborhood (Brown, 2004; Brown & Larson, 2009; Parker et al., 2006). As a result, they may be more likely to spend time gathering with friends in other locations and less likely to spend time within the home, and therefore less time within their neighborhood, which may lead adolescents to be less impacted by the overall relationships within their neighborhood and be more influenced by their close friends and other contextual factors (Brown & Larson, 2009; Parker et al., 2006).

Although these associations were not significant, the associations between neighborhood collective efficacy and internalizing and externalizing symptoms in adolescence were closely trending towards significance, with a significant association demonstrated for externalizing problems when specifically looking at these associations in children from different racial/ethnic backgrounds (discussed in more detail below). As such, results suggest there are factors associated with someone’s racial/ethnic background (e.g., cultural context, racial discrimination, stigma) that are important to consider within associations related to the neighborhood context. As the aforementioned relationship between neighborhood collective efficacy and adolescent externalizing symptoms became significant when taking into account the child’s racial and ethnic background, this could be indicative of Bronfenbrenner’s (1992) ecological systems perspective and prior evidence that contextual factors, including the neighborhood, are likely to comprise to
some degree the development of problem behaviors in children, while also taking into account the importance of the cultural context of that child’s environment as posited by Garcia Coll (1990).

Results also showed that regardless of race, adolescent girls were more likely to experience higher levels of internalizing symptoms while adolescent boys were more likely to experience higher levels of externalizing symptoms. These findings are consistent with existing literature on adolescent gender differences in mental health outcomes which have demonstrated that girls are at higher risk for developing symptoms of internalizing disorders while boys are at higher risk for developing symptoms of externalizing disorders (Scaramella et al., 1999). One possible explanation may be that life stressors impact girls in a way that makes them more likely to express interpersonal concerns and become more reliant on social support from family and friends, whereas they impact boys in a way that makes them more likely to express higher levels of assertiveness and aggression and lower levels of empathy, which are risk factors for later externalizing behaviors (Leadbeater et al., 1999). Relatedly, in another study, girls were reported to have higher levels of fear, shyness, and emotional reactivity, and those traits in girls were significantly associated with the development of internalizing symptoms (Leve et al., 2005). On the other hand, boys were reported to have higher levels of impulsivity and lower levels of self-control, and these traits were significantly associated with the development of externalizing symptoms. Furthermore, there may be societal perspectives and expectations of femininity and masculinity, like being emotional and kind vs. being assertive and aggressive, that may contribute to these differential symptoms in girls and boys (Rosenfield, 2000), especially when considering the pressure to conform to these gender norms in society, where deviation from them can lead to discrimination (Heise et al., 2019).
Hypothesis 3: Collective Efficacy, Internalizing Problems, and Race/Ethnicity

Contrary to what was predicted in Hypothesis 3 (Model 1), collective efficacy was not significantly associated with internalizing behaviors in Hispanic, non-Hispanic Black, or non-Hispanic White adolescents. As previously mentioned, Ma and Klein (2018) examined the relationship between collective efficacy and internalizing symptoms in young children (age 5) from different racial and ethnic backgrounds. Results of that study showed that higher levels of neighborhood collective efficacy were significantly associated with lower levels of internalizing symptoms overall, and this relationship was stronger for Hispanic children than Black or White children. It was previously hypothesized that *familismo* was a driving mechanism behind why this association was predicted to be significantly different for Hispanic children. *Familismo*, the commitment to one’s family and culture, is an important part of Hispanic culture, and it was hypothesized that it may be that the shared support and respect for the community are what makes the relationship with collective efficacy stronger for Hispanic youth (Ma and Klein, 2018). However, the role that *familismo* plays in a child’s life, and how it may interplay with other contextual influences, may change throughout development. For example, younger children are more likely to be supervised throughout the day, including during play time with friends from the neighborhood. As such, there may be more space for the connectedness between family and neighborhood to take place. On the other hand, Kennedy and Ceballo (2013) explained that teenagers who have a strong sense of *familismo* are more likely to spend time within the home after school, rather than in the neighborhood and, in turn, be exposed to less negative factors within the neighborhood (e.g., violence, physical disorder, etc.), as well as perhaps less exposed to the positive influences that come alongside collective efficacy. As
*familismo* includes the loyalty and obligation to one’s family, adolescents have higher expectations for responsibilities that contribute to the home (e.g., paid work, chores, etc.), when compared to children from other racial or ethnic backgrounds (Kennedy & Ceballo, 2013). As Hispanic adolescents tend to be more focused on these familial responsibilities, the role of *familismo* may differ by age and, as such, there may be less room for the protective effect of collective efficacy to take place during the adolescent period.

Additionally, other general adolescent factors like the importance of peer relationships, unsupervised time, and increased time spent at locations outside the home and outside the neighborhood may be variables impacting the relationship between collective efficacy and internalizing symptoms. As mentioned above, it is important to consider that as children develop, they become more focused on peer relationships, especially during adolescence (Brown, 2004; Brown & Larson, 2009; Parker et al., 2006). As such, adolescents are more likely to spend time with friends and peers after school in extracurricular activities, doing homework, or just hanging out, rather than coming home to spend time with the family or spending supervised time in the neighborhood (Brown & Larson, 2009; Parker et al., 2006). This may explain why the specific associations that Ma and Klein (2018) found and that were predicted in Hypothesis 3 of the current study may not have carried over to adolescence. Peer relationships and perceived social support/acceptance from peers may be an extraneous variable that is more likely to contribute to or influence an adolescent’s development of or protection from internalizing symptoms (Schwarz et al., 2012).

Although neighborhood collective efficacy was not found to be significantly associated with internalizing symptoms, other variables in the study were, regardless of race or ethnicity. Higher levels of maternal poverty and maternal depression were significantly associated with
higher levels of internalizing symptoms, whereas higher levels of parental knowledge were associated with lower levels of internalizing behaviors. This lends support to the research on parent-child relationships and how parental factors can be significantly associated with mental health problems in children. For example, multiple studies have found a positive association between maternal depression and child mental health problems, especially depressive disorders, because mothers with depression are less likely to model coping skills, monitor behaviors, and be as involved as non-depressed mothers (Bagner et al., 2010; Goodman et al., 2011; Johnson & Flake, 2007). Within the context of maternal depression, it is also important to consider genetic influences, as research has shown that the development of internalizing behaviors can be explained by shared environmental and genetic factors (Gjone & Stevenson, 1997; Haworth et al., 2017). As such, children of depressed mothers may be predisposed to a greater biological risk for developing internalizing symptoms. Additionally, research has consistently shown that children living in poverty are at higher risk of developing mental health problems (Kennard et al., 2006; Kessler et al., 1997; Nguyen et al., 2007). Higher levels of parental knowledge were also significantly associated with lower levels of internalizing symptoms, which may be due to children feeling safer and more protected when being supervised (Fagan et al., 2014). Additionally, parents who maintain a higher level of knowledge of their children’s behaviors and activities may also behave in ways that might protect children from further risks, like more effective parenting styles (e.g., authoritative) and parent-child communication (Byrnes & Miller, 2012; Rhucharoenpornpanich et al., 2010). As a result, children may therefore experience lower levels of internalizing symptoms. Parental knowledge has been associated with lower levels of anxiety and depressive symptoms in adolescents (Garthe et al., 2015). It is possible that children of parents who have more knowledge and awareness of their activities may be more likely to
spontaneously disclose information to their parents, which can allow for processing of emotions and thoughts and therefore lead to lower levels of internalizing symptoms (Garthe et al., 2015).

**Hypothesis 4: Collective Efficacy, Externalizing Problems, and Race/Ethnicity**

With regard to externalizing symptoms, higher levels of collective efficacy were significantly associated with lower levels of externalizing behaviors for Hispanic children and non-Hispanic White children, whereas this association was not significant for non-Hispanic Black children. These findings were in contrast to Hypothesis 4, which predicted this relationship would be stronger in non-Hispanic Black children than Hispanic or non-Hispanic White children. Although the specific hypothesized pattern was not supported, it is important to highlight the finding that collective efficacy does play a potentially protective role against externalizing problems for Hispanic and non-Hispanic White children. While the differential benefits by racial/ethnic groups were not exactly as expected, the findings of this study lend support to the idea that higher collective efficacy plays a protective role against adolescent externalizing problems, in this case specifically for Hispanic and non-Hispanic White youth. Although Liu et al. (2017) found concurrent links between collective efficacy and lower levels of externalizing symptoms in African American adolescents, Ma and Klein (2018) were unable to replicate those findings in a longitudinal study during early childhood (age 5). The present study was among the first to look at these associations in a longitudinal design in non-Hispanic Black children during adolescence.

There may be certain factors that are individual to a non-Hispanic Black child’s experience that may have led to the non-significance found in the role collective efficacy plays in externalizing symptoms. As mentioned in the results, non-Hispanic Black children had the
lowest intercept level of collective efficacy and the highest variance within this variable of all groups. Therefore, there was not as much room for collective efficacy to play a protective role for non-Hispanic Black children compared to the other groups. However, above and beyond this, collective efficacy may not fully attenuate the risk of developing externalizing symptoms as there were many other risk factors in place. For example, non-Hispanic Black children also exhibited the highest mean levels of rule-breaking behaviors, aggressive behaviors, and teen-reported delinquency, all of which comprised the latent outcome factor of externalizing behaviors. Additionally, post hoc analyses, which will be discussed in further detail below, revealed that non-Hispanic Black children had the highest mean levels of exposure to violence within their neighborhood. As indirect and direct exposure to community violence have consistently been shown to predict externalizing and aggressive behavior in adolescents (Fleckman et al., 2016; Lambert et al., 2012; Leventhal & Brooks-Gunn, 2000), it is possible that this may not have allowed collective efficacy to play a protective role within this group. One can expect that if exposure to violence were lower in non-Hispanic Black children’s communities, and if they had lower levels of risk factors, collective efficacy may have been able to make a meaningful impact on mental health symptoms. Post hoc analyses also revealed significantly higher mean levels of impulsivity in non-Hispanic Black children, which has consistently been shown to be associated with behavioral symptoms in children (Revill et al., 2020). This suggests that there are other factors that are important to consider together in the development of or protection against externalizing symptoms.

Additionally, there may be extraneous factors individual to a Black child’s experience that may be affecting the role collective efficacy could play as a protective factor, including experienced racism and discrimination. Sustained racism, both systemic and individual, has
consistently been shown to lead to higher levels of mental health problems and problem behavior, including, but not limited to, anxiety, depression, aggression, delinquency, and risky behaviors (Assari et al., 2017; Pachter et al., 2018; Tobler et al., 2013; Wang et al., 2011). Post hoc analyses also revealed significantly higher mean levels of poverty and physical disorder and exposure to violence in neighborhoods where non-Hispanic Black children resided. This may be connected to the barriers that have been put in place due to systemic racism, specifically that of historically disinvested neighborhoods, which have been associated with decreases in mental health status and school achievement (Ursache et al., 2019). Therefore, it is important to consider that non-Hispanic Black children in this study experienced lower levels of collective efficacy and higher levels of all variables within the externalizing behaviors latent factor, and these findings, along with individual experiences Black children sustain, may explain why we were unable to find a significant association within this group.

Impulsivity and prior externalizing symptoms were significantly associated with externalizing problems in adolescents, which is consistent with prior research that has found that hyperactivity, impulsivity, and other externalizing behaviors in childhood are associated with externalizing symptoms in adolescence (Ahmad & Hinshaw, 2017; Jiménez-Barbero et al., 2016; Revill et al., 2020). Additionally, factors of the immediate environment (e.g., family) were found to be significantly associated with externalizing symptoms in adolescents, including maternal poverty, maternal marital status, and parental knowledge. For example, children of single mothers and mothers experiencing higher levels of poverty were found to have higher levels of externalizing symptoms, while children of parents who had more knowledge of their behaviors and activities showed lower levels of externalizing symptoms. Although the data collected within the present study specifically looked within the realm of child disclosure and collaboration on
rule making between parent and child, rather than active monitoring from the parent, the familial context overall has been shown to be linked to mental health outcomes (Hadfield et al., 2018; Kennard et al., 2006; Kessler et al., 1997; Lehrer & Son, 2017; Nguyen et al., 2007). Parental knowledge has consistently been shown to act as a protective mechanism against risky behaviors, including externalizing behaviors, in children and adolescents (Fagan et al., 2014; Lippold et al., 2014; Micalizzi et al., 2019). For example, parental knowledge has been associated with positive child outcomes including lower levels of substance use and risky sexual behavior (Padilla-Walker et al., 2008). More stringent forms of parental monitoring have also been shown to lead to lower levels of externalizing symptoms in adolescence due to knowledge of being monitored, and adolescents may therefore be less likely to engage in rule breaking or aggressive behaviors as a result (Fagan et al., 2014).

It is also important to consider that when adding race and ethnicity into the models, collective efficacy seemed to play a protective role on externalizing symptoms, but not internalizing symptoms. One study found that while collective efficacy played a protective role on externalizing symptoms and comorbid externalizing and internalizing symptoms, it did not have the same effect when looking only at internalizing symptoms (Liu et al., 2017). Another study found that neighborhood cohesion and efficacy was particularly protective against externalizing symptoms in the face of discrimination, but not against internalizing symptoms (Riina et al., 2013). Riina et al. (2013) posit that it may be possible that collective efficacy is able to play a particular protective role for externalizing symptoms as these are easier to observe and therefore easier for neighbors, parents, and peers to get involved. Due to the “external” nature of externalizing symptoms, such that they are more observable and distinguishable, they may be more easily measured in an objective manner, especially in adolescence when externalizing
symptoms include observable rule-breaking behaviors, aggression, and delinquency. On the contrary, internalizing symptoms are more subjective in interpretation and are not easily measured, especially in adolescence when teenagers tend to prioritize peer relationships and may not be as open with parents (the reporters of these symptoms within the present study).

Post Hoc Analyses

Post hoc analyses were conducted in order to analyze mean-level differences between racial and ethnic groups that may help contribute to future areas for study, as they may help indicate specific risk factors for children of color. As previously mentioned, analyses revealed that non-Hispanic Black children had significantly higher mean levels of physical disorder and exposure to violence in their neighborhoods, followed by Hispanic children, and lastly by non-Hispanic White children. These were significantly associated with lower levels of collective efficacy and are indicative of an overall neighborhood disadvantage, which was highest in non-Hispanic Black children and then Hispanic children. This aligns with Spencer’s (1990) risk model detailing how children of color live in disadvantaged neighborhoods at disproportionate rates when compared to White children.

Socioeconomic variables were also considered in post hoc analyses and these revealed that non-Hispanic Black children have mothers with significantly lower household income and live in significantly higher levels of poverty (as defined by income-to-needs ratio), followed by Hispanic children, and lastly by non-Hispanic White children. This aligns with existing literature on the sociodemographic disadvantages faced by children of color, and especially by Black children (Kessler & Neighbors, 1986; Kids Count Data Center, 2018). This, in turn, has been shown to be significantly related to higher levels of mental health problems in children.
(Bradshaw, 2020; Merikangas et al., 2010; Rivera, 2014), and this relationship was also supported by our current findings in that SES variables were significantly associated with higher levels of internalizing and externalizing behaviors.

Lastly, individual-level characteristics were also assessed and, as mentioned, post hoc analyses showed that non-Hispanic Black children experience significantly higher mean levels of self-reported impulsivity than Hispanic and non-Hispanic White children, who experience impulsivity at similar rates. As higher levels of impulsivity were found to be significantly associated with higher levels of externalizing symptoms overall and within each racial/ethnic subgroup, and impulsivity has also consistently been shown to be a risk factor for developing behavioral problems in youth (Revill et al., 2020), it is especially important to consider this within the non-Hispanic Black group. Because non-Hispanic Black children in this study had the highest levels of impulsivity, this may also help explain the individual-level experiences of Black children that may lead to differences in associations when compared to Hispanic and non-Hispanic White children.

Strengths and Limitations

The present study has multiple strengths, including the use of a longitudinal design and a large, diverse sample with multiple reporters (e.g., parent report, adolescent report). The present study exemplifies an attempt to elucidate how the neighborhood context was associated with internalizing and externalizing symptoms among Hispanic, non-Hispanic Black, and non-Hispanic White adolescents. The large sample size of this study, as well as the high numbers of participants from different racial and ethnic groups, allowed for a more thorough expansion upon existing literature. Additionally, the use of a multigroup model allows for understanding of
distinct processes within specific subgroups of the sample, specifically Hispanic, non-Hispanic Black, and non-Hispanic White children.

However, the present study’s findings should be interpreted while considering the following limitations. First, multiple observed constructs (e.g., CBCL internalizing subscale, CBCL rule-breaking subscale, CBCL aggressive subscale) were assessed using the same caregiver-report measure. There is a possibility that shared method variance may have contributed to some of the links and associations found in this study. Secondly, although a strength of the present study is that it focused on a greater risk sample, as 75% of the children in this sample were born to unmarried parents and at higher risk of living in poverty, this sample is not representative of the larger population of the United States. Additionally, there may have been movement from households and neighborhoods during the 6-year span between the collection of the predictor variable (Year 9) and the outcome variables (Year 15). As this was not controlled for within the study, the findings do not account for any impact the current neighborhood may have had on the adolescent’s mental health at time of the outcome collection if they had indeed moved during this time. It is also important to consider that the present study utilized maternal race and ethnicity as the moderator. Although there is a high likelihood that the child’s race and ethnicity are the same as the mother’s, it is not necessarily synonymous. As such, future studies should seek to directly assess for a child’s racial and ethnic identity.

Additionally, this study examined three distinct racial and ethnic groups (e.g., Hispanic, non-Hispanic Black, and non-Hispanic White), an approach that expands upon previous research using binary labels to differentiate racial and ethnic groups (e.g., White vs. non-White). However, there may still be a source of error in this research approach, as it overlooks within-group diversity and distinctions that may account for the differences in subpopulations of
different racial and ethnic groups. For example, the larger group of Hispanic people are made up of subgroups (from Cuba, Mexico, Puerto Rico, etc.), just as the larger group of Black people are made up of different subgroups (from Africa, Caribbean, etc.). With Hispanics as an example, although Hispanic people share the same overall language (Spanish), there are many within-group cultural differences (e.g., SES, beliefs in healthcare/medicine, language proficiency). One study showed that the percentages of Cubans living below the poverty level and that were unemployed were significantly lower than that of Mexicans or Puerto Ricans (Rothe, 2005). Additionally, Colombians, Dominicans, and Guatemalans reported a preference for holistic treatment rather than prescription medication (Rothe, 2005). With regard to language, Dominicans and Central Americans reported higher levels of difficulties with the English language when compared to Cubans, Puerto Ricans, and Mexicans (Rothe, 2005).

The aforementioned cultural differences within subgroups of races and ethnicities may be a source of error and might miss on significant distinctive mental health processes in these subgroups. For example, one study showed that Mexicans had higher levels of multiple stresses (i.e., parental stress, marital stress, discrimination stress, immigration stress, etc.) when compared to Cubans and Dominicans, but Dominicans had the highest levels of language stress (Cervantes et al., 2019). Another study showed that Puerto Ricans had the highest levels of suicide attempts and that lifetime prevalence of suicide attempts significantly increased for Puerto Ricans and Cubans (Baca-Garcia et al., 2011). With regard to Black subgroups, one study showed internalized racism was a stronger predictor of serious psychological distress in foreign-born Caribbean Black people when compared to U.S.-born Caribbean Black people and African Americans (Mouzon & McLean, 2017). However, literature examining mental health differences
in children from different Hispanic and Black subgroups is missing and more work is needed in order to better understand these relationships.

Furthermore, Hispanic people’s three main racial backgrounds are White, Black, and Native Indian, and these proportions differ by subgroup (Caballero, 2011). However, this study does not account for Black Hispanics, as people identifying as both would all be encompassed within the Hispanic group, and, as a result, this would not account for their individual experience as both a Black person and a Hispanic person. Moreover, related to this, perceived discrimination, stigma, and sustained racism were not included or controlled for in this study, as it was not assessed for in the current study. These variables have consistently been linked to increased mental health problems in youth (Assari et al., 2017; Pachter et al., 2018; Tobler et al., 2013; Wang et al., 2011) and may have contributed to the internalizing and externalizing behaviors in adolescents within this sample.

It is especially important to consider the context in which the data were collected for this study, as data collection for the outcome variables of internalizing and externalizing symptoms was conducted when the children were 15 years old, which began in 2014. In 2013, the Black Lives Matter movement was initiated after the unjust murder of Trayvon Martin. The collection of data for this project was aligned with this time when there was increased public discourse regarding racism within American society (McCoy, 2020). It has been shown that public and mainstream anti-Black violence in the US has caused higher levels of distress in Black Americans (Curtis et al., 2021). It is important to consider how adolescents’ internalizing and externalizing behaviors may also have been affected by these issues. Future research studying racial and ethnic disparities in mental health should consider how the political climate and context of mainstream culture may affect negative outcomes.
Implications and Future Directions

Based on the findings of this study, along with noted limitations and prior research, there are several suggestions related to future directions of research. Future studies investigating mental health problems in youth, specifically internalizing and externalizing symptoms, should continue to include and account for neighborhood and contextual factors, as results showed these factors are associated with the development of mental health issues in adolescents. Researchers should seek to look at collective efficacy within the context of overall neighborhood disadvantage and include variables we saw here were significantly associated with collective efficacy and disproportionate between racial and ethnic groups, including exposure to violence and physical disorder of the neighborhood. It may also be important to consider neighborhood-level poverty in this context, as individual-level poverty was found to be significantly associated with these outcomes.

Additionally, the results of this study suggest there may be other types of variability within the non-Hispanic Black group that may help us understand differences within the group. As non-Hispanic Black children within this study experienced significantly higher levels of poverty and lower levels of household income, higher levels of exposure to violence and physical disorder within the neighborhood, lower levels of collective efficacy, and higher levels of factors associated with externalizing behaviors (e.g., impulsivity, delinquency, aggressive behaviors, and rule-breaking behaviors), there are many individual-level, family-level, and contextual-level factors to consider. It is recommended that future studies in the field seek to investigate these variables within this context in order to better understand risk and protective
factors for Black children who are experiencing these difficulties at disproportionately higher rates.

Related to the aforementioned importance of racial and ethnic considerations, investigators should also aim to recruit and include other racial and ethnic groups within their samples (e.g., Native American, Asian, Pacific Islander, etc.), as well as look at subpopulations within different racial and ethnic groups in order to make more specific predictions and, therefore, have more precise implications for points of prevention and intervention. As stated above, perceived discrimination and sustained racism are factors that should also be included and accounted for in future studies in order to have a more well-rounded understanding of the different factors contributing to the development of these mental health problems in youth of color. In addition, as peer relationships, and therefore difficulties with peers, may be a driving mechanism in the development of or protection from mental health problems in children, these should especially be accounted for in studies with adolescents.

Similarly, there are suggestions for future directions in clinical practice. For example, professionals working with adolescents, especially children of color, should consider the role that the neighborhood context and other contextual factors play in internalizing and externalizing symptoms in children and aim to address and process these in their work with youth. For example, as physical disorder and exposure to violence were highest in non-Hispanic Black children, followed by Hispanic children, these neighborhood characteristics should be considered and addressed when working with youth of color. Specifically, assessing for these issues as well as safety and subsequent trauma-related symptoms is indicated. Additionally, non-Hispanic Black children exhibited higher mean levels of impulsivity than Hispanic and non-Hispanic White children. This specific behavior should be screened for and targeted in order to help
prevent future negative behaviors, as well as to help process any perceived discrimination due to these behaviors. Household income was lowest in non-Hispanic Black mothers, followed by Hispanic mothers, and as such, access to healthcare and resources should be considered when working with these communities. From a cost/benefit perspective, using limited resources in order to target younger children living in neighborhoods with lower levels of collective efficacy may be a more effective strategy for points of prevention as compared to intervention methods once these communities have already been impacted by their disadvantaged neighborhoods.

Conclusions

In summary, this study provides an important step toward the understanding of how the neighborhood context affects the development of problem behaviors, particularly for children of color. This research should be especially considered in the context of the increasing of racial and ethnic diversity in the population at large, as well as the physical and mental health disparities that are in place secondary to systemic racism. The findings highlight the importance of continuing to examine the relationships between protective and risk factors for developing internalizing and externalizing symptomatology, specifically in children of color.
REFERENCES


APPENDIX A

COLLECTIVE EFFICACY YEAR 9
Collective Efficacy Year 9

For each item, please tell me how likely it would be for your neighbors to do something or get involved…

**M2A. If children were skipping school and hanging out on the street…**
- VERY LIKELY…………………………….1
- SOMEWHAT LIKELY………………..2
- NOT VERY LIKELY…………………..3
- VERY UNLIKELY…………………..4
- REF…………………………………….-1
- DK…………………………………….-2

**M2B. If children were spray painting buildings with graffiti…**
- VERY LIKELY…………………………….1
- SOMEWHAT LIKELY………………..2
- NOT VERY LIKELY…………………..3
- VERY UNLIKELY…………………..4
- REF…………………………………….-1
- DK…………………………………….-2

**M2C. If children were showing disrespect to an adult…**
- VERY LIKELY…………………………….1
- SOMEWHAT LIKELY………………..2
- NOT VERY LIKELY…………………..3
- VERY UNLIKELY…………………..4
- REF…………………………………….-1
- DK…………………………………….-2

**M2D. If a fight broke out in front of the house or building…**
- VERY LIKELY…………………………….1
- SOMEWHAT LIKELY………………..2
- NOT VERY LIKELY…………………..3
- VERY UNLIKELY…………………..4
- REF…………………………………….-1
- DK…………………………………….-2

**M3A. People around here are willing to help their neighbors.**
- STRONGLY AGREE………………………1
- SOMEWHAT AGREE………………..2
- SOMEWHAT DISAGREE……………3
- STRONGLY DISAGREE……………4
- REF…………………………………….-1
- DK…………………………………….-2

**M3B. This is a close-knit neighborhood.**
- STRONGLY AGREE………………………1
- SOMEWHAT AGREE………………..2
- SOMEWHAT DISAGREE……………3
- STRONGLY DISAGREE……………4
- REF…………………………………….-1
- DK…………………………………….-2
**M3C.** People in this neighborhood generally don’t get along with each other.

STRONGLY AGREE.........................1  
SOMewhat AGREE.........................2  
SOMewhat DISAGREE.....................3  
STRONGLY DISAGREE....................4  
REF.........................................-1  
DK............................................-2

**M3D.** People in this neighborhood do not share the same values.

STRONGLY AGREE.........................1  
SOMewhat AGREE.........................2  
SOMewhat DISAGREE.....................3  
STRONGLY DISAGREE....................4  
REF.........................................-1  
DK............................................-2
APPENDIX B

ADOLESCENT DEPRESSION (CES-D SCALE) YEAR 15
Adolescent Depression (CES-D Scale) Year 15

**D2C.** I feel I cannot shake off the blues, even with help from my family and friends.
STRONGLY AGREE……………………1
SOMewhat AGREE…………………..2
SOMewhat DISAGREE………………3
STRONGLY DISAGREE……………4
REF……………………………………-1
DK…………………………………….-2

**D2N.** I feel sad.
STRONGLY AGREE....................1
SOMewhat AGREE…………………..2
SOMewhat DISAGREE………………3
STRONGLY DISAGREE……………4
REF……………………………………-1
DK…………………………………….-2

**D2S.** I feel happy.
STRONGLY AGREE....................1
SOMewhat AGREE…………………..2
SOMewhat DISAGREE………………3
STRONGLY DISAGREE……………4
REF……………………………………-1
DK…………………………………….-2

**D2X.** I feel life is not worth living.
STRONGLY AGREE....................1
SOMewhat AGREE…………………..2
SOMewhat DISAGREE………………3
STRONGLY DISAGREE……………4
REF……………………………………-1
DK…………………………………….-2

**D2AC.** I feel depressed.
STRONGLY AGREE....................1
SOMewhat AGREE…………………..2
SOMewhat DISAGREE………………3
STRONGLY DISAGREE……………4
REF……………………………………-1
DK…………………………………….-2
APPENDIX C

BASELINE DEMOGRAPHICS QUESTIONNAIRE
A4. Are you currently married to the father of your new baby?
YES, MARRIED TO FATHER .......................... 1
NO, NOT MARRIED TO FATHER .................... 2
FATHER UNKNOWN ................................. 3

H3. Which of these categories best describes your race?
White ..................................................... 1
Black, African-American .......................... 2
Asian or Pacific Islander .......................... 3
American Indian, Eskimo, Aleut .................. 4
Other, not specified .............................. 5
Hispanic ............................................... 101
DON’T KNOW .................................. -2

H3A. Are you of Hispanic or Latino origin or descent?
YES ....................................................... 1
NO ......................................................... 2 (GO TO I1)
DON’T KNOW .................................. -2

I1. Now I’d like to ask some questions about your education and work experience. What is the highest grade or year of regular school that you have completed?
No formal schooling .............................. 1
8th grade or less .................................. 2
Some high school (Grades 9,10,11, & 12) .... 3
High school diploma (Completed 12th grade) .. 4
G.E.D. ................................................. 5
Some college or 2-year degree ................. 6
Technical or trade school ...................... 7
Bachelor’s degree .............................. 8
Graduate or professional school ............ 9

J3. Thinking about your income and the income of everyone else who lives with you, what was your total household income before taxes in the past 12 months?
Under $5,000 ........................................ 1
$5,000 to $9,999 ................................. 2
$10,000 to $14,999 ............................ 3
$15,000 to $19,999 ............................ 4
$20,000 to $24,999 ............................ 5
$25,000 to $34,999 ............................ 6
$35,000 to $49,999 ............................ 7
$50,000 to $74,999 ............................ 8
Greater than $75,000 .......................... 9
REFUSED ...................................... -1
DON’T KNOW .................................. -2
F1. Not including yourself, how many people are currently living with you? (IF RESPONDENT NOT IN JAIL, SHELTER, OR HOMELESS, READ: Please include people who sleep in (your/this) home most nights.)

|___|___| PEOPLE
RESPONDENT LIVES ALONE ................................... 0 GO TO F3
RESPONDENT LIVES IN JAIL .................................... -10 GO TO F3
RESPONDENT LIVES IN A SHELTER OR ON THE STREET .................................................. -12

Mother Education Year 15
K3. Have you completed any training programs or any years of schooling since (DATE OF LAST INTERVIEW)?
YES ........................................................................... 1
NO ........................................................................... 2 GO TO K3B

K3A. What program or schooling have you completed?
CIRCLE ALL THAT APPLY
REGULAR HIGH SCHOOL ....................... 1 ☐ ☐
ABE OR GED PROGRAM ......................... 2
ESL PROGRAM .............................................. 3
NURSING SCHOOL (LPN OR RN) ............. 4
BUSINESS OR SECRETARIAL SCHOOL ................. 5
PROGRAM TO IMPROVE READING ........ 6
VOCATIONAL, TECHNICAL, OR TRADE SCHOOL ......................... 7
JOB CORPS .............................................. 8
JUNIOR/COMMUNITY COLLEGE (2-YEAR) .............. 9
COLLEGE (4-YEAR) ................................... 10
OTHER TYPE OF SCHOOL (NOT SPECIFIED) .......... 11
OTHER TYPE OF TRAINING (NOT SPECIFIED) .... 12

PROGRAM TO LEARN JOB SKILLS .......... 13
PROGRAM TO HELP GET A JOB ............ 14
SOME COLLEGE .................................... 15 (18 CITIES ONLY)
GRADUATE OR PROFESSIONAL SCHOOL ........................................ 16 (18 CITIES ONLY)
APPENDIX D

MOTHER DEPRESSION QUESTIONNAIRE YEAR 15
H7. During the past twelve months, has there been a time when you felt sad, blue, or depressed for two or more weeks in a row?
YES ................................................................................. 1
NO ................................................................................... 2 GO TO H11
NO, ON MEDICATION/ANTI-DEPRESSANTS (VOLUNTEERED) ........................................................... 14 GO TO H11
REFUSED ....................................................................... -1 GO TO H11
DON’T KNOW ................................................................. -2 GO TO H11

For the next two questions, please think of the two-week period during the past twelve months when these feelings were worst.

H8. During that time, did the feelings of being sad, blue, or depressed usually last …
All day long, .................................................................... 1
Most of the day, .............................................................. 2
About half of the day, or .................................................. 3
Less than half the day? ................................................... 4 GO TO H11
REFUSED ....................................................................... -1 GO TO H11
DON’T KNOW ................................................................. -2 GO TO H11

H9. During those two weeks, did you feel this way …
Every day, ....................................................................... 1
Almost every day, or ....................................................... 2
Less often? ..................................................................... 3 GO TO H11
REFUSED ....................................................................... -1 GO TO H11
DON’T KNOW ................................................................. -2 GO TO H11

H10. During those two weeks did you lose interest in most things like hobbies, work, or activities that usually give you pleasure?
YES ................................................................................. 1
NO ................................................................................... 2
REFUSED ....................................................................... -1
DON’T KNOW ................................................................. -2

H11. During the past twelve months, has there ever been a time lasting two weeks or more when you lost interest in most things like hobbies, work, or activities that usually give you pleasure? YES
...................................................................................... 1
NO ................................................................................... 2 GO TO H22
NO, ON MEDICATION/ANTI-DEPRESSANTS (VOLUNTEERED) ........................................................... 14 GO TO H22
REFUSED ....................................................................... -1 GO TO H22
DON’T KNOW ................................................................. -2 GO TO H22
For the next few questions, please think of the two-week period during the past twelve months when you had the most complete loss of interest in things.

**H12.** During that two-week period, did the loss of interest usually last ...

- All day long, .............................................................. 1
- Most of the day, ........................................................ 2
- About half of the day, or ......................................... 3
- Less than half the day? ............................................. 4 Go to H22
- REFUSED .................................................................... -1 Go to H22
- DON’T KNOW .......................................................... -2 Go to H22

**H13.** Did you feel this way every day, almost every day, or less often during the two weeks?

- Every day, .................................................................... 1
- Almost every day, or ................................................. 2
- Less often? ................................................................. 3 Go to H22
- REFUSED .................................................................... -1 Go to H22
- DON’T KNOW .......................................................... -2 Go to H22

**H14.** Thinking about those same two weeks, did you feel more tired out or low on energy than is usual for you?

- YES ........................................................................... 1
- NO ............................................................................. 2
- REFUSED .................................................................... -1
- DON’T KNOW .......................................................... -2

**H15.** During these two weeks, did you gain or lose weight without trying, or did you stay about the same?

PROBE: We are still talking about the same two weeks.

- GAIN ......................................................................... 1
- LOSE .......................................................................... 2
- IF VOLUNTEERED: BOTH GAINED
- AND LOST WEIGHT .................................................... 3
- STAYED ABOUT THE SAME ....................................... 4 Go to H17
- IF VOLUNTEERED: WAS ON A DIET ........................ 5 Go to H17
- REFUSED .................................................................... -1 Go to H17
- DON’T KNOW .......................................................... -2 Go to H17

**H16.** About how much did {you gain/you lose/your weight change} during these two weeks? |___|___|

NUMBER OF POUNDS

- REFUSED .................................................................... -1
- DON’T KNOW .......................................................... -2

**H17.** Did you have more trouble falling asleep than you usually do during those two weeks?

- YES ........................................................................... 1
- NO ............................................................................. 2 Go to H19
- REFUSED .................................................................... -1 Go to H19
- DON’T KNOW .......................................................... -2 Go to H19
**H18.** Did that happen every night, nearly every night, or less often during those two weeks?
- EVERY NIGHT .............................................................. 1
- NEARLY EVERY NIGHT .............................................. 2
- LESS OFTEN ............................................................. 3
- REFUSED ................................................................. -1
- DON’T KNOW ............................................................ -2

**H19.** During those two weeks, did you have a lot more trouble concentrating than usual?
- YES ................................................................. 1
- NO ................................................................. 2
- REFUSED ............................................................ -1
- DON’T KNOW ........................................................ -2

**H20.** People sometimes feel down on themselves, no good, or worthless. During that two week period, did you feel this way?
- YES ................................................................. 1
- NO ................................................................. 2
- REFUSED ............................................................ -1
- DON’T KNOW ........................................................ -2

**H21.** Did you think a lot about death--either your own, someone else's, or death in general during those two weeks?
- YES ................................................................. 1
- NO ................................................................. 2
- REFUSED ............................................................ -1
- DON’T KNOW ........................................................ -2
Do your parents or guardians decide, do you decide, or do you and your parents or guardians jointly decide?

**C7A.** How late you can stay out at night?
PARENTS/GUARDIANS DECIDE……1
YOUTH DECIDES…………………..2
PARENTS/GUARDIANS AND YOUTH
JOINTLY DECIDE ……………………..3
REF………………………………………-1
DK……………………………………….-2

**C7B.** What kinds of TV shows and movies you can watch?
PARENTS/GUARDIANS DECIDE……1
YOUTH DECIDES…………………..2
PARENTS/GUARDIANS AND YOUTH
JOINTLY DECIDE ……………………..3
REF………………………………………-1
DK……………………………………….-2

**C7B.** Who you can hang out with?
PARENTS/GUARDIANS DECIDE……1
YOUTH DECIDES…………………..2
PARENTS/GUARDIANS AND YOUTH
JOINTLY DECIDE ……………………..3
REF………………………………………-1
DK……………………………………….-2
APPENDIX F

ADOLESCENT IMPULSIVITY (DICKMAN’S IMPULSIVITY SCALE) YEAR 15
Adolescent Impulsivity (Dickman’s Impulsivity Scale) Year 15

**D2A.** Often, I don’t spend enough time thinking before I act.
STRONGLY AGREE……………………1
SOMewhat AGREE………………..2
SOMewhat DISAGREE…………3
STRONGLY DISAGREE…………4
REF……………………………………-1
DK…………………………………..-2

**D2P.** I often say and do things without considering the consequences.
STRONGLY AGREE………………….1
SOMewhat AGREE………………..2
SOMewhat DISAGREE…………3
STRONGLY DISAGREE…………4
REF……………………………………-1
DK…………………………………..-2

**D2R.** Many times, the plans I make don’t work out because I haven’t gone over them carefully enough in advance.
STRONGLY AGREE………………….1
SOMewhat AGREE………………..2
SOMewhat DISAGREE…………3
STRONGLY DISAGREE…………4
REF……………………………………-1
DK…………………………………..-2

**D2Z.** I often make up my mind without taking the time to consider the situation from all angles.
STRONGLY AGREE………………….1
SOMewhat AGREE………………..2
SOMewhat DISAGREE…………3
STRONGLY DISAGREE…………4
REF……………………………………-1
DK…………………………………..-2

**D2AB.** I often say whatever comes into my head without thinking first.
STRONGLY AGREE………………….1
SOMewhat AGREE………………..2
SOMewhat DISAGREE…………3
STRONGLY DISAGREE…………4
REF……………………………………-1
DK…………………………………..-2

**D2AJ.** I often get into trouble because I don’t think before I act.
STRONGLY AGREE………………….1
SOMewhat AGREE………………..2
SOMewhat DISAGREE…………3
STRONGLY DISAGREE…………4
REF……………………………………-1
DK…………………………………..-2
APPENDIX G

MOTHER COMMUNITY VIOLENCE (HOME SCALE) YEAR 15
I13. In the past year, about how many times did you see someone else get hit, slapped, punched, or beaten up by someone?
NEVER..............................................1
ONCE...............................................2
2-3 TIMES.......................................3
4-10 TIMES.................................4
MORE THAN 10 TIMES............5
REF...............................................-1
DK...............................................-2

I14. In the past year, about how many times did you see someone else get attacked by someone with a weapon like a knife or bat?
NEVER..............................................1
ONCE...............................................2
2-3 TIMES.......................................3
4-10 TIMES.................................4
MORE THAN 10 TIMES............5
REF...............................................-1
DK...............................................-2

I15. In the past year, about how many times did you see someone else get shot at by someone?
NEVER..............................................1
ONCE...............................................2
2-3 TIMES.......................................3
4-10 TIMES.................................4
MORE THAN 10 TIMES............5
REF...............................................-1
DK...............................................-2

In-Home Physical Environment Observation (HOME scale) Year 15
A1. Is there garbage, litter, or broken glass in the street or road, on the sidewalks, or in yards?
ALMOST NONE..............................................1
YES, BUT NOT A LOT..............................2
YES, QUITE A BIT....................................3
YES, ALMOST EVERYWHERE ..................4
MISSING/NOT OBSERVED .....................-3

A2. HOW WOULD YOU RATE THE GENERAL CONDITION OF MOST OF THE BUILDINGS ON THE BLOCK OR WITHIN 100 YARDS OF THE RESPONDENT’S HOUSE?
WELL KEPT WITH EXTERIOR SURFACE IN GOOD REPAIR.................................1
FAIR CONDITION.................................2
POOR CONDITION WITH PEELING PAINT A
ND NEED OF REPAIR .......................3
BADLY DETERIORATED .......................4
MISSING/NOT OBSERVED .....................-3
A3. IS THERE GRAFFITI ON THE BUILDINGS OR WALLS OF THE BUILDINGS ON THE BLOCK OR WITHIN 100 YARDS OF THE RESPONDENT’S HOME?
NONE.................................................................1
YES, BUT NOT A LOT..............................................2
YES, QUITE A BIT................................................3
YES, ALMOST EVERYWHERE.................................4
MISSING/NOT OBSERVED ......................................-3

A4. ARE THERE VACANT, ABANDONED, OR BOARDED-UP BUILDINGS, ON THE BLOCK OR WITHIN 100 YARDS OF THE RESPONDENT’S HOME?
NO.............................................................................1
YES, ONE BUILDING FITS THIS DESCRIPTION............2
YES, 2-3 BUILDINGS FIT THIS DESCRIPTION.............3
YES, 4 OR MORE BUILDINGS FIT THIS DESCRIPTION....4
MISSING/NOT OBSERVED ..........................................-3

A5. ARE THERE ABANDONED VEHICLES ON THE BLOCK OR WITHIN 100 YARDS OF THE RESPONDENT’S HOME?
NO.............................................................................1
ONLY ONE............................................................2
2-3 ...........................................................................3
4 OR MORE..................................................................4
MISSING/NOT OBSERVED ..........................................-3

A6. DOES THE ENVIRONMENT IMMEDIATELY OUTSIDE THE HOME (YARD, PATIO, ENTRYWAY OR PORCH AND STAIRS) HAVE ANY OF THE FOLLOWING?
A6A. UNLIT ENTRANCE OR STAIRWAY
YES...........................................................................1
NO.............................................................................2
MISSING/NOT OBSERVED ..........................................3

A6B. BROKEN STEPS
YES...........................................................................1
NO.............................................................................2
MISSING/NOT OBSERVED ..........................................3

A6C. BROKEN GLASS OR BROKEN TOYS
YES...........................................................................1
NO.............................................................................2
MISSING/NOT OBSERVED ..........................................3

A6D. ALCOHOL OR DRUG PARAPHERNELIA
YES...........................................................................1
NO.............................................................................2
MISSING/NOT OBSERVED ..........................................3
A6F. STREWN GARBAGE/LITTER
YES……………………………………………………….1
NO………………………………………………………..2
MISSING/NOT OBSERVED…………………………….3

A7. DOES THE EXTERIOR OF THE BUILDING HAVE ANY OF THE FOLLOWING? (CONSIDER CONDITION OF WALLS, PAINT, WINDOWS, LIGHTS, EXTENT OF NEEDED REPAIRS, AND CLEANLINESS.)
A7A. PEELING PAINT, NEEDS PAINT JOB
YES……………………………………………………….1
NO………………………………………………………..2
MISSING/NOT OBSERVED…………………………….3

A7B. CRUMBLING OR DAMAGED WALLS
YES……………………………………………………….1
NO………………………………………………………..2
MISSING/NOT OBSERVED…………………………….3

A7C. BROKEN OR CRACKED WINDOWS
YES……………………………………………………….1
NO………………………………………………………..2
MISSING/NOT OBSERVED…………………………….3