PARENTAL INCARCERATION AND THE MENTAL HEALTH OF JUVENILE OFFENDERS: THE MODERATING ROLE OF NEIGHBORHOOD DISORDER

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ABSTRACT

PARENTAL INCARCERATION AND THE MENTAL HEALTH OF JUVENILE OFFENDERS:
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Parental incarceration is associated with both elevated levels of mental illness and greater incidence of chronic delinquency among youth affected. Neighborhood-level disorder likely plays a role in the association between parental incarceration and mental illness. However, its precise role has not yet been established. Some empirical evidence indicates that neighborhood disorder compounds the psychological distress of parental incarceration, as youth living in disorderly neighborhoods are more likely to be affected by poverty and victimization. Other theorists suggest that neighborhood disorder mitigates the psychological distress of parental incarceration, because the associated stigma may be diminished within communities wherein crime is comparatively commonplace. Drawing upon a secondary dataset of 1,216 first-time male juvenile delinquents, the present study empirically tests these hypotheses by examining the moderating role of neighborhood disorder in the predictive relationship between parental incarceration and mental health. Results indicate that both youth of color and youth living in high levels of neighborhood disorder experience no incremental increase in mental illness when a parent is incarcerated. However, parental incarceration is significantly detrimental to the mental health of White youth in non-disordered neighborhoods. These findings speak to the strong levels of resilience within youth in communities affected by patterns of mass incarceration. Results have implications towards better understanding the complex and contextually-dependent relationship between risk factors in the area of juvenile justice.

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INTRODUCTION

The current paradigm surrounding juvenile delinquency elevates the interpersonal and systematic conditions that predispose youth to criminal behavior (Levitt & Lochner, 2001; Mocan & Rees, 2005). The family environment, particularly the relationship between parents and their children, is an important setting in which juvenile delinquency is contextualized. However, normative parent-child relationships are disrupted when parents are arrested, prosecuted, and incarcerated. This disruption often comes at the expense of children's well-being; research suggests that young adults with incarcerated parents are at significantly higher risk for chronic mental illness (Lee et al., 2013). The characteristics of the encompassing neighborhood environment likely contribute to the association between parental incarceration and youth mental illness (Aneshensel & Sucoff, 1996; Wandersman & Nation, 1998; Xue et al., 2005). However, the precise role that the neighborhood plays in this association has not yet been established. The present study evaluates the impact of parental criminality on the mental health outcomes of first time juvenile offenders, with attention to the ways in which their neighborhood environment can mitigate or augment the mental health challenges they face. The findings offer valuable insight on how to best circumvent the adversity associated with parental criminality and promote wellbeing among youth affected.

LITERATURE REVIEW

Parental Incarceration in the United States

The present study defines "parental incarceration" as custodial confinement of a biological, acting, or step-parent with minor children by the criminal justice system, excluding overnight holding in police cells (Trice & Brewster, 2004). Among the estimated 1,518,535 inmates currently incarcerated in state and federal prison in the United States, approximately 53.3% reported having a child under the age of 18 (Glaze & Maruschak, 2010). Furthermore, it is estimated that over 2.7 million children nationwide currently have an incarcerated parent, and at least 10 million minors have experienced parental incarceration at some point (Sullivan, 2017). This astonishing prevalence necessitates more rigorous research on promoting well-being for the children and families affected.

The prevalence of parental incarceration can be attributed in part to "tough on crime" legislation, which was adopted in the 1980s in effort to reduce illicit substance use in urban neighborhoods areas across the United States (Wakefield, Lee, & Wildeman, 2016; Trice & Brewster, 2004). "Tough on crime" legislation initially abolished parental status as a mitigating factor during the prosecution process (Trice & Brewster, 2004). In more recent years, however, courts have repealed these policies, recognizing the profound effects of parental incarceration on families. Indeed, family law now necessitates thorough legal consideration of children's needs in custody cases and in cases of abuse or neglect (Lerer, 2013). Despite this important progress, the criminal justice system still lacks a unified and standardized means of considering parental status during the sentencing process (Lerer, 2013). Consequently, there is urgent need to better understand the impact of incarceration on children in order to develop informed and consistent sentencing policies.

Race, Family, and the Criminal Justice System

The criminal justice system within the United States is deeply entrenched within a context of racism and injustice. Consequently, it is important to recognize how race and ethnicity shape youth's experience of parental incarceration in distinct and meaningful ways. Although race/ethnicity are undoubtedly complex and nuanced identities, both the current body of literature and the present study's sample only represent Hispanic/Latinx, Black, and White youth relative to criminal justice system contact.

Research suggests that different characteristics of each racial/ethnic group produce distinct challenges for youth with incarcerated parents. First and second-generation Hispanic/Latinx youth may experience compounding stress related to documentation status in the wake of their parent's arrest (Yoshikawa & Kalil, 2011). Furthermore, Black children's experience of parental incarceration may be embedded within a broader context of intergenerational trauma, as Black communities have been most profoundly affected by mass incarceration (Graff, 2014). White children may be especially vulnerable to mental illness associated with parental incarceration; because White parents are not incarcerated with the same frequency as parents of color, White communities may lack the capacity to address issues related to incarceration (Swisher & Roettger, 2012). With these differences in mind, it is important to recognize that the experiences of parental incarceration are informed by race/ethnicity.

Juvenile Delinquency and Parental Incarceration

The link between juvenile offending and family context has long been the subject of research. In 1958, F. Ivan Nye first theorized a relationship between adolescent delinquency and family instability via social control. Specifically, he found that children from single-parent households were more likely to engage in criminal activity, likely due to a diminished capacity

for parental supervision and weakened parent-child attachment (Nye, 1958; Demuth & Brown, 2004). It is important to emphasize that the nature of incarceration catalyzes single parenthood, and thus may indirectly increase a child's likelihood of engaging in criminal activity.

More recent studies have further validated the link between juvenile delinquency and family instability. Building upon Nye's (1958) theory of social control, Hirschi (1969) argued that a disorderly home environment may propel youth to develop stronger bonds of attachment with peer groups who engage in deviant, and sometimes criminal, behavior (McCord, 1991; Hirschi, 1969). On the other hand, parents who have a greater presence (both physically and psychologically) in the lives of their children may diminish the likelihood of delinquency, both by limiting the number of opportunities for offending and by providing an example of lawful behavior (McCord 1991; Hirschi, 1969). This theory suggests that children of incarcerated parents are doubly vulnerable to engage in criminal activity themselves: incarceration prevents parents from exercising any form of monitoring or supervision, and youth criminal behavior may be socialized from parental example.

Furthermore, the burden placed upon other caretakers after the incident of arrest may create additional parenting challenges. If the incarcerated parent previously assumed a role of primary or secondary breadwinner, the non-incarcerated caretaker may feel obligated to supplement the lost income by taking on additional work (Gilham, Tanner, Cheyne, Freeman, Rooney, & Lambie, 1998). As a result, these caretakers may be unable to maintain an active presence in their children's lives, thus diminishing their capacity to monitor and correct delinquent behavior (McCord, 1991; Hirschi, 1969). These circumstances validate the assertion that children of incarcerated parents are uniquely vulnerable to juvenile offending.

Correlates of Youth Mental Health

Parental Incarceration. The experience of parental incarceration is detrimental to adolescent mental health. First, parental incarceration is directly linked to economic and residential instability, which are subsequently detrimental to adolescent wellbeing (Lee et al., 2013). In addition, children of incarcerated parents are more likely to be exposed to substance abuse and domestic violence. These traumatic experiences during a vulnerable developmental period may elevate chronic stress, manifesting in an array of poor mental health and behavioral outcomes (Lee et al., 2013). Such behavioral challenges have had noted impact on the school performance of adolescents with incarcerated parents. Over half of high school students of incarcerated parents had a documented disciplinary incident within the past 12 months and nearly 25% had been suspended. In comparison, only 20% of the same sex best friends of the participants had received a disciplinary hearing and 9% had been suspended (Lee et al., 2013). This disparity illustrates how the experience of parental incarceration may disadvantage affected youth in multiple settings.

Psychologists have coined the term “ambiguous loss” to describe the experience of externally invalidated separation caused by parental incarceration (Arditti, 2005). Unlike other circumstances of prolonged or permanent parent-child separation (e.g., divorce, death), communities may stigmatize and ostracize children and families with incarcerated loved ones. As a result, children may be compelled to divert questions about their parent’s status in order to avoid these adverse responses. Ambiguous loss exacerbates existing psychological distress for children. Because they may be unable or unwilling to publically acknowledge their grief, they are denied much needed sympathy, support, and assurance from their communities (Arditti, 2005).

Juvenile Delinquency. The prevalence of mental illness is significantly higher among juvenile delinquents relative to the general adolescent population. Researchers estimate that 66% of juvenile offenders suffer from a clinically diagnosable mental illness, compared to 20% of adolescent non-offenders (Cauffman, 2004; Kazdin, 2000). Prior research has specifically examined the occurrence of internalizing disorders, including major depressive disorder (MDD) and generalized anxiety disorder (GAD), among the juvenile offender population (Neighbors, Kempton, & Forehand, 1992; Pliszka, Sherman, Barrow, & Irick, 2000). Findings suggest a strong co-occurrence of MDD and GAD diagnoses with substance abuse and conduct disorders (Neighbors et al., 1992; Pliszka et al., 2000).

With this in mind, rehabilitating youth who struggle with mental illness has become an immediate priority within the juvenile correction system (Underwood & Washington, 2016). Indeed, empirical evidence supports that incarcerated youth who are enrolled in individualized mental health treatment programs are significantly less likely to recidivate when compared to those who received no treatment (Pullmann, Kerbs, Koroloff, Veach-White, Gaylor, & Sieler, 2006). These findings speak to the long-term benefits of promoting mental health among juvenile delinquents

Given the high prevalence of mental illness among delinquent youth with incarcerated parents, it is doubly important to understand and address the contextual factors that contribute to such adversity. The present study examines the ways in which characteristics of the surrounding neighborhood environment predict the mental health outcomes of this population.

Juvenile Delinquency and Neighborhood Disorder

The present study operationalizes neighborhood disorder as a measure of physical and social characteristics which indicate diminished social control and quality of life within a

geographically bound residential area (Gracia, 2014; Sampson & Raudenbush, 1999). Social disorder encompasses antisocial, threatening, or undesirable behavior or interactions between neighbors, and broadly includes poverty, crime, violence, residential mobility, and public use of drugs and alcohol (Sampson & Raudenbush, 1999). Physical disorder encompasses infrastructural and environmental indicators, including quality of public sanitation, prevalence of abandoned properties, and presence of vandalism and graffiti (Sampson & Raudenbush, 1999). Neighborhood disorder here refers to the sum of aggregate social and physical disorder.

The association between crime and neighborhood disorder is well-documented. Wilson and Kelling's (1982) "broken window" theory suggests that a broken window left unrepaired sends a message of negligence to the surrounding community, which may incite other acts of deviance (Jang & Johnson, 2001). In other words, if local actors and external agencies fail to regulate acts which degrade social and physical order, neighborhood residents may be more compelled to act disorderly (Jang & Johnson, 2001). Research in juvenile delinquency lends support to this theory; indeed, when adolescents perceive their surrounding neighborhood conditions to be disorderly, they are more likely to engage in criminal activity (Jang & Johnson, 2001).

Despite this, there is a divergence in the current understanding of how neighborhood disorder influences social ties between residents. On one hand, individuals who perceive their neighborhood as disorderly may have higher levels of fear and mistrust towards other residents (Ross & Jang, 2000). Due to the comparatively high prevalence of crime, they may self-alienate in order to protect themselves from harassment, victimization, or property damage (Ross & Jang, 2000). Conversely, residents in disorderly settings may be more compelled to form strong social ties with fellow members of their community in order to survive. Acts of informal integration,

including exchanging favors and essential information with other residents, are vital to navigating potentially dangerous circumstances within the neighborhood (Ross & Jang, 2000). The central question of the present study is situated within these contradicting conclusions: does neighborhood disorder further alienate delinquents with incarcerated parents, resulting in poorer mental health outcomes? Or rather, does neighborhood disorder serve as a protective factor due to the strength of social ties within these communities?

CURRENT STUDY

Research Question and Hypotheses

Given the challenges associated with parental incarceration among juvenile delinquents, determining how neighborhood characteristics predispose or protect this population from associated mental illness is an issue of immediate importance. Existing theory proposes two theories held in tension with one another: (1) the perceived threat of danger within disorderly neighborhoods augments youth mental illness; and (2) residents of disorderly neighborhoods form strong social ties in order to collectively navigate environmental challenges, thus mitigating youth mental illness. The present study empirically tests these competing theories with respect to juvenile offenders who have incarcerated parents:

Research question: How does parental incarceration predict the mental health outcomes of juvenile offenders as a function neighborhood level disorder?

Hypothesis I: Youth whose neighborhoods are characterized by higher levels of disorder will be vulnerable to worse outcomes when compared to youth whose neighborhoods are characterized by lower levels of disorder.

Hypothesis II: Youth whose neighborhoods are characterized by higher levels of disorder will be vulnerable to better outcomes when compared to youth whose neighborhoods are characterized by lower levels of disorder.

Hypothesis I: Disordered Neighborhoods, Worse Mental Health. A traditional perspective proposes that neighborhoods characterized by a high level of disorder are detrimental to youth development. It is worth noting that such neighborhoods are not randomly localized; rather, disorderly neighborhoods are consistently characterized by crime, chronic poverty, residential instability, violence, and unemployment (Sampson et al., 1997; Huang et al., 2004).

This perspective considers the ways in which the cumulative trauma associated with living in such neighborhoods amounts to greater psychological distress for juvenile offenders with incarcerated parents.

The psychological impact of poverty on children's health and wellbeing has long been the subject of social research. The physical infrastructure of impoverished homes and communities are more likely to be dangerous and unsanitary, leading to serious health problems (Hardie & Landale, 2013). Furthermore, parent-child bonds often suffer in circumstances of extreme financial instability; parents may be overwhelmed by their work obligations which can manifest in hostility and frustration towards children (Broussard & Joseph, 2009). This insecure attachment within the family coupled with unsuitable living conditions has a noted effect on the mental wellbeing of children in poverty; indeed, longitudinal research indicates that poverty is the strongest indicator of life-course anxiety and depression among adolescents and young adults (Najman, Hayatbakhsh, Clavarino, Bor, O'Callaghan, & Williams, 2010).

Social isolation is an additional barrier to health and wellbeing among members of impoverished and disorderly communities. As previously noted, residents of disorderly neighborhoods report markedly higher levels of fear and mistrust towards other members of their community. Theorists speculate that this fear and mistrust may drive residents to self-alienate in order to protect themselves from a perceived threat of danger (Ross & Jang, 2000). With this in mind, juvenile offenders with incarcerated parents living in disorderly neighborhoods may feel compelled to further withdraw from their communities, thus depriving themselves of much needed social support. If this is the case, it is reasonable to expect that these youth will experience elevated levels of mental illness.

In comparison, juvenile delinquents with incarcerated parents who live in neighborhoods with low levels of disorder may not experience these compounding challenges. Specifically, this group may not experience the poverty, victimization, and social isolation to the same degree. Their economic privilege may afford them satisfactory mental health care, such that they may be able to work through the trauma associated with parental incarceration in a healthy and productive manner. Similarly, their incarcerated parent may be able to attain quality legal assistance, perhaps shortening the length of their sentence and therefore diminishing the burden of separation. Though largely speculative, these conclusions suggest that living in a neighborhood with lower rates of crime reduces the risk of mental illness among juvenile delinquents with incarcerated parents.

Hypothesis II: Strength within Disordered Neighborhoods. The alternative hypothesis elevates the protective factors created by strength and social cohesion which exists within disordered communities. Central to this rationale is the assumption that children are more likely to receive social support from their communities in response to parental incarceration when they are living in a neighborhood wherein crime is comparatively commonplace. This social support is derived from a common understanding and familiarity with the process of arrest, prosecution, and incarceration. It is theorized, therefore, that the adverse experiences associated with parental incarceration may be buffered by the collective knowledge, support, and assistance provided by other members of disordered neighborhoods.

When considering this perspective, it is important to discuss the role of stigma in association with mental illness among delinquent youth with incarcerated parents. In navigating an experience of ambiguous loss, children and families may deliberately not disclose a parent's incarcerated status to friends, neighbors, and community members as a means of circumventing

anticipated stigma and hostility (Murray et al., 2012; Arditti, 2005). However, this "forced silence" make deprive children from support, thus increasing the likelihood of maladaptation (Murray et al., 2012; Arditti, 2005). The neighborhood context likely informs the extent to which youth engage in "forced silence". Specifically, in areas where parental incarceration is a relatively common experience, children affected may be met with greater empathy and understanding from adults and peers. After all, it is more likely that those adults and peers have been personally impacted by incarceration themselves.

Theoretical research on stigmatized identities lends support to these conclusions. Specifically, individuals with identities that are both associative (in association with another person) and concealable (not immediately made apparent by a physical marker) will be under less psychological distress if their anticipated stigma is low (Quinn & Chaudoir, 2015). In this case, anticipated stigma refers to the degree to which a child feels as though the members of their neighborhood will reject them upon discovering their parent's incarcerated status. Because the members of crime-ridden neighborhood are more likely to be personally affected by incarceration themselves, it likely that the anticipated stigma will be diminished. Thus, children living in neighborhoods with high prevalence of crime are less vulnerable to psychological distress, and by association, mental illness.

Conversely, children of incarcerated parents living in neighborhoods with comparatively low levels of disorder likely have fewer relationships with other people who have been impacted by incarceration. These children may be more persuaded divert questions regarding their parent's status in order to avoid ostracism from peer groups, resulting in a more profound experience of ambiguous loss. While these children may be more likely to have the economic resources to seek professional psychiatric help, those suffering from mental illness may be dejected by the lack of

grassroots support and empathy within their communities. As a result, children of incarcerated parents living in neighborhoods with low prevalence of crime may be at greater risk for mental illness.

Summary

Understanding the contextual mechanisms responsible for the high prevalence of mental illness among juvenile delinquents with incarcerated parents is an essential step towards preventing long-term adversity. The present study seeks to better understand the role of neighborhood disorder in protecting or predisposing this population from mental health challenges. Prior research supports two contradicting hypotheses in this regard: (1) disorderly neighborhoods augment mental illness associated with parental incarceration; and (2) disorderly neighborhoods circumvent mental illness associated with parental incarceration. The present study empirically tests these hypotheses by evaluating the predictive relationship between parental incarceration and mental illness in a sample of first time juvenile offenders, as moderated by the level of disorder in their neighborhood. Additionally, given the profound level of racial injustice within the criminal justice system, I expect the experience of parental incarceration for Hispanic/Latinx, Black, and White youth to vary significantly and predictably from each other.

METHODS

Participants

The present study draws upon secondary data collected at baseline by the Crossroads Study, an ongoing longitudinal examination of first-time male juvenile offenders ages 13 to 17 (N=1,216). Participants were recruited from sites located in Orange County, CA (*N*=532), Jefferson Parish, LA (*N*=151), and Philadelphia, PA (*N*=533). The sample includes youth under the jurisdiction of juvenile court in 2011, and does not include duplicate cases or omissions. Participants were arrested under a variety of low- to moderate-level non-felony petitions, most frequently including vandalism (17.5%), theft (16.7%), and possession of marijuana (14.8%). Reflecting broader patterns of disproportionate minority contact within the juvenile justice system as well as the demographics at the study sites, the sample was 46% Hispanic/Latinx, 37% Black, 15% White, and 2% self-identified other.

Procedures

Data collection procedures were conducted through three institutions located adjacently to research sites: University of California, Irvine; University of New Orleans; and Temple University. Parental consent and youth assent was obtained prior to all interviews. During this time, participants were informed of the nature of the study and assured that there would be no penalty for not participating (see Fine, Cavanagh, Donley, Steinberg, Frick, & Cauffman, 2017 for a full description of the procedures). Baseline interviews were conducted within six weeks after the youth's disposition hearing for their initial arrest.

Members of the research team conducted face-to-face interviews with youth which ranged from two to three hours in length. Responses were documented using a secure computer-administered program. A Certificate of Confidentiality granted by the Department of Justice was

issued in order to protect participant's confidentiality by exempting their identity and responses from subpoenas, court orders, and other types of involuntary disclosures. Interviewers discussed the purpose and utility of the Certificate of Confidentiality in detail to participants prior to the interview, and reminded them of it before asking about sensitive information, such as criminal history.

Measures

Research site. The present analyses are based upon data collected in three counties: Orange County, CA, Jefferson Parish, LA, and Philadelphia, PA. These sites were intentionally selected because they represent diversity in household income, racial/ethnic identity, and neighborhood-level characteristics. However, it is important to recognize how sociopolitical and historical precedent may contribute to regional variance between sites. This baseline data was collected in 2011, during which the city of New Orleans was recovering from devastating destruction caused by hurricane Katrina six years prior. Census records indicate that rates of both crime and extreme poverty reached unprecedented levels in the New Orleans metro area in the years following Katrina (Varano, Schafer, Cancino, Decker, & Greene, 2010). Furthermore, Louisiana ranks first in the nation terms of in per capita incarceration. While differences in the incarceration rates exist between Pennsylvania and California (respectively ranked 24th and 33rd) these differences are not as pronounced (U.S. Bureau of Justice Statistics, 2016).

These regional distinctions likely shape youth's exposure to crime and incarceration in ways that are meaningful to the present study. For this reason, research site will be included in the model as a covariate to acknowledge and control for regional variance in incarceration rates. Research site will be dummy-coded such that 1 indicates that the participant was recruited from

Jefferson Parish and 0 indicates that the youth was recruited from either Philadelphia or Orange County.

Race/ethnicity. Researchers collected self-reported demographic information from participants, including race and ethnicity. Race/ethnicity was initially measured using six categories (Hispanic/Latinx, Black, White, Asian, Native American, and Other). However, due to the lack of representation from Asian (*N*=0) and Native American (*N*=4) youth, race/ethnicity in the present study has been collapsed into four categories: White, Black, Hispanic/Latinx, and Other. The racial/ethnic demographics of the present sample are reported in Table 1.

Table 1.

Frequency and Percent of Participants by Race/Ethnicity

Race	Frequency	Percent
Hispanic/Latinx	557	45.8
Black	449	36.9
White	180	14.8
Other	30	2.5
Total	1,216	100

Parental incarceration. Parental incarceration is extracted from a broader assessment of family criminality, compiled based on a review of existing measures (Fine et al., 2017). The family criminality interview subsection assesses whether any family members have been involved in criminal activity, what that family member's relationship is to the youth, and whether the family member had been arrested and jailed. Follow-up questions inquire whether or not the criminally involved family member was living with the youth at the time of the crime. The family criminality interview captured up to 9 criminally involved family members per youth; it

subsequently ranged in length from 1 to 40 items, depending on number of criminally involved family members the youth reported. The complete tool used to measure family criminality is located in Appendix A.

Youth with incarcerated parents were identified using data from the family criminality assessment. First, participants who indicated that a biological, adoptive, or step-parent had engaged in criminal activity were selected (*N*=183). Of those who reported parental criminality, those who indicated that their parent had served time in jail were further identified (*N*=159). This smaller subset comprises individuals with incarcerated parents. The demographic and descriptive information of participants with and without incarcerated parents are summarized in Table 2.

Table 2.

Frequency and Percent of Participants with Incarcerated Parents by Race/Ethnicity

	Parental Incarceration		No Parental Incarceration	
Race	Frequency	Percent	Frequency	Percent
Hispanic/Latinx	72	12.9	485	87.1
Black	48	10.7	401	89.3
White	32	18.7	139	77.2
Other	7	23.3	23	76.7
Total	159	15.1	1,033	84.9

Neighborhood conditions. Neighborhood conditions were measured using a 21-item instrument which assessed indicators of both physical and social disorganization in the adolescent's neighborhood. The instrument was adapted from a number of existing measures (Sampson, 1997; Sampson et al., 1999; Sampson & Raudenbush, 1999). The complete instrument is located in Appendix B. Using a 4-point scale ranging from *never* to *often*, youth reported how frequently they observed indicators of disorganization within their neighborhoods in the past six months (e.g., *"How often do you see garbage in the streets or on the sidewalks?,"*

or *"How often do you see adults fighting or arguing loudly?"*). Higher values correspond to higher levels of neighborhood disorder.

An analysis of internal consistency was conducted on the Neighborhood Disorder Scale. Cronbach's alpha the indicated that the instrument reached acceptable reliability (α= 0.94). All items on appeared to be worthy of retention, resulting in a decrease in alpha if removed.

Mental health. The mental health of participants was assessed using an abbreviated version of the Revised Child Anxiety and Depression Scale (RCADS), a 17-item self-report scale that measures multiple facets of both generalized anxiety disorder (GAD) and major depressive disorder (MDD) in youth. The version of RCADS used in the present study is located in Appendix C. During the assessment, participants were instructed to report how frequently they experience symptoms of depression and anxiety (e.g., *"Nothing is much fun anymore,"* or *"I worry that something bad will happen to me"*). Responses were measured on a 4-point scale ranging from *never* to *always*, with higher values corresponding to higher indications of self-reported anxiety and depression[1]. Items are aggregated to yield scores for both major depressive disorder and generalized anxiety disorder.

An analysis of internal consistency was conducted on RCADS. Cronbach's alpha indicated that the instrument reached acceptable reliability (α = 0.87). All items appeared to be worthy of retention, resulting in a decrease in alpha if removed.

Analytic Plan

First, several preliminary tests were conducted in order to better understand mean differences in self-reported mental illness between participants within each racial/ethnic group, neighborhood disorder level, and parental status. In each case, significant differences were

[1] Scores yielded from RCADS are based upon self-reported symptoms, and do not correspond to mental health diagnoses from a licensed practitioner.

detected using a one-way ANOVA and subsequent pairwise t-tests with Bonferroni corrections. These analyses provide a valuable framework for understanding how mental illness differs according to the constructs of interest.

Subsequently, several multiple linear regression models tested the association between mental health outcomes of juvenile offenders as a function of their neighborhood environment and parental status, holding the effects of race/ethnicity and research site constant. Race/ethnicity was included in the models as a covariate to control for systematic differences in criminal justice system contact. Similarly, research site was included in the model as a covariate to control for variation in state incarceration rates. Parental incarceration was dummy coded such that 1 indicated that the youth has experienced parental incarceration and 0 indicated that the youth has not experienced parental incarceration. An interaction term, created by multiplying centered parental incarceration by centered neighborhood disorder, was used to examine the moderating effect of neighborhood on mental health outcomes. Outcomes were analyzed with respect to both self-reported generalized anxiety disorder and major depressive disorder symptoms.

RESULTS

Between Group Differences

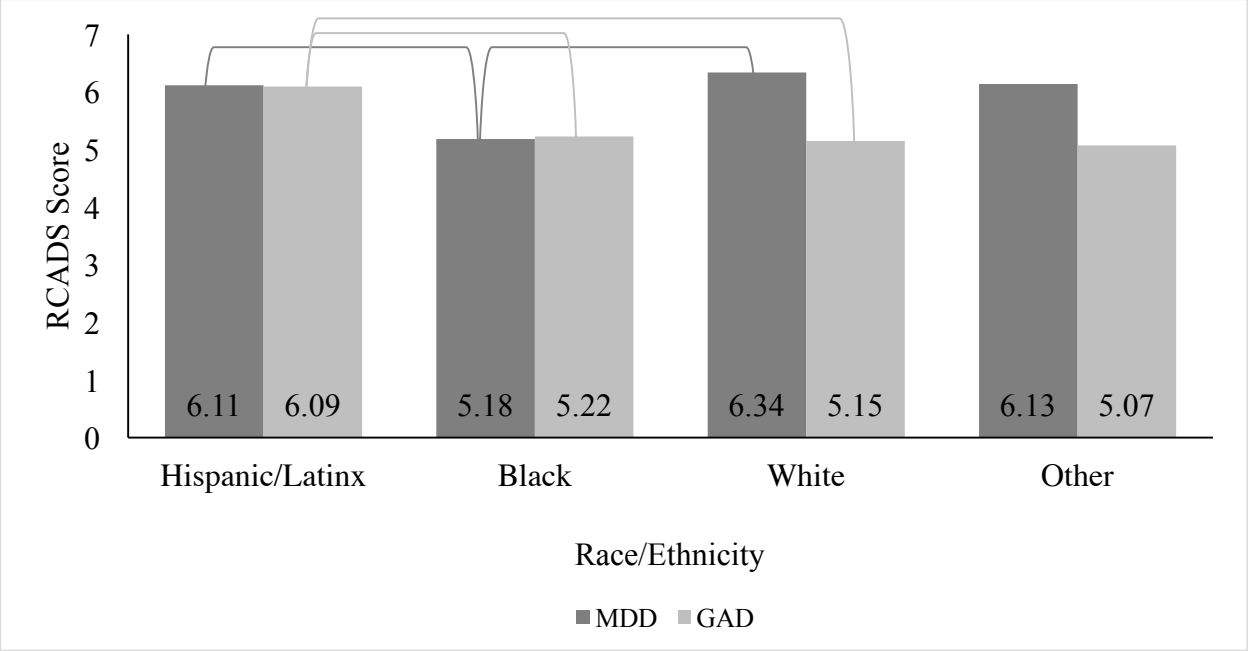
As previously described, several one-way ANOVAs were conducted in order to determine significant differences in mean levels of mental illness across participants relative to race/ethnicity, neighborhood disorder level, and parental status. Significant results were probed using pairwise t-tests with Bonferroni corrections. Brackets denote significant differences at the $p < 0.05$ level.

Race/ethnicity. Self-reported MDD varied between Black and White participants [$F(3, 1{,}212) = 4.35$, $p = 0.36$], as well as between Black and Hispanic/Latinx participants [$F(3, 1{,}212) = 4.35$, $p < 0.01$], such that MDD was significantly lower in Black participants ($N = 449$) compared to both White ($N = 180$) and Hispanic/Latinx ($N = 557$) participants. No significant differences were detected between White and Hispanic/Latinx participants in self-reported MDD. When considering GAD, Hispanic/Latinx participants reported higher levels than both White [$F(3, 1{,}212) = 4.89$, $p = 0.036$] and Black [$F(3, 1{,}212) = 4.89$, $p < 0.01$] participants. No differences were detected between White and Black participants in self-reported GAD. Additionally, no differences in MDD or GAD were detected between participants identifying as another race and participants identifying as Hispanic/Latinx, Black, or White.

Figure 1. illustrates racial/ethnic differences in MDD and GAD.

Figure 1.

Mean GAD and MDD Scores on RCADS for Participants across Racial/Ethnic Groups



Neighborhood disorder. In order to compare differences in mental health as a function of neighborhood-level disorder, continuous scores on the Neighborhood Disorder Scale were transformed into categorical variables corresponding to relatively low, medium, and high levels of neighborhood disorder. Participants in the low neighborhood disorder group (*N*=231) reported neighborhood disorder levels which fell below one standard deviation of the sample mean. Likewise, those in the high neighborhood disorder group (*N*=212) reported neighborhood disorder levels which fell above one standard deviation of the sample mean. Participants who reported neighborhood disorder levels within one standard deviation of the mean (*N*=773) were classified as having moderate levels of neighborhood disorder.

There were statistically significant differences in self-reported MDD between youth in all levels of neighborhood disorder. Youth living in neighborhoods with low levels of disorder reported significantly lower levels of MDD compared to those living in moderate levels of

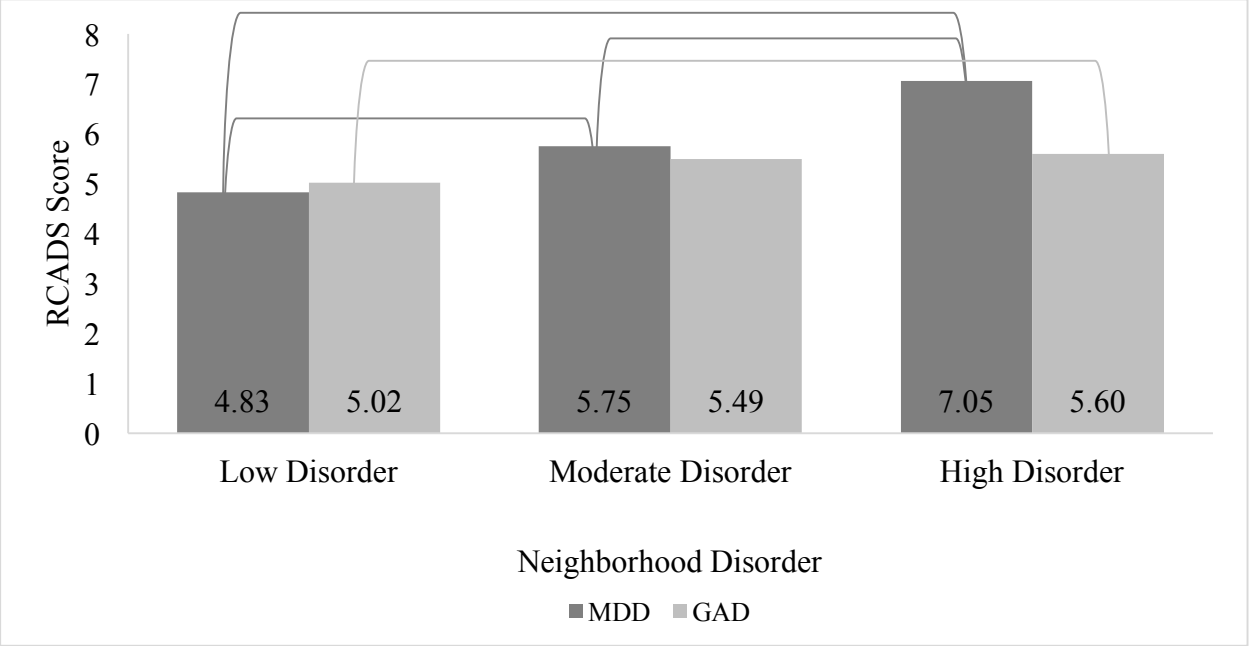
disorder [$F(2, 1{,}213) = 9.92$, $p = 0.02$] and those living high levels of disorder [$F(2, 1{,}213) = 9.92$, $p < 0.01$]. Additionally, youth living in moderate levels of disorder reported lower levels of MDD compared to those living in high levels of disorder [$F(2, 1{,}213) = 9.92$, $p < 0.01$].

There were also statistically significant differences in self-reported GAD between participants living in low and high levels of neighborhood disorder. In accordance with above described differences in MDD, youth in low levels of neighborhood disorder reported significantly lower levels of GAD compared to those living in high levels of neighborhood disorder [$F(2, 1{,}213) = 12.93$, $p < 0.01$]. Youth living in neighborhoods characterized by moderate levels of disorder did not differ significantly from other groups.

Figure 2 illustrates differences in MDD and GAD by neighborhood disorder level.

Figure 1.

Mean GAD and MDD Scores on RCADS for Participants across Neighborhood Disorder Levels



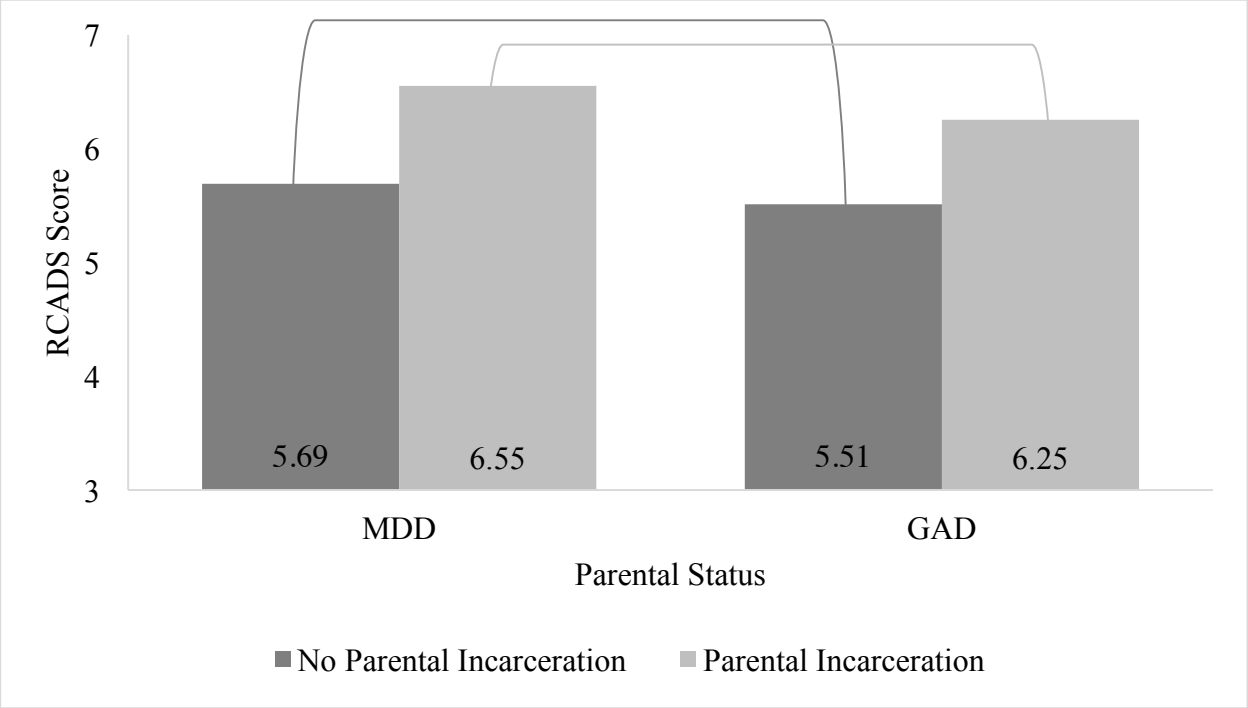
Parental incarceration. An independent samples t-test was conducted to detect differences in mental health between participants who reported experiencing parental

incarceration (*N*=159) and those who did not (*N*=1,057). Participants with incarcerated parents (*M* = 6.55, *SD* = 5.10) reported significantly higher levels of MDD than participants without incarcerated parents (*M* = 5.69, *SD* = 4.58; *t*(1,214)= -2.17, *p* = 0.03). Likewise, participants with incarcerated parents (*M* = 6.25, *SD* = 4.23) reported significantly higher levels of GAD than participants without incarcerated parents (*M* = 5.51, *SD* = 4.07; *t*(1,214) = -2.14, *p* = 0.03).

Figure 3 illustrates differences in MDD and GAD by parental status.

Figure 2.

Mean GAD and MDD Score on RCADS for Participants with and without Incarcerated Parents



Parental Incarceration, Mental Health, and Neighborhood Disorder

Preliminary analyses indicate that significant differences exist between participants as a function of race/ethnicity, level of neighborhood disorder, and parental status. In order to answer the research question, *how does parental incarceration predict the mental health outcomes of juvenile offenders as a function neighborhood level disorder?*, a series of multiple regression

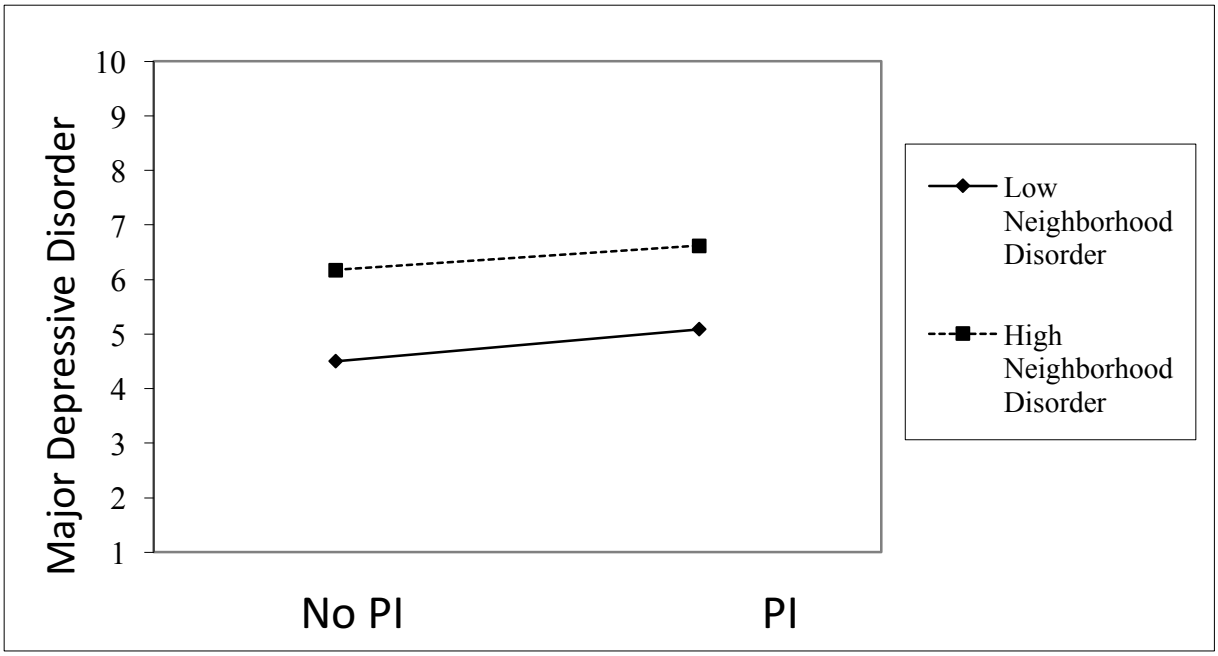
models were evaluated with respect to both major depressive disorder and generalized anxiety disorder.

Major Depressive Disorder. A series of multiple linear regressions were calculated to predict self-reported symptoms of major depressive disorder (MDD) based on the interaction of parental incarceration and level of neighborhood disorder. Regional differences (i.e., study site) were included in each model as a covariate to control for within-group variance between participants who were recruited from Jefferson Parish and those who were not. Three unique models are described to allow each racial/ethnic group represented in the sample (Hispanic/Latinx, Black, and White) to act as reference category.

Model 1: Hispanic/Latinx v. Non-Hispanic/Latinx. When considering Hispanic/Latinx youth as the reference group, participants' predicted levels of MDD increased 1.17 points for each one unit increase in neighborhood disorder, and participants with incarcerated parents were predicted to score 0.84 points higher on indicators of MDD relative to those without incarcerated parents [$F(5, 1{,}210) = 9.00$, $p < 0.00$, $r^2 = 0.04$] (see Figure 4 for a graphical representation of the main effect and Table 4 for the full model). The interaction between parental incarceration and neighborhood disorder was not significant. However, race and research site were significant predictors of MDD, such MDD was predicted to be higher in both Hispanic/Latinx participants relative to participants of another race/ethnicity and in participants recruited from Jefferson Parish relative to the other two sites.

Figure 3.

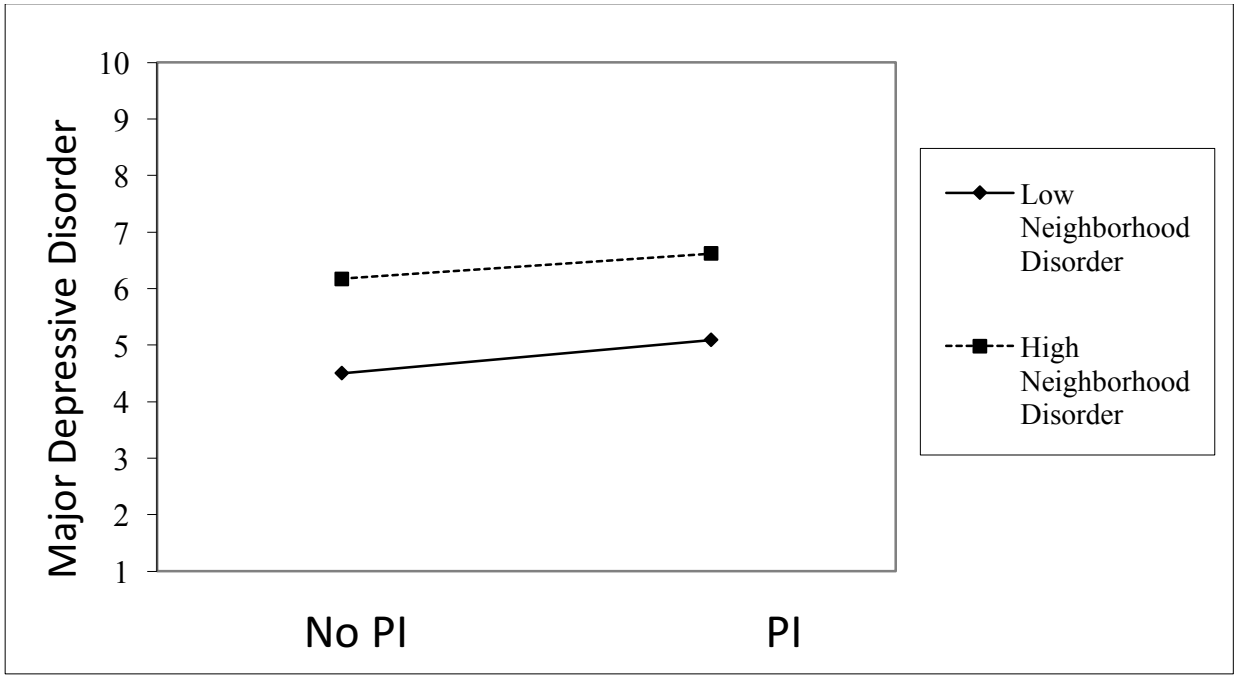
Main Effect of Parental Incarceration and Neighborhood Disorder on Predicted MDD, Controlling for Variance in Hispanic/Latinx Participants



Model 2: Black vs. Non-Black. When considering Black youth as the reference group, participant's predicted levels of MDD increased 1.35 points for each one unit increase in neighborhood disorder [$F(5, 1{,}210) = 12.55$, $p < 0.00$, $r^2 = 0.05$] (see Figure 5 for a graphical representation of the main effect and Table 4 for the full model). Parental incarceration and the interaction between parental incarceration and neighborhood disorder did not predict significant change. However, both race and research site predicted significant changes, such that MDD was predicted to be lower in Black participants relative to participants of another race/ethnicity and higher in participants recruited from Jefferson Parish.

Figure 4.

Main Effect of Neighborhood Disorder on Predicted MDD, Controlling for Variance in Black Participants



Model 3: White vs. Non-White. When considering White youth as the reference group, participant's predicted levels of MDD increased 1.17 points for each one unit increase in neighborhood disorder [$F(5, 1{,}210) = 8.37$, $p < 0.00$, $r^2 = 0.03$] (see Figure 6 for a graphical representation of the main effect and Table 4 for the full model). Research site, parental incarceration, and the interaction between parental incarceration and neighborhood disorder did not predict significant change in MDD. However, race was significantly associated with MDD, such that MDD was predicted to be higher in White participants relative to non-White participants.

Figure 5.

Main Effect of Neighborhood Disorder on Predicted MDD, Controlling for Variance in White Participants

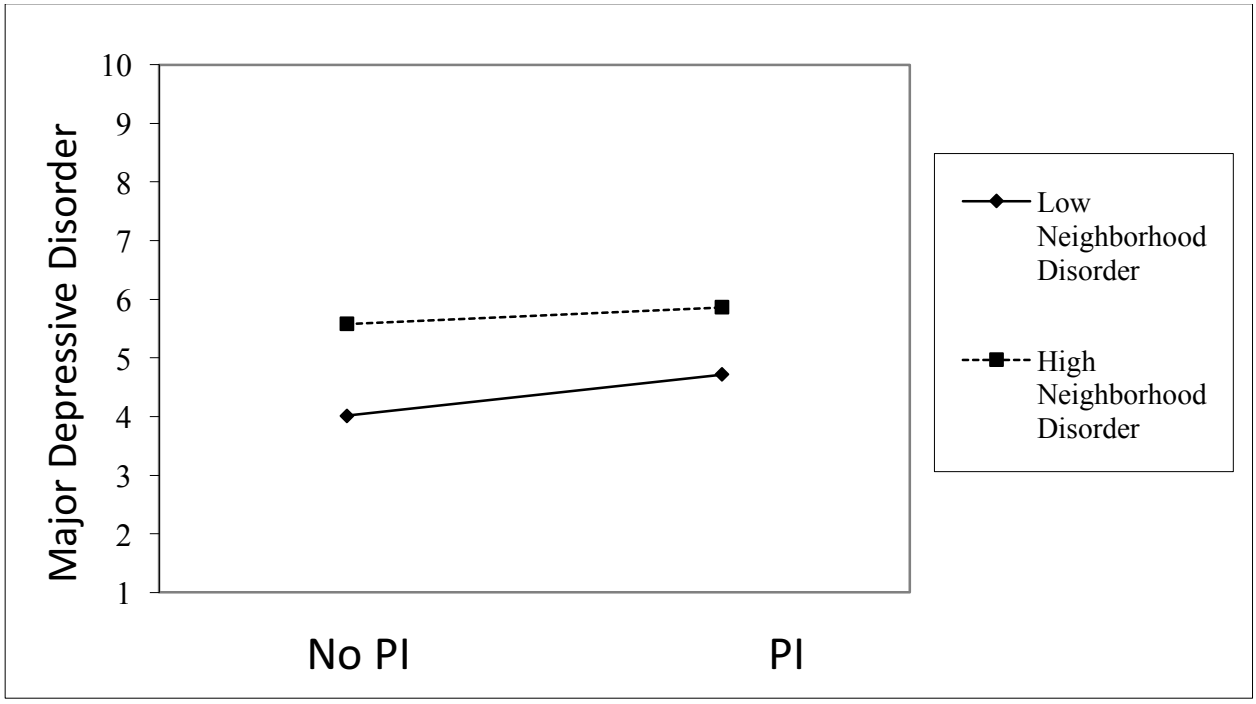


Table 3.

Summary of Multiple Regression Analysis for Variables Predicting Self-Reported MDD

	Model 1: Hispanic/Latinx			Model 2: Black			Model 3: White		
Variable	B	SE B	β	B	SE B	β	B	SE B	β
Constant	5.31	0.20		6.20	0.17		5.60	0.15	
Parental Incarceration	0.84	0.39	0.06*	0.72	0.39	0.05	0.77	0.39	0.06
Neighborhood Disorder	1.17	0.20	0.17*	1.35	0.20	0.20*	1.18	0.20	0.17*
Parental Incarceration x Neighborhood Disorder	-0.26	0.57	-0.01	-0.19	0.57	-0.01	-0.16	0.57	-0.01

Table 3. (cont'd)

Race	0.82	0.26	0.09*	-1.46	0.29	-0.15*	0.91	0.38	0.07*
Research Site	0.90	0.42	0.03*	1.09	0.42	0.77*	0.50	0.41	0.04

Table 4. cont'd

R^2	0.04	0.05	0.03
F	9.00	12.55	8.37

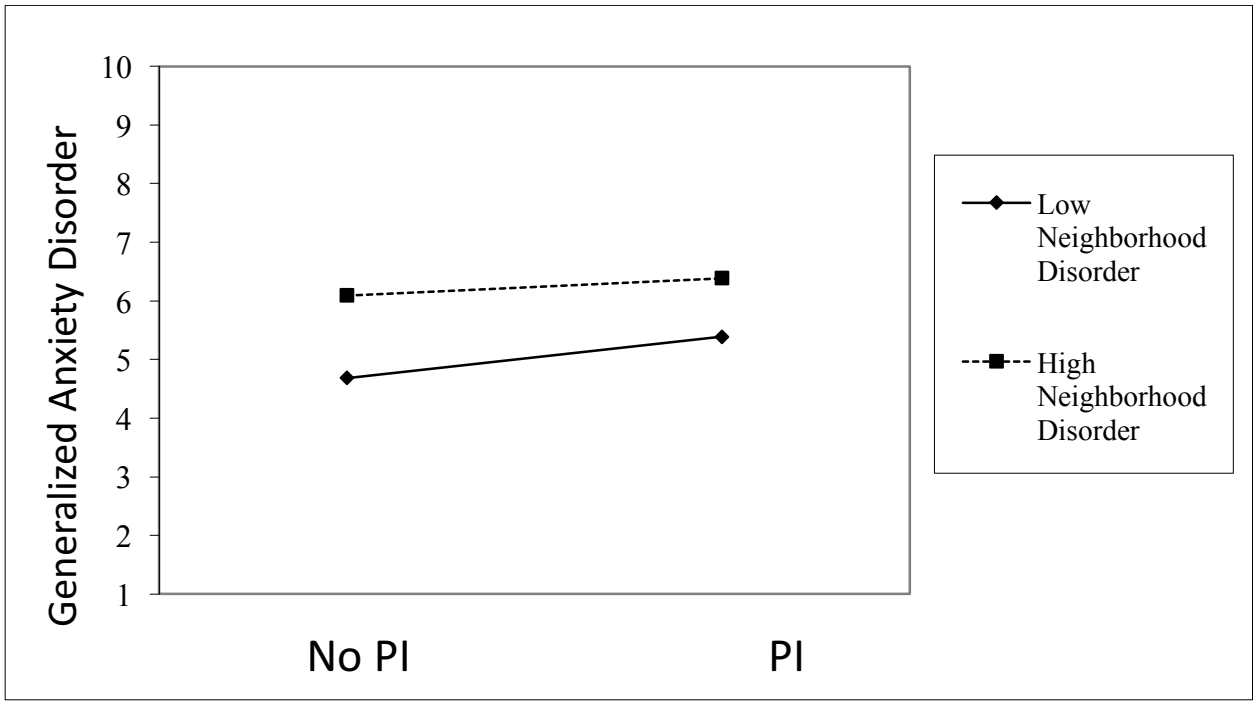
$p < 0.05$

Generalized Anxiety Disorder. A multiple linear regression was calculated to predict self-reported symptoms of Generalized Anxiety Disorder (GAD) based on the interaction of parental incarceration and cumulative levels of neighborhood disorder. Regional variance (coded as 1=Jefferson Parish, 0=Jefferson Parish) is included in each model as a covariate to control for within-group variance. Three unique models are described to allow each racial/ethnic group represented in the sample (Hispanic/Latinx, Black, and White) to act as reference category.

Model 4: Hispanic/Latinx v. Non-Hispanic/Latinx. When considering Hispanic/Latinx youth as the reference group, participant's predicted levels of GAD increased 1.00 points for each one unit increase in neighborhood disorder, and predicted GAD was elevated 0.73 points in participants with incarcerated parents relative to those without incarcerated parents [$F(5, 1{,}210) = 10.65$, $p < 0.00$, $r^2 = 0.04$] (see Figure 7 for a graphical representation of the main effects and Table 5 for the full model). The interaction between parental incarceration and neighborhood disorder was not significant. However, race was a significant predictor of GAD, such that GAD was predicted to be higher in Hispanic/Latinx participants relative to non-Hispanic/Latinx participants.

Figure 6.

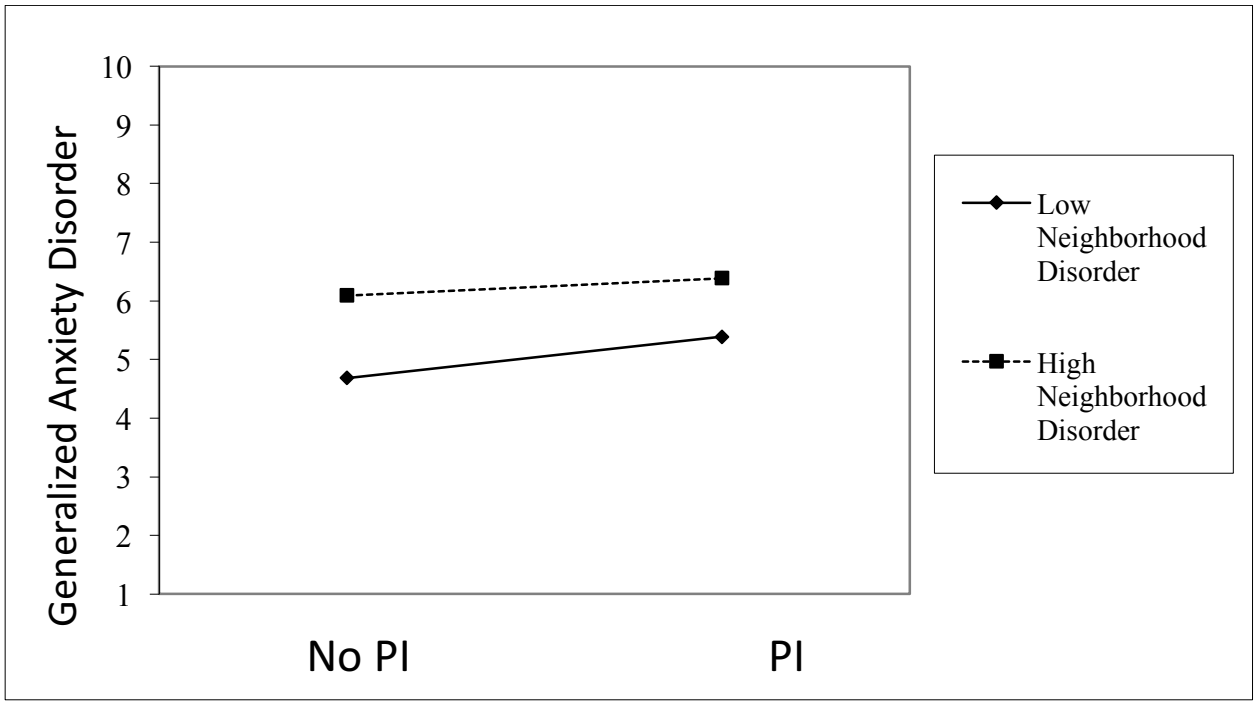
Main Effect of Parental Incarceration and Neighborhood Disorder on Predicted GAD, Controlling for Variance in Hispanic/Latinx Participants



Model 5: Black vs. Non-Black. When considering Black youth as the reference group, participant's predicted levels of GAD increased 1.06 points for each one unit increase in neighborhood disorder [$F(5, 1{,}210) = 9.298$, $p < 0.000$, $r^2 = 0.033$] (see Figure 8 for a graphical representation of the main effect and Table 5 for the full model). Research site, parental incarceration, and the interaction between parental incarceration and neighborhood disorder did not predict significant change in GAD. However, race predicted significant change such that GAD was predicted to be lower in Black participants relative to non-Black participants.

Figure 7.

Main Effect of Neighborhood Disorder on Predicted GAD, Controlling for Variance in Black Participants



Model 6: White vs. Non-White. When considering White youth as the reference group, participant's predicted levels of GAD increased 0.88 points for each one unit increase in neighborhood disorder, and participants with incarcerated parents were predicted to have 0.74 higher GAD than those who did not [$F(5, 1{,}210) = 6.81$, $p < 0.000$, $r^2 = 0.03$] (see Figure 9 for a graphical representation of main effects and Table 5 for the full model). Race, research site, and the interaction between parental incarceration and neighborhood disorder did not predict significant change in GAD.

Figure 8.

Main Effect of Parental Incarceration and Neighborhood Disorder on Predicted GAD, Controlling for Variance in White Participants

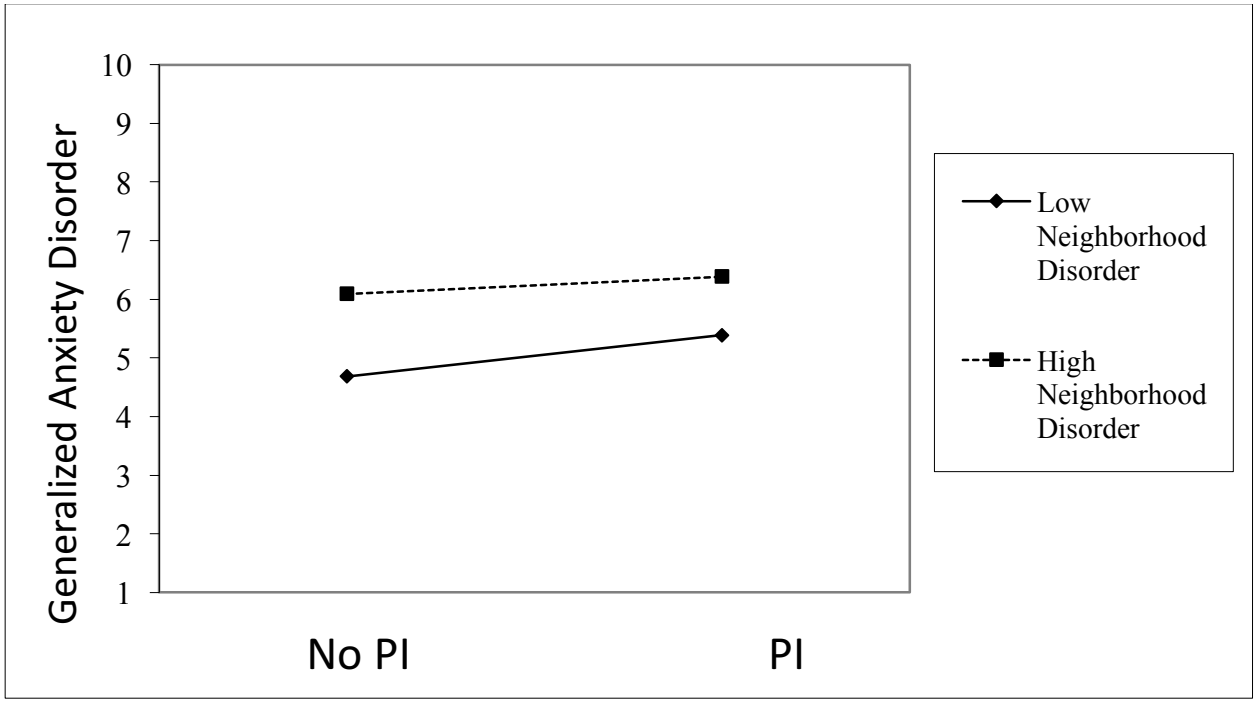


Table 4.

Summary of Multiple Regression Analyses for Variables Predicting Self-Reported GAD

	Model 4: Hispanic/Latinx			Model 5: Black			Model 6: White		
Variable	B	SE B	β	B	SE B	β	B	SE B	β
Constant	5.04	0.17		5.89	0.15		5.64	0.13	
Parental Incarceration	0.73	0.34	0.06*	0.65	0.34	0.05	0.74	0.35	0.06*
Neighborhood Disorder	0.98	0.17	0.17*	1.06	0.18	0.18*	0.88	0.18	0.15*

Table 4. (cont'd)

Parental Incarceration x Neighborhood Disorder	-0.46	0.50	-0.03	-0.39	0.50	-0.02	-0.44	0.50	-0.03
Race	1.07	0.24	0.13*	-1.46	0.29	-0.15*	-0.33	0.33	-0.03
Research Site	0.529	0.37	0.04	0.41	0.37	0.03	0.09	0.36	0.01
R^2		0.04			0.04			0.03	
F		10.65			9.30			6.81	

$p < 0.05$

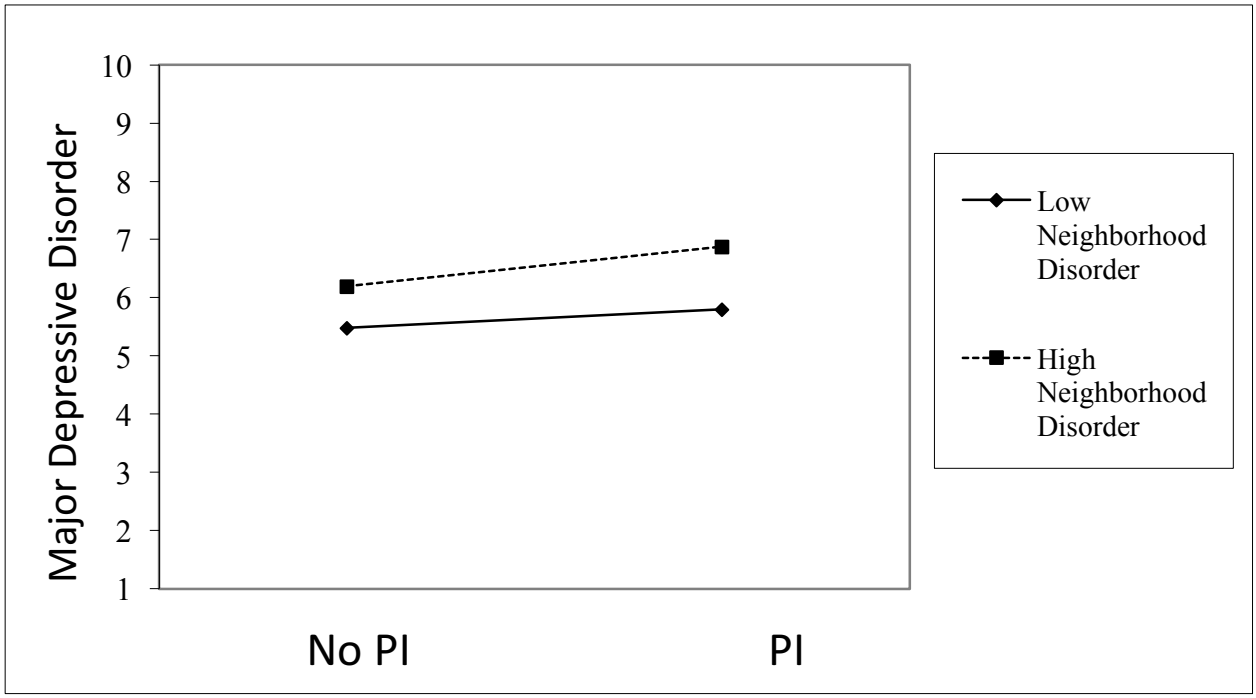
Racial/Ethnic Differences in the Relationship between Parental Incarceration, Mental Health, and Neighborhood Disorder

The above models suggest that neighborhood disorder does not moderate the predictive relationship between parental incarceration and mental health. However, these findings may be partially obscured by the dichotomous operationalization of race as a covariate (Hispanic/Latinx, Black, or White vs. non-Hispanic/Latinx, non-Black, or non-White). To recognize the unique experience of parental incarceration between Hispanic/Latinx, Black, and White youth, the above described models have been analyzed with respect to each isolated racial/ethnic group. These models provide greater insight into the ways in which race/ethnicity inform youth mental health in response to parental incarceration. In order to account for differences in the prevalence of parental incarceration and level of neighborhood disorder, the following models utilize variables which have been centered using mean values for each respective racial/ethnic group.

Hispanic/Latinx participants. *Model 7: Major Depressive Disorder.* Drawing upon a sample of 557 participants who identify as Hispanic/Latinx, participant's predicted levels of MDD increased 1.34 points for every one unit increase in neighborhood disorder [F(4, 552) = 5.06, p < 0.00, r2 =0.04] (see Figure 10 for a graphical representation of the main effects and Table 6 for the full model). Research site, parental incarceration, and the interaction between parental incarceration and neighborhood disorder did not predict significant change in MDD.

Figure 9.

Main Effect of Neighborhood Disorder on Predicted MDD of Hispanic/Latinx Participants



Model 8: Generalized Anxiety Disorder. Additionally, Hispanic/Latinx participant's predicted levels of GAD increased 0.96 points for every one unit increase in neighborhood disorder [$F(1, 552) = 3.84$, $p < 0.00$, $r^2 = 0.17$] (see Figure 11 for a graphical representation of the main effect and Table 6 for the full model). Research site, parental incarceration, and the interaction between parental incarceration and neighborhood disorder did not predict significant change in GAD.

Figure 10.

Main Effect of Neighborhood Disorder on Predicted GAD in Hispanic/Latinx Participants

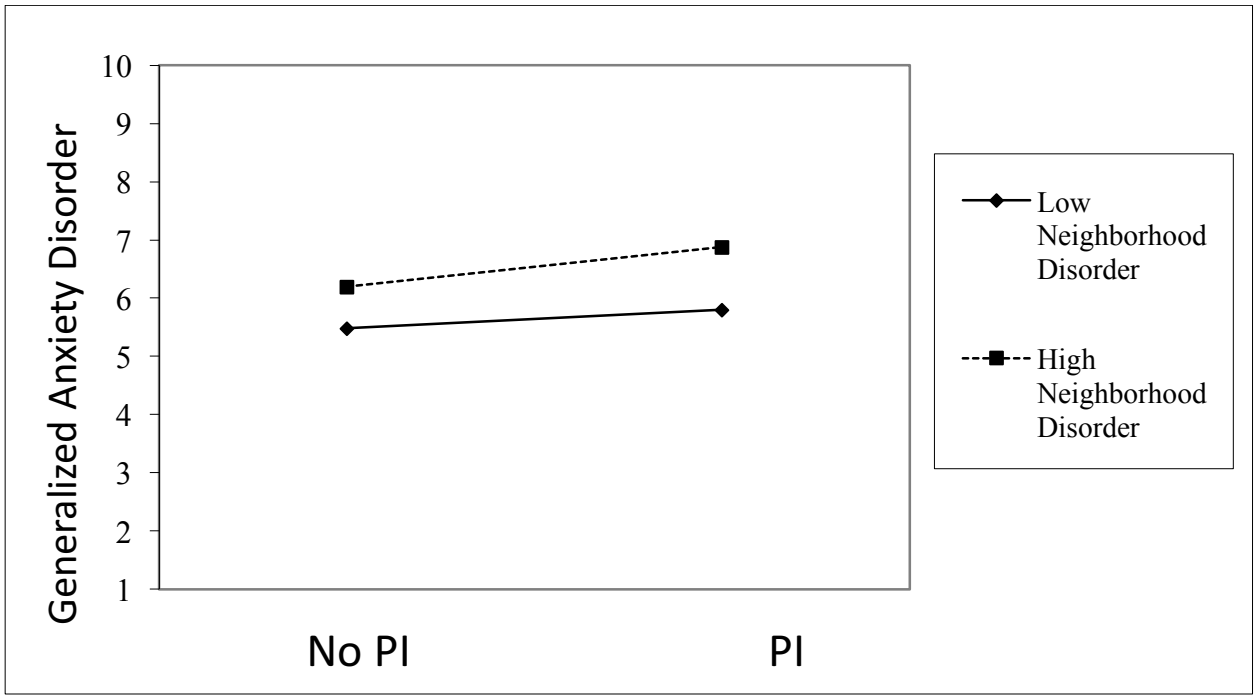


Table 5.

Summary of Multiple Regression Analysis for Variables Predicting Mental Illness Among Hispanic/Latinx Youth

	Model 9: Major Depressive Disorder			Model 10: Generalized Anxiety Disorder		
Variable	B	SE B	β	B	SE B	β
Constant	6.09	0.21		6.10	0.18	
Parental Incarceration	0.38	0.61	0.03	0.33	0.52	0.03
Neighborhood Disorder	1.34	0.31	0.18*	0.96	0.26	0.16*

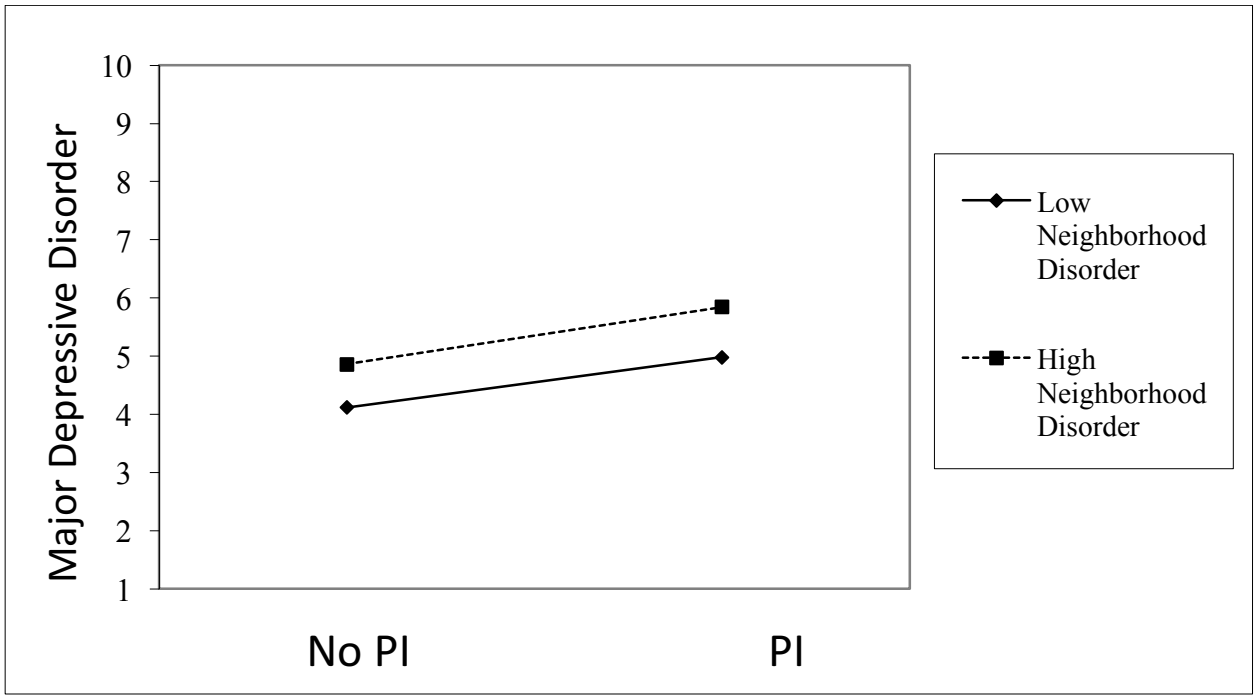
Table 5. (cont'd)

Parental Incarceration x Neighborhood Disorder	0.42	0.84	0.02	0.35	0.72	0.02
Research Site	0.59	1.18	0.02	-0.47	1.01	-0.02
R^2		0.04			0.03	
F		5.06			3.84	

Black participants. *Model 9: Major Depressive Disorder.* Drawing upon a sample of 449 participants who identify as Black, participant's predicted levels of MDD increased 1.30 points for every one unit increase in neighborhood disorder [$F(4, 444) = 4.703$, $p < 0.00$, $r^2 = 0.04$] (see Figure 12 for a graphical representation of the main effect and Table 7 for the full model). Research site, parental incarceration and the interaction between parental incarceration and neighborhood disorder did not predict significant change in MDD.

Figure 11.

Main Effect of Neighborhood Disorder on Predicted MDD of Black Participants



Model 10: Generalized Anxiety Disorder. Additionally, Black participants' predicted GAD increased 0.90 points for every one unit increase in neighborhood disorder [$F(4, 444)=2.59$, $p=0.04$, $r^2=0.02$] (see Figure 13 for a graphical representation of the main effect and Table 7 for the full model). Research site, parental incarceration, and the interaction between parental incarceration and neighborhood disorder did not predict significant change in GAD.

Figure 12.

Main Effect of Neighborhood Disorder on Predicted GAD of Black Participants

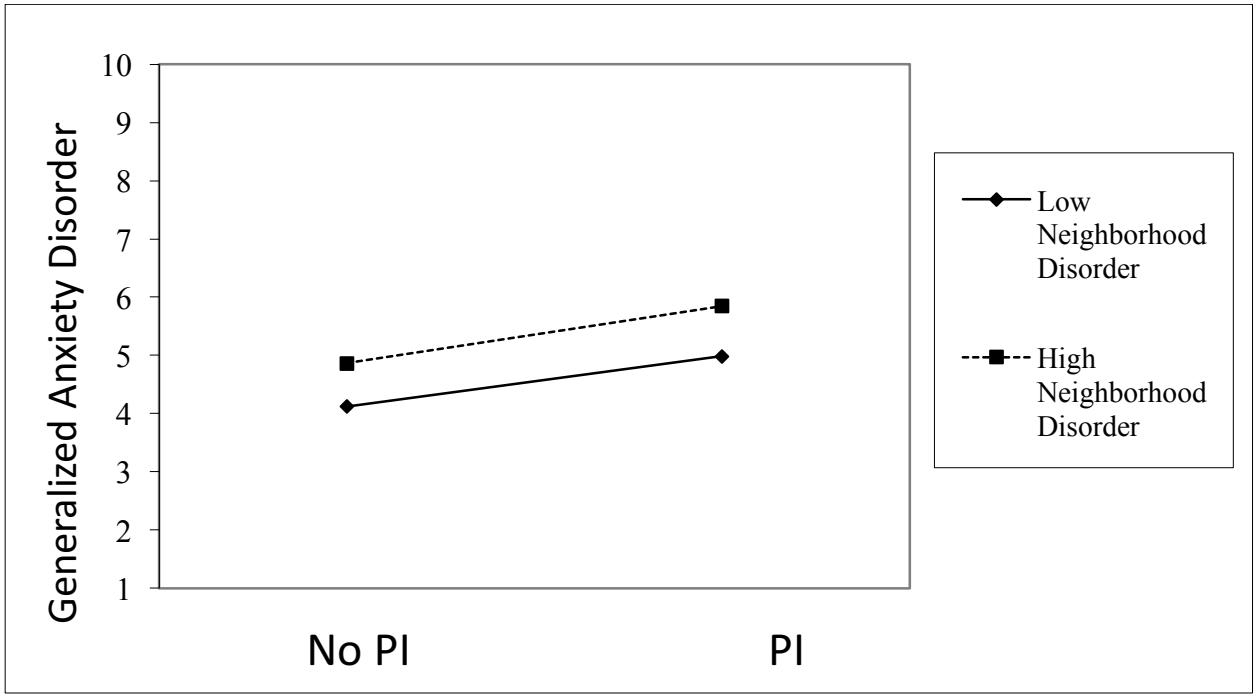


Table 6.

Summary of Multiple Regression Analysis for Variables Predicting Mental Illness among Black Youth

	Model 9: Major Depressive Disorder			Model 10: Generalized Anxiety Disorder		
Variable	B	SE B	β	B	SE B	β
Constant	4.95	0.24		5.07	0.22	

Table 6. (cont'd)

Parental Incarceration	0.65	0.67	0.05	0.36	0.64	0.03
Neighborhood Disorder	1.30	0.31	0.21*	0.90	0.30	0.15*
Parental Incarceration x Neighborhood Disorder	0.14	1.07	0.01	-0.61	1.01	-0.03
Research Site	1.05	0.54	0.10	0.74	0.51	0.07

Table 6. (cont'd)

R^2	0.04	0.02
F	4.70	2.59

*$p < 0.05$

White participants. *Model 11: Major Depressive Disorder.* Drawing upon a sample of 180 participants who identify as White, predicted levels of MDD increased 1.61 points for every one unit increase in neighborhood disorder [$F(4, 175) = 3.74$, $p < 0.01$, $r^2 = 0.08$] (see Figure 14 for a graphical representation of the interaction effect and Table 10 for the full model). Research site and parental incarceration did not significantly predict a change in MDD. However, the relationship between parental incarceration and MDD was significantly moderated by neighborhood disorder.

Using simple slopes analyses, the interaction was probed by testing the conditional effects of parental incarceration at three levels of neighborhood disorder: one standard deviation below the mean, one at the mean, and one standard deviation above the mean. When neighborhood disorder was low, parental incarceration predicted an increase of 3.03 points in MDD among White participants ($p < 0.00$). However, when neighborhood disorder was at mean levels or high, parental incarceration does not predict a change in MDD among White

participants ($p = 0.33$). The conditional relationship between parental incarceration and neighborhood disorder on White youth's predicted levels of MDD is described in Table 8.

Figure 13.

Interaction of Parental Incarceration and Neighborhood Disorder on Predicted MDD in White Participants

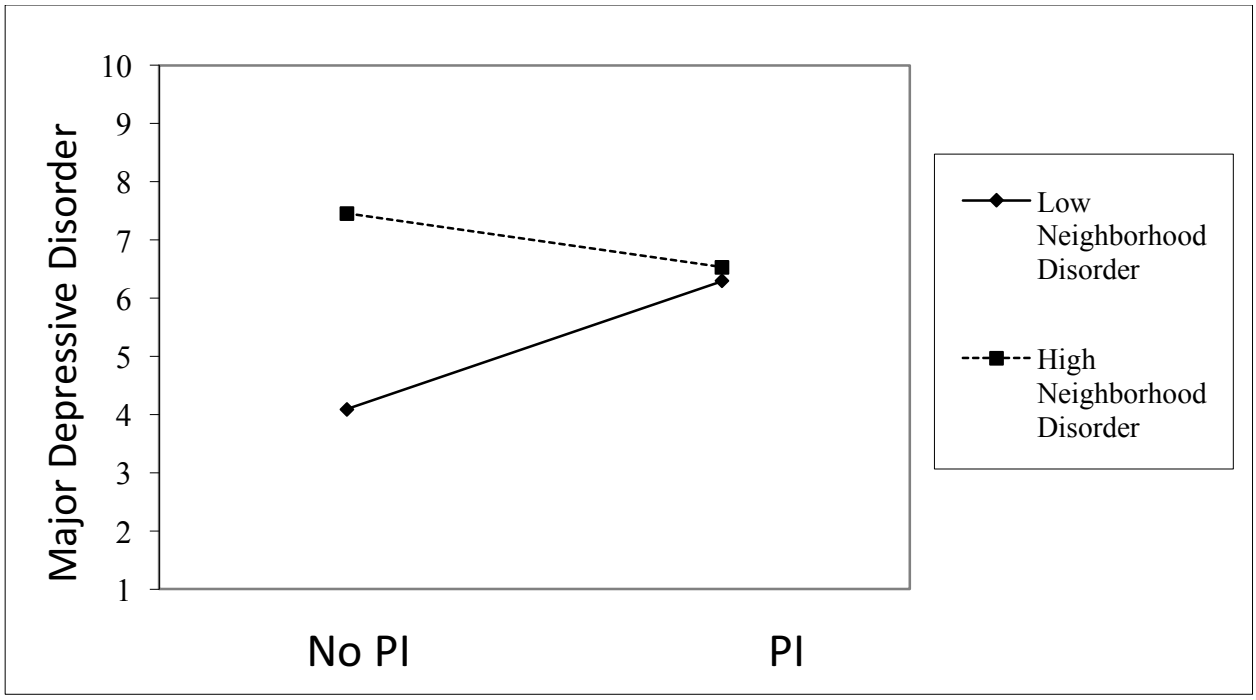


Table 7.

Conditional Effects of Parental Incarceration on Predicted MDD at High, Moderate, and Low Levels of Neighborhood Disorder among White Youth

Neighborhood Disorder	B	SE B	β
One SD below mean	3.03	1.24	0.25*
At the mean	0.84	0.88	0.07
One SD above mean	-1.30	1.33	0.33

* $p < 0.05$

Model 12: Generalized Anxiety Disorder. Additionally, White Participant's GAD increased 1.61 points for every one unit increase in neighborhood disorder and 2.11 for youth with an incarcerated parent relative to those without an incarcerated parent [$F(4, 175)= 6.67$, $p<0.00$, $r^2 =0.13$] (see Figure 15 for a graphical representation of the main effect and Table 10 for the full model). Research site did not significantly predict a change in MDD. However, the relationship between parental incarceration and MDD was significantly moderated by neighborhood disorder among White participants.

Reflecting the patterns previously described among White participants, the relationship between parental incarceration and GAD, the interaction was probed by testing the conditional effects of parental incarceration at low, moderate, and high levels of neighborhood disorder. When neighborhood disorder is low, the predicted level of GAD among youth with incarcerated parents is 3.69 points higher than those without incarcerated parents ($p < 0.00$). At the mean levels of disorder, parental incarceration predicted an increase of 2.11 in GAD ($p < 0.00$). However, at high levels of neighborhood disorder, parental incarceration does not change predicted levels of GAD among White participants ($p=0.60$). The conditional relationship between parental incarceration and neighborhood disorder on White youth's predicted levels of GAD is described in Table 9.

Figure 14.

Interaction of Parental Incarceration and Neighborhood Disorder on Predicted GAD in White Participants

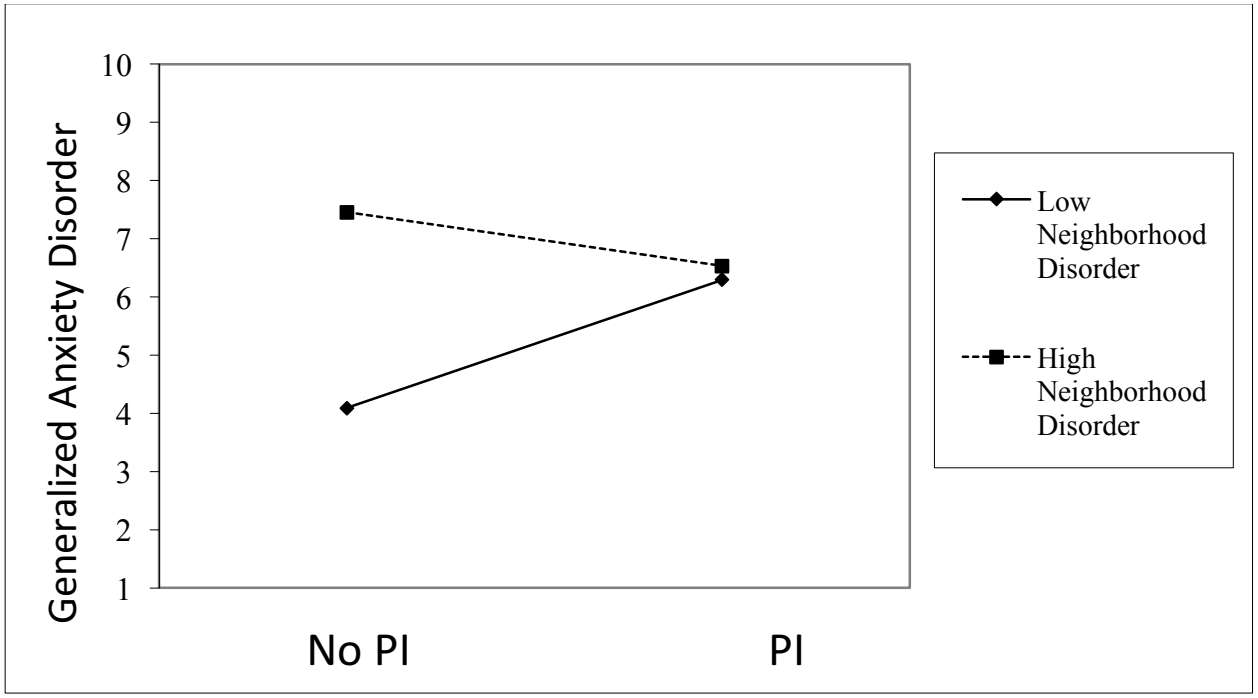


Table 8.

Conditional Effects of Parental Incarceration on Predicted GAD at High, Moderate, and Low Levels of Neighborhood Disorder among White Youth

Neighborhood Disorder	B	SE B	β
One SD below mean	3.69	0.97	0.38*
At the mean	2.11	0.69	0.22*
One SD above mean	0.55	1.30	-0.23

*$p < 0.05$

Table 9.

Summary of Multiple Regression Analysis for Variables Predicting Mental Illness among White Youth

Variable	Model 11: Major Depressive Disorder			Model 12: Generalized Anxiety Disorder		
	B	SE B	β	B	SE B	β
Constant	6.09	0.37		6.10	0.18	
Parental Incarceration	0.84	0.88	0.07	2.12	0.69	0.22*
Neighborhood Disorder	1.61	0.61	0.19*	1.61	0.48	0.24*
Parental Incarceration x Neighborhood Disorder	-3.63	1.68	-0.16*	-2.67	1.31	-0.15*
Research Site	1.14	0.88	0.10	0.62	0.68	0.07
R^2		0.08			0.11	
F		5.06			3.84	

*$p < 0.05$

Power Analysis

Post-hoc power analyses were conducted across all reported models. A summary of each model's sample size, effect size, and number of predictors used to calculate power is detailed in Table 11. In all cases, alpha level was set to 0.05. Results ranged from 0.85 to 0.99, indicating that the present study has sufficient power for detecting a true effect.

Table 10.

Summary of Power Analyses for All Regression Models

	Models Predicting MDD			
	Sample Size	Effect Size *(Cohen's f^2)*	Number of Predictors	Power

Table 10. (cont'd)

Model 1 *(Hispanic/Latinx as reference)*	1,216	0.03	5	0.99
Model 2 *(Black as reference)*	1,216	0.04	5	0.99
Model 3 *(White as reference)*	1,216	0.05	5	0.99
Model 7 *(Hispanic/Latinx only)*	557	0.03	4	0.98
Model 9 *(Black only)*	449	0.04	4	0.98
Model 11 *(White only)*	180	0.09	4	0.98
Models Predicting GAD				
Model 4 *(Hispanic/Latinx as reference)*	1,216	0.03	5	0.99
Model 5 *(Black as reference)*	1,216	0.03	5	0.99
Model 6 *(White as reference)*	1,216	0.04	5	0.99
Model 8 *(Hispanic/Latinx only)*	557	0.04	4	0.98
Model 10 *(Black only)*	449	0.02	4	0.85
Model 12 *(White only)*	180	0.13	4	0.99

Assumptions of Regression

Regression assumptions of normality, absence of multicollinearity, and homoscedasticity were respectively evaluated by examining Predicted Probability (P-P) Plots, Variance of Inflation (VIF) factors, and scatterplots of residual values. Results indicate that all models sufficiently meet criteria for normality, no multicollinearity, and homoscedasticity. A complementary report detailing the results of assumption testing across all regression models is available upon request.

DISCUSSION

The central questions of the present study ask: does neighborhood disorder further alienate delinquents with incarcerated parents, resulting in poorer mental health outcomes? Or rather, does neighborhood disorder serve as a protective factor due to the strength of social ties within these communities? The answer, it seems, is both.

Neighborhood disorder was associated with greatest increase in mental illness across all models. There is no doubt that children in disordered neighborhoods navigate a number of systematic barriers which create significant strain on mental health. Results yielded consistently highlight urgent need to better address neighborhood risk in promoting wellbeing among juvenile delinquents, regardless of their parent's status.

However, the present study additionally recognizes resilience that lies within youth who belong to communities or identities which have historically targeted by patterns of mass incarceration. Both youth of color and youth living in disordered neighborhoods experienced no observed increase in mental illness when a parent is incarcerated. On the other hand, the predicted mental illness of White youth in non-disordered communities was significantly greater when a parent is incarcerated. These findings speak to the strong capacity to cope with issues related to incarceration within historically marginalized communities.

Full Sample Findings

Models drawing upon the full sample highlight the detrimental impact of neighborhood disorder on youth wellbeing. Across all models, neighborhood disorder predicted the greatest increases in mental illness symptomology (both GAD and MDD) above and beyond the influence of parental status, race, or region. These findings speak to the importance of promoting equity within disordered neighborhoods in order to promote youth mental wellbeing.

Several models across the sample at large suggest that parental incarceration is additionally associated with elevated levels of mental illness. Specifically, parental incarceration was associated with elevated levels of MDD when controlling for variation in Hispanic/Latinx participants, and GAD when controlling for variation in both Hispanic/Latinx and White participants. The subsequent models which examine this relationship across racial/ethnic groups provide greater insight into the circumstances under which parental incarceration does and does not influence juvenile mental health.

Findings by Race/Ethnicity

In accordance with the findings from the sample at large, neighborhood disorder predicted the greatest increase in mental illness across all racial/ethnic groups. However, the main effect of parental incarceration and the interaction between parental incarceration and neighborhood disorder yielded significant increases in mental illness among White participants alone. Simple slopes testing revealed that when White participants live in non-disordered neighborhoods, parental incarceration predicted a significant increase in juvenile mental illness. However, when White participants live in neighborhoods characterized by comparatively high levels of disorder, juvenile mental health was not affected by parental status. These findings suggest that youth of color and youth living in disordered communities may have developed resilience against the adverse effects of parental incarceration; on the other hand, White youth in non-disordered neighborhoods appear to be particularly vulnerable.

Implications

Research. Prior research indicates that over 90% of first-time delinquents desist from future offending after initial contact with the juvenile justice system. However, having a history of family criminality significantly increases the likelihood of persistent offending throughout the

life course. As a result, understanding the mechanisms which protect justice-involved youth with a history of family criminality from adversity is an area of immediate concern. In utilizing a sample of first-time juvenile offenders, the present study is ideally suited towards promoting wellbeing among this vulnerable population.

Furthermore, these results have greater significance when interpreted through the lens of racial injustice within the criminal justice system. Mass incarceration has disproportionately affected communities of color, contributing largely to disparities in income, education, and social mobility (Yoshikawa, Aber, & Beardslee, 2012). However, evidence suggests that these communities have subsequently developed stronger capacity to address issues related to incarceration (Yoshikawa et al., 2012). The present results lend support to this assertion, as parental incarceration does not predict change in mental health among Hispanic/Latinx or Black juveniles. While further research is warranted in order to understand the exact causal mechanisms behind this association, it is possible that the stigma associated with having a loved one in prison may be diminished in communities of color, due to its relative frequency of occurrence.

While similar patterns are observed in Hispanic/Latinx and Black youth, it is important to note that youth of color are not monolithic. Indeed, findings indicate that levels of mental illness in Hispanic/Latinx participants are significantly elevated relative to both Black and White participants. One possible explanation for this pattern is that contact with the criminal justice system may be particularly stressful for first- and second-generation Hispanic/Latinx youth, whose documentation status may be subsequently called into question (Yoshikawa & Kalil, 2011). While the present findings cannot provide supporting evidence to this claim, it is

nonetheless important to recognize that experiences of contact with the justice system are unique across all racial/ethnic groups.

Furthermore, the present findings indicate that the association between parental incarceration and mental illness in White youth is informed by their level of neighborhood disorder. Specifically, parental incarceration did not change predicted mental illness for White youth living in disordered neighborhoods. One possible explanation for this observation is that disordered communities are characterized by higher crime rates; as a result, youth within these neighborhoods may have greater capacity to cope with issues related to incarceration relative to youth in non-disordered neighborhoods. On the other hand, White youth in non-disordered neighborhoods appeared to be the most vulnerable to mental illness associated with parental incarceration. White, non-disordered communities consistently report the lowest rates of crime (Dumont, Allen, Brockmann, Alexander, & Rich, 2013). These neighborhoods may be poorly equipped to address the challenges associated with incarceration for children and families. While further research is warranted to confirm these causal mechanisms, this lack of capacity within White, non-disordered neighborhoods may translate into elevated levels of mental illness for youth affected by parental incarceration.

Policy. Drawing upon a sample of juvenile offenders presents a unique strength for informing juvenile risk assessment policy. Juvenile risk assessment here refers to the practice of evaluating arrested minors in order to determine their likelihood of recidivism and the type of intervention needed in the rehabilitation processes (Towberman, 1992). This evaluation is conducted relative to several areas of risk, including the youth's family and neighborhood. Current policy operates under the assumption that there is an additive relationship between family risk factors (e.g., having an incarcerated parent) and neighborhood risk (e.g., living in a

disordered neighborhood), such that a delinquent that demonstrates risk in both domains would be doubly at risk for recidivating, thus warranting more intensive intervention. Because the present study does not directly examine recidivism as an outcome, it is impossible to draw direct connections to risk assessment. However, results yielded provide preliminary evidence that the assumptions of juvenile risk assessment policies are flawed. Specifically, neighborhood risk can serve as a protective factor for youth who demonstrate family risk. Furthermore, White youth who demonstrate family risk alone appear to be equally vulnerable to adversity when compared to those who demonstrate risk in both domains. These findings necessitate further investigation and possible revision of juvenile risk assessment procedures.

Practice. The present results have important implications towards best practice in case planning for juvenile delinquents, particularly in addressing neighborhood risk. First, the present results speak to the detrimental impact of living disordered neighborhoods for youth wellbeing. In order to promote wellbeing among this population, it is imperative that intervention look beyond individual mental health treatment and address systematic inequalities at the broader scale. It is ill-advised to expect sustainable and long-term improvement in mental health of juvenile offenders without first examining and addressing the embedded context.

The present findings additionally speak to the benefits of social connectivity within the context of parental incarceration. Youth from communities that are more profoundly impacted by mass incarceration are protected from additional challenges in mental illness associated with parental incarceration. This is likely due in part to greater collective understanding and resilience within these communities. In terms of case planning, it is important to connect youth without this level of capacity to other children and families outside of their neighborhood who are experiencing parental incarceration. Fostering these networks of support outside neighborhood

boundaries will lessen the experience of ambiguous loss by creating space for youth to talk openly about their incarcerated parent without fear of stigma or judgement.

Limitations

Data. Broadly, it is important to note neighborhood disorder and parental incarceration represent a small fraction of known determinants of adolescent mental health. Other relevant variables, including biological, psychological, and social markers, lie well beyond the scope of the data analyzed. The omission of these relevant variables of limits the extent to which the present finding accurately and comprehensively predict adolescent mental health.

The all-male sample creates limitations for interpretation and generalizability of results. Girls represent approximately one in four juvenile offenders; furthermore, evidence suggests that meaningful differences in mental health exist between adolescent girls and boys (Hoyt & Scherer, 1998; McCabe, Lansing, Garland, & Hough, 2002). As a result, the present findings cannot speak to the experience of a significant and often overlooked subgroup within the population of interest. Future research can address this limitation by including delinquent girls in the sample.

Results are further limited by the dichotomization of parental incarceration. The duration of parent's detention, the quality of the prior parent-child relationship, and the child's age at the time of their parent's detention all likely inform the extent to which parental incarceration influences youth wellbeing. Further research is warranted in order to better understand the variation in experience among children with incarcerated parents.

Finally, it is important to recognize the limitations of using self-reported measures to capture youth mental illness. Such measures cannot be linked to a mental health diagnosis from a practitioner. As a result, it is impossible to determine if the results yielded correspond to rates of

clinical diagnoses. Furthermore, self-reported measures are often developed in accordance with White standards in mind. These instruments are likely less sensitive to different symptoms of mental illness among Black or Hispanic/Latinx participants (Rawal, Romansky, Jenuwine, & Lyons, 2004). As a result, the proposed models may not accurately capture the experience of non-White youth. Future research may consider triangulating the self-reported measures with assessments by culturally competent mental health practitioners to circumnavigate these limitations.

Analysis. Given the nature of the dataset, it is important to recognize how participant responses may violate the assumption of independence in regression. While the research sites themselves were selected because of the high degree of variation within encompassing neighborhoods, it is reasonable to assume that participants were likely clustered within neighborhoods characterized by higher rates of crime. In such cases, it is best practice to use multilevel modeling with neighborhood as a nesting variable to account for unobserved neighborhood characteristics that contribute youth outcomes. However, capturing neighborhood as a nesting variable was not feasible for the scope of the present study. Participant's ZIP codes are not a part of the dataset. Furthermore, there is considerable variation within ZIP codes which make them a poor proxy for neighborhood. With this in mind, it is important to acknowledge that the effect sizes yielded may be attenuated by sample dependence.

Future Directions

The interpretation of results yielded from the present study is informed by a large body of theoretical and empirical research. However, it is important to recognize that this body of research has historically excluded the voices of the affected populations in the sense-making process. Reflecting upon my own privileges, biases, and identity as a researcher, I acknowledge

that my interpretation may not accurately reflect the lived experiences of juvenile delinquents with incarcerated parents. It is very possible that there are additional mechanisms contributing to the observed findings which lie beyond the scope of this study. In order to refine my conclusions, I hope to use the present findings as a framework for a more rigorous mixed-method study, using focus groups or qualitative interviewing to better understand variation in community responses to parental incarceration among juvenile offenders. Until these findings include the voices of juvenile delinquents with incarcerated parents, the current study is limited.

Conclusion

The number of children with incarcerated parents in the United States is historically unprecedented (Glaze & Maruschak, 2010). There are many alarming outcomes that are associated with parental incarceration, reflected within and beyond the scope of the present study. While focusing on these outcomes alone provides an incomplete understanding of the full impact of mass incarceration on children, there are several reasonable implications to be made from these conclusions. Most saliently, youth with incarcerated parents are not doomed to insurmountable mental illness. Promoting equity in marginalized communities and meaningful connections between youth affected by parental incarceration can reduce patterns of adversity. The future of hundreds of thousands of children depends upon this reform.

APPENDICES

APPENDIX A: Family Members Involved in Criminal Activity

Has anyone in your family ever committed a crime? (I won't ask for their names).
Interviewer: Include grandparents, parents, brothers, and sisters (even if they don't live at home), or any other relatives living at home, birth or otherwise.

(1) Yes
(5) No

If Yes:

	What is the relationship to you of the family member who was involved in criminal activity	**Was this person arrested?**	**Was this person jailed?**	**Did this person live at your home address when they were involved in criminal activity?**
Family Member 1				
Family Member 2				
Family Member 3				
Family Member 4				
Family Member 5				
Family Member 6				
Family Member 7				
Family Member 8				
Family Member 9				

Relationship Codes:
11. Biological Father
12. Biological Mother
13. Biological Sister
14. Biological Brother
15. Biological Grandmother
16. Biological Grandfather
17. Stepfather
18. Stepmother
19. Stepsister
20. Stepbrother
21. Adoptive Father
22. Adoptive Mother
21. Adoptive Sister
24. Adoptive Brother
25. Wife
26. Husband
27. Son
28. Daughter
29. Aunt

30. Uncle
31. Female Cousin
32. Male Cousin
33. Nephew
34. Niece
35. Live-in boyfriend/girlfriend
36. Female Friend
37. Male Friend
38. Boyfriend (not live-in)
39. Girlfriend (not live-in)
40. Male Roommate
41. Female Roommate
43. Professional Relationship
44. Foster mother
44. Foster father
45. Foster brother
46. Foster sister
47. Mother of my child (if no other category applies)
48. Father of my child (if no other category applies)
49. Stepson (non-biol. child in subject's care)
50. Stepdaughter (non-biol. child in subject's care)
51. Fiancée
52. Foster daughter
53. Foster son
95. Other relative
96. Other (not biologically related)
97. NA

APPENDIX B: Neighborhood Disorder

You mentioned earlier that you lived at [home name] for the longest time period in the past six months.
Thinking about the neighborhood around [place lived in the most]…How often does each of the following occur within your neighborhood?

	Never	Rarely	Sometimes	Often
1. Cigarettes on the street or in the gutters?	(1)	(2)	(3)	(4)
2. Garbage in the streets or on the sidewalk?	(1)	(2)	(3)	(4)
3. Empty beer bottles on the streets or sidewalks?	(1)	(2)	(3)	(4)
4. Boarded up windows on buildings?	(1)	(2)	(3)	(4)
5. Graffiti or tags?	(1)	(2)	(3)	(4)
6. Graffiti painted over?	(1)	(2)	(3)	(4)
7. Gang graffiti?	(1)	(2)	(3)	(4)
8. Gangs (or other teen groups) hanging out?	(1)	(2)	(3)	(4)
9. Abandoned cars?	(1)	(2)	(3)	(4)
10. Empty lots with garbage?	(1)	(2)	(3)	(4)
11. Condoms on sidewalk?	(1)	(2)	(3)	(4)
12. Needles or syringes?	(1)	(2)	(3)	(4)
13. Political messages in graffiti?	(1)	(2)	(3)	(4)
14. Adults hanging out on the street?	(1)	(2)	(3)	(4)
15. People drinking beer, wine, or liquor?	(1)	(2)	(3)	(4)
16. People drunk or passed out?	(1)	(2)	(3)	(4)
17. Adults fighting or arguing loudly?	(1)	(2)	(3)	(4)
18. Prostitutes on the streets?	(1)	(2)	(3)	(4)
19. People smoking marijuana?	(1)	(2)	(3)	(4)
20. People smoking crack?	(1)	(2)	(3)	(4)
21. People using needles or syringes to take drugs	(1)	(2)	(3)	(4)

APPENDIX C: Revised Children Anxiety and Depression Scale (RCADS)

Please select the word that shows how often each of these things happen to you. There are no right or wrong answers.

	Never	Sometimes	Often	Always
I worry about things	(1)	(2)	(3)	(4)
I feel sad or empty	(1)	(2)	(3)	(4)
Nothing is much fun anymore	(1)	(2)	(3)	(4)
I have trouble sleeping	(1)	(2)	(3)	(4)
I worry that something awful will happen to someone in my family	(1)	(2)	(3)	(4)
I have problems with my appetite	(1)	(2)	(3)	(4)
I have no energy for things	(1)	(2)	(3)	(4)
I am tired a lot	(1)	(2)	(3)	(4)
I worry that bad things will happen to me	(1)	(2)	(3)	(4)
I cannot think clearly	(1)	(2)	(3)	(4)
I worry that something bad will happen to me	(1)	(2)	(3)	(4)
I feel worthless	(1)	(2)	(3)	(4)
I worry about what is going to happen	(1)	(2)	(3)	(4)
I think about death	(1)	(2)	(3)	(4)
I feel like I don’t want to move	(1)	(2)	(3)	(4)
I worry when I go to bed at night	(1)	(2)	(3)	(4)
I feel restless	(1)	(2)	(3)	(4)

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