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Neighborhood Disorder and Adolescent Psychological Distress:  
Effects of Gender, Race/Ethnicity, Social Support, and Self Concept

By

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DISSERTATION

Submitted to the University of New Hampshire  
in Partial Fulfillment of  
the Requirements for the Degree of

Doctor of Philosophy

in

Sociology

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This dissertation was examined and approved in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Sociology by:

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On July 18, 2022

Approval signatures are on file with the University of New Hampshire Graduate School.

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Jean Bessette

## DEDICATION

This work is dedicated to all of my children, both human and furry.  
I love you all very much and could not have done this without your love and support.

## ACKNOWLEDGEMENTS

I would like to acknowledge the faculty and staff of the UNH Sociology Department for their invaluable support and guidance. In particular, I would like to thank my advisor and chair, Heather Turner, who has pushed me to be a more thoughtful scholar and to remain focused on the objective. A special thanks goes to David Finkelhor, who has always challenged me to broaden my thinking and for that I am grateful. Thanks also go to Heather and David for allowing me to use the data from their National Study of Children's Exposure to Violence, funded by the United States Department of Justice. Thank you to Rebecca Glauber, who has always been helpful with her clarity and direction, and to Kimberly Mitchell and Jennifer O'Brien for their thoughtful contributions and valuable feedback. Their help was crucial to the success of this work.

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## ABSTRACT

Sociological research on mental health is often guided by the stress process framework. A key tenet of this paradigm is the proposition that both exposure and vulnerability to social stressors arise from one's placement in the social structure; those with lower social status face greater exposure and/or greater vulnerability to stressors that detrimentally impact their psychological wellbeing. A consequential social stressor is the neighborhood context in which one resides. Past research has suggested a disadvantageous effect of greater neighborhood physical and social disorder on youth mental health. This research employs the stress process framework to examine how the effects of neighborhood disorder on adolescent psychological distress may vary by two core social statuses: gender and race/ethnicity.

This study employed a pooled sample from two waves of the National Survey of Children's Exposure to Violence (NatSCEV) (N=4407). Hierarchical linear regression was used to test the main effects of neighborhood disorder on adolescent internalizing and externalizing symptoms, the moderating effects of gender and race/ethnicity, and the potential mediating pathways of social and personal resources. Findings demonstrated significant main effects of neighborhood disorder on both internalizing and externalizing symptoms of distress. There were also conditional effects of neighborhood disorder on internalizing symptoms with a stronger association found for girls than for boys. In tests of moderating effects of race/ethnicity, the results were less definitive. For internalizing symptoms of psychological distress, finding showed that the negative effects of neighborhood disorder on mental health were marginally lower for African American youth when compared with White youth. As seen with gender, no

interaction effects were found for externalizing symptoms. Family support, self-esteem, and mastery all significantly mediated the effect of neighborhood disorder on both internalizing and externalizing symptoms with the largest indirect effect found for mastery.

This dissertation adds to the body of accumulating research on neighborhood effects for adolescents by describing more fully the relationship between neighborhood disorder and two indicators of psychological well-being, and reinforces the importance of neighborhood context for adolescents' development. It also offers a contribution to sociological understandings of the stress process and the interplay between social status, resources, and mental health.

## INTRODUCTION

The recent increase in psychological distress for adolescents is a growing public health concern both in the United States and worldwide (Bitsko et al. 2018; Blom et al. 2016; Horowitz and Graf 2019; Merikangas et al. 2010; Mojtabai, Olfson, and Han 2016; Twenge et al. 2019). Psychological distress has a significant impact on families and children and increases the risk for co-occurring issues such as problems in school, parenting challenges, and greater healthcare needs, in addition to the need for the treatment of the mental health disorders (Bitsko et al. 2018). Overall, adolescents report higher rates of depressive symptoms than do adults, and the distribution of mental health disorders across subgroups of adolescents is not uniform, but instead varies by gender and race (Ge, Natsuaki, and Conger 2006; Wight, Sepúlveda, and Aneshensel 2004).

The National Comorbidity Survey Replication Adolescent Supplement (NCS–A) reports that nearly half (49.5%) of adolescents in the United States met the criteria for at least one type of mental disorder, and more than 20 percent also met the criteria for a disorder with severe impairment (Merikangas et al. 2010). In the large nationally representative study, the lifetime prevalence for adolescents of any mood disorder – which includes major depressive disorder, dysthymia, and bipolar disorder – was 14.35%, with 11.2% having a severe impairment (Merikangas et al. 2010). Anxiety disorders were even more common than mood disorders, with 31.9% of adolescents meeting the criteria, and 8.3% classified with severe impairment.

Furthermore, while the COVID-19 pandemic is not a focus of this research, it would be remiss to ignore the proximal and distal effects that this life event will have on adolescent mental

health. Early research on the effects for both adults and adolescents is still emerging (Courtney et al. 2020; O'Reilly et al. 2020; Pfefferbaum and North 2020; Vigo et al. 2020), and the increased mental health challenges due to the COVID-19 pandemic will likely persist, so understanding the risk and protective factors for adolescent mental health, as well as the pathways that connect the exposure to stressors with mental health is crucial (Kousouillis, Antonis et al. 2020; Panchal et al. 2021).

### *Social Determinants of Health and Mental Health*

The social determinants of health and mental health are risk and protective factors that influence wellbeing, and include sociodemographic factors such as socioeconomic status, race and ethnicity, and gender, as well as social contexts such as exposure to violence, and neighborhood social and physical disorder (Allen et al. 2014; Marmot 2005; Silva, Loureiro, and Cardoso 2016; Smedley et al. 2002; Viner et al. 2012). Previous research has substantially illuminated the effects of social determinants on both physical and mental health, and has demonstrated that the level of exposure to stressors and the vulnerability to their effects are functions of one's place in the social structure (Turner and Avison 2003).

### *Neighborhood Disorder and Mental Health*

A key social determinant of mental health and wellbeing is the neighborhood in which one resides (Hill and Maimon 2013; Hill, Ross, and Angel 2005; Ross and Mirowsky 2009). Prior research on neighborhood effects has demonstrated that the characteristics of the neighborhoods that people live in can influence their behaviors, their attitudes, and their physical and mental health (Muñoz et al. 2020; Ross 2011; Rubens et al. 2018). Neighborhood context is particularly salient for developing children and youth, and evidence suggests that it is one of several key factors affecting their mental health and wellbeing (Brooks-Gunn et al. 1993;

Browning et al. 2013; Huang, Edwards, and Laurel-Wilson 2020; Minh et al. 2017; Snedker and Herting 2016).

The social contexts and conditions of neighborhoods may function as either risk or protective factors in terms of influencing the mental health of residents. For example, social order and cohesion in the neighborhood may provide a protective effect for adolescents (Donnelly et al. 2016), while exposure to *neighborhood disorder*, which is characterized by physical and social indicators of the lack of social control in the local environment, is a risk factor for psychological distress (Aneshensel and Sucoff 1996; Browning et al. 2013; Raudenbush and Sampson 1999; Sampson and Raudenbush 2004; Turner et al. 2013).

The signifiers of neighborhood disorder may include the presence of abandoned buildings, graffiti, drug dealers in the streets, public drinking and intoxication, truancy, and gang activity (Coulton, Korbin, and Su 1996; Massey and Denton 1993; Ross and Mirowsky 2009; Sampson and Raudenbush 1999; Turner et al. 2013; Zhang, Eamon, and Zhan 2015; Zuberi and Teixeira 2017).

#### *Gender and Race/Ethnicity*

While neighborhood context, specifically neighborhood disorder, is a key social determinant of mental health and wellbeing as discussed above, it is important to examine social structural factors such as race and gender (Avison and Comeau 2013), which are also key considerations in adolescent mental health outcomes (Adkins et al. 2009; Browning et al. 2013; Clampet-Lundquist et al. 2011; Copeland-Linder et al. 2011; White and Roosa 2012).

*Gender.* While females and males experiences a similar amount of mental health problems, research has suggested that they often experience different manifestations of distress (Aneshensel, Rutter, and Lachenbruch 1991; Kessler 2013; Turner and Lloyd 1999; Turner,



Wheaton, and Lloyd 1995). Typically, women and girls experience more **internalizing** symptoms of distress such as depression and anxiety disorders, and on average, males experience more **externalizing** symptoms of distress, such as anger and substance use, directing their feeling outward rather than inward (Kessler 2013; Merikangas et al. 2010; Mirowsky and Ross 2003; Rosenfield and Mouzon 2013). These differences begin in early adolescence (Nolen-Hoeksema and Girgus 1994), and continue over the adolescent period (Kessler 2013; Mirowsky and Ross 2003; Rosenfield and Mouzon 2013; Twenge and Nolen-Hoeksema 2002).

Several possible explanations have been put forward for this gendered disparity in mental health. The greater rate of internalizing symptoms like depression and anxiety for females may be due to increased exposure to stressors due to gendered social roles (Pearlin 1989; Turner and Lloyd 1999; Turner et al. 1995), or an increased vulnerability to the effects of stressors (Turner and Avison 2003). Others have asserted that these differences may be more disorder-specific than gender-related (Aneshensel et al. 1991), and also contend that findings of gender differences may be related to whether research employs diagnostic categorization criteria or symptom counts.

*Race/Ethnicity.* A considerable amount of research has reported on racial/ethnic differences in psychological distress (Barnes, Keyes, and Bates 2013; Keith et al. 2010; Turner and Avison 2003; Vilsaint et al. 2019; Williams 2018; Williams, Costa, and Leavell, 2017; Williams and Sternthal 2010). This holds true for adolescents as well, where studies have reported differing results by race in regard to mental health symptoms (Assari et al. 2017; Copeland-Linder et al. 2011; Romero et al. 2007; Twenge and Nolen-Hoeksema 2002). For example, one study reported a higher rate of psychological distress symptoms among Hispanic youth (Twenge and Nolen-Hoeksema 2002), but other studies reported higher rates among

African American youth (Gore and Aseltine 2003), Asian American adolescents (Greenberger and Chen 1996), and white adolescents (Dornbusch et al. 1991).

Differences in terms of race/ethnicity and mental health symptoms may not be as consistent as those for gender due to factors such as how race is defined and who does the defining; whether race is treated as a biological factor or a social construct; and varying cultural values within races (Brown et al. 2013; Williams et al. 2017; Williams and Sternthal 2010). Additionally, differential exposure to stressors, including the chronic stress of discrimination and racism as a function of the structural disadvantage faced by historically underserved groups (Geronimus 1992; Vines et al. 2017; Williams et al. 2017), may help to explain some of the findings of race/ethnicity differences in mental health (Turner and Avison 2003).

The proposed research will examine the conditional effects of these two fundamental social statuses—race and gender—on the relationship between neighborhood disorder and adolescent internalizing and externalizing symptoms to more specifically assess how neighborhood disorder may be differentially related to mental health for girls compared with boys, and for adolescents of different racial groups.

### *Social and Personal Resources*

The existing literature on social resources is extensive and research has consistently shown the importance of social support from family and friends in supporting and promoting wellbeing (Hurd, Stoddard, and Zimmerman 2013; Tucker, Finkelhor, and Turner 2020; Turner and Turner 2013). Greater availability of social support has been found to contribute to decreased mental health problems (Dingfelder, Jaffee, and Mandell 2010; van Harmelen et al. 2016; Tucker et al. 2020), and for adolescents, social support from parents, teachers, and community adults was been found to be negatively associated with depression, and positively

associated with wellbeing (Capp et al. 2016). Social support has also been found to partially explain the relationship between neighborhood disorder and disadvantage and mental health (Kim 2010; Turner et al. 2013; Xu et al. 2020). Moreover, different sources of support may differentially affect the relationship between the exposure to stressors in different domains and psychological distress. For instance, one study found that family support mediated the relationship for adolescents between experiences of adversity within the family and depressive symptoms, while friend support mediated the relationship between peer bullying and depressive symptoms for adolescents (van Harmelen et al. 2016).

The literature on self-concept has highlighted several important ways that it functions in relation to stressors and mental health. Mastery and self-esteem, in particular, are two fundamental facets of self-concept. Self-esteem as a "...favorable or unfavorable attitude towards the self" (p. 15), (Rosenberg 1965), points to aspects of an individual's feelings of self-worth, and whether they value and like themselves. Mastery, also known as the sense of personal control (Mirowsky and Ross 2003), refers to the extent to which one feels that the things they want to accomplish are within their own power to do, and that the outcomes are not determined by chance or fate, but by their own personal effort and agency (Pearlin and Schooler 1978). Stressors such as neighborhood disorder can negatively affect self-concept, which in turn, may affect negatively impact mental health (Thoits 2013).

These social and personal resources may be especially important in the wellbeing of developing adolescent, and this study therefore sets out to conduct a mediation analysis to assess whether social and personal resources help to explain the association between neighborhood disorder and adolescent psychological distress.

### *Statement of the Problem*

Given the recent increased risk of psychological distress during adolescence, as well as the key role that neighborhoods play in mental health and wellbeing, it is vital to understand the relationship between neighborhood disorder and psychological distress for adolescents, how it varies between population subgroups, and what social and personal resources might help adolescents to cope with the effects. While it is well-documented that neighborhood social and physical disorder may have a negative impact on adolescent mental health, what is less clear is how race/ethnicity and gender may interact with neighborhood disorder to differentially predict psychological distress; in other words, how neighborhood disorder matters, and for whom. The proposed study will investigate these factors to more fully elaborate these relationships.

### *Significance*

Situated in the significance of the recent increase in mental health challenges for adolescents and relying on the scaffolding of the stress process framework, this research will provide a clarification of selected risk and protective factors for adolescents in order to better understand the distribution of psychological distress, and to illuminate potential pathways of intervention in the service of promoting more resilient, safe, and sturdy young people in a gender responsive and culturally sensitive manner (Luthar and Cicchetti 2000; Slopen and Williams 2021; Ungar 2008).

Clarifying the relationship between exposure to neighborhood disorder and psychological distress for adolescents by race/ethnicity and gender, as well as the potential mediating effects of social and personal resources, may help guide professionals and others working with youth to refine program strategies to more effectively meet the needs of various groups of adolescents, thus improving life chances and wellbeing for them as they mature (Grych et al. 2020).

Supporting youth with intervention strategies designed to meet them where they are and help them to develop resilience will ideally mitigate the burden of psychological distress both contemporaneously, and in adulthood.

### *Purpose of the Study*

This study aims to build on extant research and to contribute to this body of knowledge by closely examining the effects of neighborhood disorder on **internalizing** and **externalizing** symptoms of psychological distress, specifically the conditional effects of race/ethnicity and gender on depression, anxiety, trauma, anger, and dissociation, while also gauging the mediating effects of social and personal resources. While previous research has examined the impact of neighborhood disorder on mental health, this project will contribute to that work by looking for more nuance and complexity in these relationships by examining internalizing and externalizing symptom clusters while including moderators and mediators in the modeling. Prior research has found race and gender effects of stressors on adolescent mental health, which prompts a fuller examination of the conditional effects of gender and race/ethnicity on the relationship between neighborhood disorder and psychological distress. Examining the potential moderating effects of race and gender will provide a more complex portrait of the relationship, for whom it matters, and how. Assessing the direct and indirect effects of neighborhood disorder on psychological distress through social and personal resources, will further help to specify these processes.

### *Theoretical Approach*

The sociological study of mental health examines how social status, social structures, and social contexts affect mental health, and the distribution of psychological distress in the population. A sociological orientation aims to examine the epidemiology of psychological distress by focusing on group differences, rather than taking a more diagnostic and

individualistic approach. The stress process framework, a key sociological perspective that undergirds this study, is a theoretical approach to understanding disparities and wellbeing based on social statuses and structures that produce differential exposure to social stressors, as well as the differential vulnerability of various status groups, and the social and personal resources that are available to them (Pearlin 1989; Pearlin et al. 1981; Pearlin and Bierman 2013).

Prior evidence of the relationship between social statuses, such as race and gender, and psychological distress, as well as research demonstrating status differences in both exposure and vulnerability to social stressors, supports the stress process as a particularly suitable framework for the current study.

### *Research Design and Methods*

The National Survey of Children's Exposure to Violence (NatSCEV) was designed to obtain incidence and prevalence estimates of a wide range of childhood victimizations and is the largest and most comprehensive survey ever devoted to childhood victimization (Finkelhor et al. 2009; Finkelhor et al. 2015). Conducted in 2008 and 2011, the surveys assessed the experiences of a nationally representative sample of children ages 0 to 17 years of age living in the contiguous United States. The analysis for the current study used pooled data from both survey waves for a total sample size of 4407 children aged 10 to 17 years, who were directly queried about their experiences (Finkelhor et al. 2015).

There are several important strengths of this dataset for the purposes of this research. While previous research on the effects of neighborhood disorder on adolescent mental health may have been limited by a smaller sample sizes or constrained locations, (Aneshensel and Sucoff 1996; Browning et al. 2013), as a large nationally representative probability sample, these data allow for greater generalization of the findings to the broader population of adolescents.

Additionally, the large sample size enabled by pooling the two national surveys and the oversampling of underrepresented populations provided more power for subgroup analyses.

The current study employed bivariate and multivariate methods to examine the relationship between neighborhood disorder and psychological distress; the conditional effects of gender and race/ethnicity on the relationship between neighborhood disorder and internalizing and externalizing symptoms; and the mediating effects of social and personal resources on the relationship between neighborhood disorder and distress.

### *Definition of Key Terms*

It is advisable here to clarify exactly what is meant by neighborhood disorder as distinct from neighborhood disadvantage, as these terms are related, but not congruent. *Neighborhood disorder*, also referred to as community disorder, is related to the social and physical signs of the lack of social control, whereas *neighborhood disadvantage* pertains first and foremost to economic hardship and lack of tangible resources.

In this study, the dependent variable of interest, *psychological distress*, is composed of responses to questions drawn from the Trauma Symptom Checklist for Children (TSCC) (Briere 1996). Specifically, responses to items from five sub-scales of the TSCC including: Anger/Aggression; Depression; Anxiety; Dissociation; and Post-Traumatic Stress were employed to assess both **internalizing** and **externalizing** symptom clusters as reported by the adolescent respondents.

## *Research Questions*

Based on the previous discussion, the following questions will guide the proposed research:

- 1. To what extent does neighborhood disorder influence adolescent psychological distress? Specifically, how does neighborhood disorder affect internalizing and externalizing clusters of symptoms of psychological distress?*
- 2. Is the relationship between neighborhood disorder and psychological distress moderated by gender, that is, does the relationship differ for female adolescents compared with male adolescents?*
- 3. Is the relationship between neighborhood disorder and psychological distress moderated by race, that is, does the relationship differ for adolescents of different races/ethnicities?*
- 4. Do social and personal resources explain the relationship between neighborhood disorder and psychological distress for adolescents? Specifically, does family support, friend support, mastery, or self-esteem mediate the relationship between neighborhood disorder and psychological distress?*

The corresponding conceptual model reflecting the research questions above appears in the Methods chapter.



## I. REVIEW OF THE LITERATURE

This chapter provides a description of neighborhoods and neighborhood disorder, as well as an elaboration of the Stress Process Framework, the foundation upon which this dissertation is developed. It also considers the social status variables of gender and race in the context of neighborhood disorder, and the role of social and personal resources in the relationship between neighborhood disorder and adolescent psychological distress.

### *Neighborhoods*

Neighborhoods are an especially important social context for children and youth, and some of the most well-developed research on neighborhoods is that of their influence on multiple dimensions of child and adolescent development, including educational, health, behavioral, social, and psychological outcomes (Clampet-Lundquist et al. 2011; Leventhal and Brooks-Gunn 2000). In fact, neighborhood conditions experienced during childhood are so influential, that they may have even more of an impact on adult wellbeing than neighborhood conditions that are experienced as an adult (Vartanian and Houser 2010).

The negative effects of living in a disadvantaged neighborhood, including poverty and lack of social order, were brought to the fore with *The Truly Disadvantaged*, Wilson's essential book on the effects of the concentration of urban poverty in the 1970s and 1980s (Wilson 1987), and a large body of evidence illustrates these negative effects of neighborhood disadvantage on wellbeing for children and adults (Aneshensel 2010; Aneshensel and Sucoff 1996; Hill et al. 2005; Turner et al. 2013). An important question in the neighborhood effects literature is the

mechanism by which neighborhoods might act on residents to produce these disadvantageous effects, and how these social processes exert their influence on the well-being of children and adolescents (Sampson, Morenoff, and Gannon-Rowley 2002).

*Conceptualizing neighborhoods.* With the aim of assessing neighborhood effects and their relationship to physical and mental health, neighborhoods themselves must be defined. Both objective and subjective approaches regarding this characterization have been employed in the body of literature on neighborhood effects. Objective formulations of neighborhoods include geographically-bounded areas such as census tracts, city blocks, or researcher-defined areas (Small and Newman 2001). While objective boundaries, such as census tracts, may seem more precise, the actual delineation of neighborhoods in that manner may not be as important as is the subjective perceptions of the residents of the neighborhoods in question (Sharkey and Faber 2014), which may more accurately reflect how the neighborhood is actually experienced by residents (Coulton 2012).

### *Neighborhood Disorder*

Neighborhood disorder is defined by the physical and social indicators of the lack of social control in the vicinity. The physical signs of disorder typically include factors that might also be considered signs of poverty or disinvestment in the neighborhood (Sampson and Raudenbush 1999), while social disorder may manifest as low-level crimes or behaviors considered threatening by residents. Physical and social cues of disorder include the presence of abandoned buildings, graffiti, drug dealers in the streets, public drinking and intoxication, truancy, and gang activity (Coulton et al. 1996; Massey and Denton 1993; Ross and Mirowsky 2009; Sampson and Raudenbush 1999; Turner et al. 2013; Zhang et al. 2015; Zuberi and Teixeira 2017).

An influential perspective on neighborhood disorder in the past, Broken Windows Theory, purported that signs of physical disorder, such as graffiti and deteriorating buildings may give potential criminals the idea that residents are not engaged and do not care about the neighborhood, thereby creating a type of permission structure to engage in crime (Wilson and Kelling 1982). More recent research, however, has called into question this association of signs of physical deterioration with increased crime (Raudenbush and Sampson 1999), and suggests that both neighborhood disorder and neighborhood crime are components of the concept of neighborhood collective efficacy (O'Brien, Farrell, and Welsh 2019). When residents perceive that there is disinvestment in their neighborhood due to the physical signs of disorder, these perceptions can become internalized and affect their psychological well-being, and may also result in less engagement with neighbors (Haney 2007; Ross and Mirowsky 2009).

*Measuring neighborhood disorder.* In order to determine the effects of neighborhood disorder on the wellbeing of residents, disorder must be operationalized and measured. Some studies assess social and physical disorder separately, while some include various measures in the same instrument. Measures of neighborhood disorder can be objective, such as structured observation or social indicators, or subjective, as in surveys of the perceptions of neighborhood disorder for residents (O'Brien et al. 2019). Objective measurement of neighborhood disorder may employ tools such as social indicators to develop a portrait of a neighborhood, ranging from neighborhood crime and the percent of housing that is vacant, to the racial/ethnic composition of neighborhoods, and neighborhood unemployment rates (Hill and Maimon 2013). The indicators may be examined individually or combined to create composite indices of neighborhood disorder (Mason et al. 2017). Another objective method, Systematic Social Observation (SSO) of neighborhood disorder, employs independent and replicable methods of assessment of

neighborhoods, and attempts to keep the measurement independent of what is being measured to avoid potential confounding effects (Perkins and Taylor 1996; Reiss 1971; Sampson and Raudenbush 1999; Taylor, Shumaker, and Gottfredson 1985). SSO entails direct, systematic observation of neighborhoods by trained observers to assess social and physical disorder cues in the environment (Browning et al. 2013; Parsons et al. 2010; Raudenbush and Sampson 1999; Reiss 1971; Sampson and Raudenbush 2004).

*Subjective measurement.* Subjective measures of neighborhoods and neighborhood disorder include surveys or interviews to assess residents' perceptions of social disorganization cues in their neighborhoods. While there are concerns for possible same-source bias by measuring disorder as the perception of the focal individual who is also the person who reports the outcome of interest, these perceptions represent the actual lived experience of the person in the neighborhood (O'Brien et al. 2019). Self-reported assessments may have the potential for confounding the measurement with the outcome of interest, but they may still be the most relevant measure even if the perceptions are not fully congruent with the actual extent of disorder in the neighborhood of interest (Franzini et al. 2008; Sampson and Raudenbush 2004).

*Convergence of perceived and objective measures of disorder.* Research on the convergence of objective and subjective measures of neighborhood disorder indicates that they do tend to measure similar phenomena. Surveys of resident perceptions and trained observers of blocks performed equally well in predicting resident fear of crime in the neighborhood (Perkins and Taylor 1996). Additionally, "... respondents are generally accurate and objective in reporting outward signs of distress or disorder in their neighborhood" (Haney 2007). Resident perceptions of neighborhood disorder may incorporate not only observed cues in the neighborhood, but may also be influenced by their individual characteristics (Franzini et al.

2008; Sampson and Raudenbush 2004). The current research uses a measure of perceived neighborhood disorder, since the goal is to understand how adolescents' experiences of their neighborhood affects their mental health. Turner and colleagues developed a scale of community disorder which was employed in the National Survey of Children's Exposure to Violence (NatSCEV), and is composed of nine items that examine the social and physical disorder in children's and adolescents' neighborhoods (Turner et al. 2013).

### *The Stress Process Framework*

The sociological study of mental health examines how forces external to the individual, such as social structures and social processes, affect mental health, as well the differential distribution of distress and disorder in the population (Aneshensel 2010, 2015; Mirowsky and Ross 2003; Pearlin 1989; Pearlin et al. 1981). The stress process framework, a theoretical approach to understanding disparities and wellbeing across multiple social statuses (Pearlin and Bierman 2013), elaborates the ways in which the exposure to social stressors is related to mental and physical health (Pearlin 1989; Pearlin et al. 1981; Pearlin and Bierman 2013).

A key component of this framework is the concept of social stressors, which are "conditions of threat, challenge, demands, or structural constraints that, by the very fact of their occurrence or existence, call into question the operating integrity of the organism" (Wheaton et al. 2013:300). The stress process model explicates the process by which exposure to social stressors can result in stress for the individual, which is "...a process in which environmental demands tax or exceed the adaptive capacity of an organism, resulting in psychological and biological changes that may place persons at risk for disease" (Cohen, Kessler, and Gordon 1995:3).

*Social stressors.* Social stressors occur on a continuum, ranging from major life events to ongoing, chronic stressors, and occur within different levels of social context, from micro or personal contexts to meso-level contexts, such as school and neighborhood, and broader macro contexts such as the worldwide virus pandemic, or structural racism (Wheaton et al. 2013). Experiencing stressors may create stress on the individual and challenging their functioning capacity and taxing their ability to cope. The exposure to stressors often requires a readjustment psychologically or a change in behavior to accommodate the new reality of the stressor, whether it is a sudden trauma such as a natural disaster or an ongoing adversity such as living in poverty (Pearlin et al. 1981). Moreover, the more exposures one experiences, the more accommodation or change is required, and this process of having to accommodate to stressors wears down the ability to cope, placing the individual at risk of distress in mental and physical health outcomes both contemporaneously and prospectively (Allen et al. 2014; Marmot 2005; Pearlin et al. 1981; Wheaton et al. 2013).

*Social distribution of stressors.* The Stress Process framework posits that social stressors are not distributed in a random fashion in the population, and on average, those groups that are disadvantaged by their social statuses are more likely to experience greater distress and disorder and to have fewer resources to buffer the effects of this exposure (Avison, Ali, and Walters 2007; Pearlin 1989; Turner and Avison 2003; Turner and Turner 2005). These differences in structures and statuses produce *differential exposure* to social stressors, and also underlie the *differential vulnerability* of various groups based on these social statuses (Pearlin 1989). *Differential exposure* denotes the process whereby certain groups, based on their social location and personal resources, are more likely to be exposed to stressors, and thus tend to exhibit higher levels of psychological distress (Turner and Avison 2003). For example, living in poverty results in

exposure to more stressors including ongoing financial strains such as not being able to pay bills or buy food for the family, which results in increased psychological distress (Turner 2006, 2007). *Differential vulnerability* specifies the construct whereby the distress associated with certain stressors is worse for some groups than for others, based on their social location. Differential vulnerability implies that those with certain personal or social characteristics are more likely to experience negative effects of exposure to the same stressor than those who have different statuses (Avison et al. 2007; Levy, Owens, and Sampson 2019; Rosenfield and Mouzon 2013). For example, the relationship between perceived neighborhood disorder and psychological distress is different for those with fewer resources than those with more personal wealth (Hill and Maimon 2013; Wight, Ko, and Aneshensel 2011).

### *Social and Personal Resources*

*Social resources.* Social resources are external to the individual, rooted in one's social network, and include constructs such as social capital (Bourdieu 1986; Coleman 1988; Putnam 2000) and social support (Lewis Brown and Ciciurkaite 2017; Turner and Turner 2013).

*Social support* is a key social resource in the stress process model, and is defined as "...assistance or emotional uplift individuals are able to draw from their networks" (Pearlin 1999:169). Social support may help the individual cope with the effects of exposure to stressors on their wellbeing by providing the knowledge that one can count on others in a time of need, and by imparting the belief that one is valued by others (Lewis Brown and Ciciurkaite 2017; Pearlin and Bierman 2013; Turner and Turner 2013).

The primary sources of social support are family support and friend support, and the support may be of multiple types, including emotional support, informational support, and instrumental support (Thoits 1986). Evidence has shown that greater social support is related to

lower psychological distress for adults and for children and youth, as it helps to manage the exposure to stressful phenomena (Dingfelder et al. 2010; van Harmelen et al. 2016; Howard Sharp et al. 2017; Pearlin and Bierman 2013; Pepin and Banyard 2006; Ross and Jang 2000). Moreover, research has shown that while both family support and friend support significantly mediate the relationship between adversity and psychological distress for adolescents, different sources of social support may be more effective in various circumstances and stages of life (van Harmelen et al. 2016; Howard Sharp et al. 2017).

While some previous research has examined the role of social resources in the relationship between neighborhood disorder and psychological distress symptoms (Gapen et al. 2011; Kim 2010; Kim and Ross 2009), very few have looked at the potential mediating effects of social support specifically in the relationship between neighborhood disorder and internalizing and externalizing symptoms for adolescents.

*Perceived social support.* A key concept in the social support literature is that of *perceived* social support as distinct from *received* social support. Perceived social support is the subjective belief that there are people who will support you if you should need help, a perception that develops from experience and a history of social exchanges, and is more of a global assessment, whereas received social support is that which is often provided in a time of struggle (Turner and Turner 2013). There is robust evidence that perceived social support has a stronger positive effect on the relationship between stressors and mental and physical health and wellbeing than does received social support (Cassel 1976; Eagle, Hybels, and Proeschold-Bell 2019; Szkody and McKinney 2019; Turner and Turner 2013; Uchino 2009; Wethington and Kessler 1986). One explanation for this finding is that when one actually receives social support, the recipient is in a position to need help, which may negatively influence their self-esteem or



sense of mastery and cause them to feel inadequate and ultimately create more stress (Turner and Turner 2013; Uchino 2009). The current study, therefore, employs a measure of perceived social support that includes support that the adolescent perceives is available to them from both family and friends.

*Personal resources.* Personal resources are those that are internal to the individual, and are facets of one's self-concept, with two crucial resources being self-esteem and mastery. These resources have adaptive and self-protective functions for individuals, which allow them to avoid, manage, or buffer the negative effects of stressors (Pearlin et al. 1981). Self-esteem refers to an individual's sense of their own value or worth, how much they like or approve of themselves, and if this is a positive self-appraisal, it can be a protective factor in the face of adversity (Rosenberg 1965). Mastery is the belief that one can influence life outcomes by one's own actions (Pearlin and Schooler 1978), a concept that has parallels in such terms as self-efficacy and internal locus of control (Thoits 2013), as contrasted with an external locus of control or fatalism. Mastery is developed through cumulative experiences of success in life, and for some groups the lack of opportunities for success and the inability to achieve their goals may result in a decreased sense of mastery (Pearlin and Bierman 2013). While some prior research has investigated the effects of mastery in the association of neighborhood disorder with psychological distress, (Christie-Mizell and Erickson 2007; Gilster 2014), relatively little has examined the role of self-esteem, or focused on adolescents in particular.

*Social distribution of resources.* Much like the distribution of social stressors, the social distribution of social and personal resources varies by social statuses – including age, gender, race and ethnicity, and economic position – which affects the availability and types of both personal and social resources that an individual can access (Pearlin 1989; Pearlin and Bierman

2013; Thoits 2013; Turner and Marino 1994). Critically, while higher levels of social support, mastery, and self-esteem are typically associated with better mental health, those with the greatest exposure to stressors are often those with the fewest resources to manage the effects of the exposures, and thus suffer more distress (McLeod 2013; Pearlin 1989).

*Given the findings reviewed here, I expect to find that social and personal resources are important contributing factors to the psychological distress levels of adolescents. Specifically, that those with greater resources experience lower levels of internalizing and externalizing symptoms of distress.*

### *Neighborhood Disorder and Psychological Distress*

Previous research has recognized that perceived neighborhood disorder is associated with mental health outcomes (O'Brien et al. 2019) in that residents' perceptions of normlessness and lack of social control in their community can determine the influence of neighborhood disorder on their mental health and wellbeing (Hill et al. 2005; Ross and Mirowsky 2009). Greater perceived neighborhood disorder is associated with higher levels of psychological distress (Aneshensel and Sucoff 1996; Ross and Mirowsky 1999, 2009; Schieman and Meersman 2004; Xu et al. 2020), as well as with fear and mistrust (Ross and Jang 2000). This feeling of risk may create the reality of social isolation, thereby leading to increased psychological distress (Aneshensel and Sucoff 1996; Ross and Mirowsky 2009).

Developmentally, neighborhood disorder likely influences adolescents more than it does younger children, since they are both more exposed and more susceptible to extra-familial influences than younger children who are typically more constrained in their social space and therefore experience neighborhood influences more indirectly, typically through their parents

(Leventhal and Brooks-Gunn 2000). The impacts of neighborhood risk and protective factors on adolescents, are therefore particularly salient in their stage of the development, as they begin to mature into adults (Viner et al. 2012). Greater perceived neighborhood disorder is associated with depression, anxiety, and distress for adolescents (Aneshensel and Sucoff 1996; Browning et al. 2013; Snedker and Herting 2016), while conversely, in neighborhoods that are high in social cohesion and social control (often referred to as collective efficacy), adolescents are less likely to perceive the same cues of social disorder as threatening, and tend to report fewer anxiety and depression symptoms (Browning et al. 2013; Donnelly et al. 2016).

*The prior findings reviewed here support the importance of neighborhood context for adolescent mental health, and therefore I expect to find that there is a robust relationship between these two factors in the current research.*

### *Gender*

Based on their social location and psycho-social resources, certain groups are more likely to be exposed to particular stressors and to be more vulnerable to their effects, thereby experiencing elevated levels of psychological distress (Turner and Avison 2003). Two fundamental social status variables are gender and race, and it is therefore crucial to understand how the relationship between neighborhood disorder and psychological distress for adolescents may be contingent on these characteristics (Adkins et al. 2009; Adkins, Wang, and Elder 2008).

A central concern in the current research is whether there are conditional effects of neighborhood disorder by gender on internalizing and externalizing symptoms of psychological distress for adolescents. The influence of gender broadly for adolescents is evident in multiple areas, including health, mental health, and educational outcomes both in adolescence and

adulthood (Leventhal and Brooks-Gunn 2000; Shakya et al. 2019; Yu, McLellan, and Winter 2021). These gender effects are rooted in conceptions of gender roles, gendered power relations, and the socialization of children into these gendered behavioral expectations (Ferree 2010; Nolen-Hoeksema 2001; Rosenfield and Mouzon 2013).

Social group differences in gender conceptions and practices influence the way it is enacted in everyday life, and this social construction of gender roles and the consequent gender relations of power underpin the practices and enactment for individuals. Historically, it was believed that gender differences originated in nature (Udry 2000), and over time gendered meanings were assigned to various character traits and were valued differently, thus contributing to the gender power differential and driving the division of labor in traditional social groups (Cherlin 2014; Neilson and Stanfors 2014).

Conceptualizations of gender in the U.S. can be traced to the Industrial Revolution era, and the consequent bifurcation of labor into public and private spheres (Cherlin 2014), which was a change from the family-based labor economy where ideally, everyone worked for the common good of the family unit. In the dominant culture, white men commanded the public sphere of employment outside the home, where political and financial power inhered (Cherlin 2014; Rosenfield and Mouzon 2013).

With this shift in the division of labor, women were relegated to the private sphere of the home, and assigned the roles of caretaking and raising children, roles that were devalued in contrast to those in the public sphere (Cherlin 2014). These gender conceptualizations were perpetuated by the socialization of children into the gendered roles that were promoted by the dominant culture and have carried forward continuing to exert influence on the broader society.

*Gender and mental health.* The gendered socialization of children and the gendered power relations that are part of that socialization imbue them with certain scripts or predispositions that they bring to their lives and to their interactions with others (Rosenfield 2012; Tolman and Porche 2000). These predispositions may also influence the gender differences seen in mental health outcomes (Elliott 2013; Rosenfield and Mouzon 2013; Smith, Mouzon, and Elliott 2018), including: the types and quantity of stressors to which one is exposed; vulnerability to the effects of stressors; and the levels of personal and social resources available to various social groups to cope with these stressors (Louie et al. 2021; Meyer, Schwartz, and Frost 2008; Turner, Lloyd, and Roszell 1999).

*Differential exposure to stressors.* Prior research on gender differences in the relationship between social stressors and psychological distress has shown that females and males tend to be exposed to different types of stressors (Rosenfield and Mouzon 2013; Turner and Avison 2003), which may be related to gendered roles. When considering a fuller accounting of types of social stressors, particularly those that happen within one's social network, women are typically exposed to more stressors than men (Turner et al. 1995). Although this differential exposure may vary by type of stressors assessed, overall males tend to experience more trauma, adverse events, violence, crime, illness, and disability (Hatch and Dohrenwend 2007; Rosenfield and Mouzon 2013; Turner and Avison 2003), while females tend to more frequently experience control and power-based stressors such as domestic violence, sexual assault, and stalking (Hatch and Dohrenwend 2007) as well as chronic strains particularly related to parenting, relationships, and financial concerns (Meyer et al. 2008).

*Differential vulnerability.* While males and females may be exposed to different *types* of stressors, they may also be differentially vulnerable to the *effects* of stressors to which they are

exposed (Kessler and McLeod 1984). Theories regarding this differential vulnerability range from the biological to the social (Nolen-Hoeksema 2001), and include the role of gender socialization and the overall lesser social status of women relative to men (Rosenfield and Mouzon 2013). Moreover, the physical and mental consequences of exposure to stressors can manifest differently for men and women (Aneshensel et al. 1991; Read and Gorman 2010; Verbrugge 1989). Females most commonly report internalizing symptoms of distress and males more often report externalizing symptoms (Browning et al. 2013; Nolen-Hoeksema 2001; Pearlin and Bierman 2013; Rosenfield and Mouzon 2013).

*Adolescence.* Adolescent boys and girls may also be differentially vulnerable to stressors (Adkins et al. 2009; Ge et al. 1994), as well as differentially exposed to them (Adkins et al. 2009). These differential gender effects in mental health for adolescents may be related to, or exacerbated by, the developmental stage they are in. One theory, known as gender intensification, (Hill and Lynch 1983; Wichstrøm 1999) suggests that adolescents face increasing pressure from multiple sources to conform to gender roles, which can increase mental health challenges, however, others find minimal to no effects of this developmental phase on depressive symptoms (Priess, Lindberg, and Hyde 2009). Nevertheless, adolescence is a peak developmental time when children become more conscious of gender and begin policing the boundaries of gender groups, (Thorne 1993), potentially resulting in more differentiation and thus greater mental health challenges.

*Resources.* The types and levels of social and personal resources that individuals have to help them cope with effects of stressors also may vary by gender. Some evidence has shown that for both adolescents and adults, females are typically lower in terms of self-esteem and mastery, which can be protective factors, when compared to males (Pearlin et al. 1981; Ross and

Mirowsky 2013), although other research found no significant differences (Meyer et al. 2008). Moreover, the benefits of personal resources in the context of stressors may operate differently in girls compared to boys (Exner-Cortens et al. 2021; Turner et al. 2017). In terms of social resources, findings suggest that the effects of different sources of social support for adolescents may differ by gender as well (Adkins et al. 2008; Butcher et al. 2015; Cooper et al. 2013; Rueger, Malecki, and Demaray 2010; B. Zhang et al. 2015), although a meta-analysis did not find gender-specific effects of social support on depression (Rueger et al. 2016), and another study found that the influence of social support operated similarly for males and females (Meadows 2007).

*Neighborhood effects and adolescent mental health.* Given that neighborhood is one of the key social determinants of health and mental health, and the robust links between neighborhood of residence and outcomes for children and adolescents and their parents (Chetty, Hendren, and Katz 2016; Leventhal and Brooks-Gunn 2000), as well as the differences seen in mental health outcomes by gender, a closer examination of the intersection of these factors is germane to the research at hand. Research on neighborhood effects has demonstrated gender differences for adolescents in outcomes such as education, mental health, physical health, and risk-taking behaviors (Browning et al. 2013; Clampet-Lundquist et al. 2011; Kling, Liebman, and Katz 2007; Leventhal and Brooks-Gunn 2000, 2003; Snedker and Herting 2016). In terms of mental health particularly, adolescents in highly disadvantaged neighborhoods report more depressive symptoms than those in moderate or low disadvantage neighborhoods, and in that context, boys report lower symptom scores than girls (Huang et al. 2020).

Many neighborhood effects studies are derived from Moving to Opportunity (MTO), a longitudinal multi-site experimental study designed to assess neighborhood effects, which

provided special vouchers for those families randomized to the treatment group to enable them to move from more-disadvantaged neighborhoods to less-disadvantaged areas. The foundation of this research is the comparison of the adults and children who were experimental movers to controls who did not receive the special vouchers and typically stayed in the same or similar neighborhoods (Kling et al. 2007). Analyses of data from these sites found significant differential neighborhood effects for the experimental group who moved to a less disadvantaged area compared to controls within both female and male adolescents gender groups, and also significant differences across female and male adolescents when comparing experimental participants and controls.

For example, a study on early results from one site found that experimental boys had fewer internalizing symptoms of anxiety and depression but not externalizing symptoms when compared to controls, and found no effects for girls in any symptom category (Leventhal and Brooks-Gunn 2003). A later qualitative study employing interviews with adolescents at two study sites also found gender differences in risky behaviors for experimental movers whereby girls in the experimental group reported significantly fewer risky behaviors than boys who moved (Clampet-Lundquist et al. 2011). Subsequent analysis also found differential positive mental health benefits for experimental girls when compared with experimental boys (Kling et al. 2007).

*Gender and neighborhood disorder.* Prior research has suggested that youth in disordered neighborhoods perceive greater risks and danger, which in turn, negatively influences their mental health (Aneshensel and Sucoff 1996). Research also suggests gender differences in the relationship between neighborhood disorder and internalizing and externalizing symptoms of psychological distress for adolescents, with girls reporting more depression and anxiety than



males (Browning et al. 2013; Snedker and Herting 2016), and males reporting more externalizing symptoms, such as conduct disorder, anger, and substance use (Aneshensel and Sucoff 1996). These gender differences may be due to adolescents' differential exposure to the stressors of neighborhood disorder, or their differential response to stressors and protective factors (Aneshensel and Sucoff 1996; Browning et al. 2013; Snedker and Herting 2016).

Drawing from the research reviewed above, the current research will employ a large, nationally representative dataset to examine the presence of conditional relationships by gender between neighborhood disorder and internalizing and externalizing symptoms. *Based on this previous work, I expect to find gender-based differences in the relationship between neighborhood disorder and psychological distress, with girls more often reporting internalizing symptoms and externalizing symptoms more common for boys.*

### *Race/Ethnicity*

Assumptions and stereotypes about groups of people based on their perceived race and ethnicity have had social and historical ramifications over time (Omi and Winant 2014). While some prior theories attributed race to biological explanations, and many in the general public may still see this as factual, on the whole, both the biological and social sciences view race as a social construct (Williams 2018). The small amount of variation found in genetics tends to reflect ancestry and region rather than any common categorization of people by a biological conceptualization of race (Cooper, Kaufman, and Ward 2003). Nevertheless, while this understanding may problematize race as a differentiating factor in biological research, the social construction of race categories makes it a useful factor in social research, as the perception of race reflects the social reality of structural and institutional racism, discrimination, residential segregation, and racial stereotypes (Williams and Collins 2001; Williams and Sternthal 2010).

*Race and mental health.* A considerable amount of research has demonstrated that race and ethnicity are important social determinants of mental health, and that different groups may experience different levels of stress exposure and/or greater vulnerability to their effects (Braveman et al. 2010; Geronimus 1992; Keith et al. 2010; Williams 2018; Williams and Sternthal 2010). The existing literature on social stressors and mental health is extensive, and has demonstrated that psychological distress is related to social status and the social patterning of stressors, including traumatic life events, chronic strains, and stressors related to race and ethnicity, such as stigma, discrimination, and racism (Benner et al. 2018; Meyer et al. 2008; Pearlin et al. 2005; Phelan and Link 2015; Turner and Avison 2003). An investigation of the influence of race and ethnicity on mental health, therefore, necessarily asks what the patterns are in the focal population and how they relate to the outcomes under study.

Previous findings have shown that the racial disparities in mental health are complex and seemingly paradoxical in some cases. Despite the social conditions and other burdens that racial and ethnic minorities in the U.S. face, they tend to report better mental health than non-Hispanic whites (Breslau et al. 2005; Kessler et al. 1994; McLaughlin et al. 2019; Vilsaint et al. 2019). A considerable amount of research has examined the black/white depression paradox in particular (Barnes and Bates 2017; Barnes et al. 2013; Louie et al. 2021), and while differences in mental health are seen across race and ethnicity, the Hispanic paradox also highlights the mental health differences by nativity, with recent Hispanic immigrants typically reporting better mental health than individuals born in the United States (Boen and Hummer 2019). These findings vary, however, by which aspect of the course of mental health problems is under study, for example whether the research examines severity, lifetime prevalence, or persistence of these conditions (Breslau et al. 2005; McLaughlin et al. 2019; Vilsaint et al. 2019).

*Differential exposure.* Differences in exposure to stressors are related to variations in psychological distress for racial and ethnic groups (Turner and Avison 2003; Turner and Lloyd 1999, 2004; Turner and Turner 2005; Turner et al. 1995; Wheaton et al. 2013). Findings on exposure to stressors by race/ethnicity, however, may vary by the particular stressors to which one is exposed (Hatch and Dohrenwend 2007), although in general, African Americans are exposed to a greater number of potentially traumatic events, such as having experienced gun violence, and they are also more likely to have witnessed any violence (Turner and Lloyd 2004). Moreover, the exposure of racial and ethnic minority groups to discrimination has been shown almost without exception to have a negative effect on mental health outcomes (Williams and Mohammed 2009), and the racial discrimination experienced in early life contributes to shaping adult mental health (Thomas Tobin and Moody 2021).

*Differential vulnerability.* Social stressors do not affect everyone in the same way, as various social status groups may have experienced differential socialization, and may have differential access to resources, which can affect how they respond to stressors (Link and Phelan 1995; Scheid and Wright 2017). Some evidence suggests that certain racial groups are more vulnerable than others to the effects of stressors (Phelan and Link 2015), although others find few racial/ethnic differences in response (McLaughlin et al. 2019). In childhood and adolescence, experiencing adverse events may cause physical and psychological responses, which then predispose individuals to stress-related problems (Shonkoff 2016), and these hardships in childhood get “under the skin” creating vulnerability to distress later in life (Miller and Chen 2013; Miller, Chen, and Parker 2011). Here, too, there are differences by race in the relationship between childhood adversity and both mental and physical health outcomes (Elkins et al. 2019), and findings suggest that black males and females are more vulnerable than whites

to these childhood stressors (Umberson et al. 2014). Furthermore, research utilizing data from the Add Health Study (Harris et al. 2019) found that adolescents of minority racial groups tend to experience more internalizing symptoms than whites and are also more reactive to them (Adkins et al. 2009).

*Resources.* Racial and ethnic groups may have differential access to social and personal resources. For example, some research found that levels of social support were greater for African Americans than for whites (Louie et al. 2021), and another study found that African American adolescents residing in neighborhoods with higher concentrations of African Americans reported greater social support which resulted in decreased levels of psychological distress (Hurd et al. 2013). For Latino/as, the availability and quality of social support was similar by nativity status (Viruell-Fuentes and Andrade 2016), although other studies have found differences in social resources between whites and Latinos (Almeida et al. 2009). Mastery and self-esteem may be differentially available to different racial and ethnic groups. For example, prior research suggests that African Americans tend to report greater levels of self-esteem than whites (Louie et al. 2021), however, they also tend to report lower levels of mastery and control than whites (Ross and Mirowsky 2013; Thoits 2013).

*Race and neighborhood effects.* Previous research has demonstrated the salience of neighborhood contexts regarding various outcomes, and these effects may also vary by race and ethnicity. For example, the effect of neighborhood disadvantage on educational attainment differs for racial and ethnic groups (Levy et al. 2019), and differences by race and ethnicity are also found in the relationship between neighborhood context and adolescent mental health (Clampet-Lundquist et al. 2011; Franzini et al. 2008; Gilster 2014). Greater neighborhood disadvantage was shown to predict higher levels of psychological distress for adolescents, as

well as a reduction in the availability of social support (Hurd et al. 2013; Snedker and Herting 2016), and sense of mastery (Kim and Conley 2011), with these effects varying across racial and ethnic groups (Alegría, Molina, and Chen 2014).

Prior research suggests that neighborhood physical and social disorder is related to psychological distress, and that the perception of neighborhood disorder is affected not only by the observed signs of physical and social disorder, but also by characteristics of the individual such as race and gender; neighborhood social influences and structures; and neighborhood racial composition (Aneshensel and Sucoff 1996; Franzini et al. 2008; Sampson and Raudenbush 2004). Youth who live in neighborhoods with greater disorder report higher levels of psychological distress (Aneshensel and Sucoff 1996; Snedker and Herting 2016; Turner et al. 2013), and African American youth are more likely to live in neighborhoods with greater disorder, while white youth are more likely to live in lower disorder neighborhoods (Turner et al. 2013). Some evidence suggests that African Americans and other minority groups residents, however, tend to perceive less disorder than whites in the same neighborhood (Franzini et al. 2008; Sampson and Raudenbush 2004), which may indicate other processes at play.

For example, while some previous research suggests that neighborhood racial segregation leads to concentrated poverty, thereby increasing physical decay and disorder (Massey and Denton 1993), other research has shown that a greater concentration of African Americans in neighborhood results in fewer symptoms of distress for adolescents (Franzini et al. 2008; Hurd et al. 2013). In contrast, Sampson and Raudenbush find that all neighborhood racial groups perceive greater neighborhood disorder as the level of disadvantage and the concentration of minority groups in the neighborhood increase (Sampson and Raudenbush 2004).

Patterns of race/ethnicity differences in psychological distress are variable and paradoxes abound. The proposed research will examine the conditional effects of race/ethnicity on the relationship between neighborhood disorder and adolescent internalizing and externalizing symptoms to more specifically assess how neighborhood disorder may be differentially related to psychological distress for adolescents of different racial groups. *Given the variation in findings among different racial and ethnic groups seen in the literature, I expect to find that the influence of race/ethnicity on adolescent mental health in the context of neighborhood disorder to be less clearly specified than for gender.*

#### *Summary and Review of Research Questions*

The rise in adolescent psychological distress, and the fairly consistent relationship between neighborhood disorder and mental health, compels an examination of the factors that may further illuminate how gender and race/ethnicity influence this relationship and the extent to which social and personal resources may help to explain it. The literature reviewed above provides a background for the current study for which the research questions are reiterated below.

- 1. To what extent does neighborhood disorder influence adolescent psychological distress? Specifically, how does neighborhood disorder affect internalizing and externalizing clusters of symptoms of psychological distress?*
- 2. Is the relationship between neighborhood disorder and psychological distress moderated by gender, that is, does the relationship differ for female adolescents compared with male adolescents?*
- 3. Is the relationship between neighborhood disorder and psychological distress moderated by race, that is, does the relationship differ for adolescents of different races/ethnicities?*
- 4. Do social and personal resources explain the relationship between neighborhood disorder and psychological distress for adolescents? Specifically, does family support, friend support, mastery, or self-esteem mediate the relationship between neighborhood disorder and psychological distress?*

## II. METHODS

### *Data*

*Participants.* The data for this study are drawn from two surveys conducted as part of the National Study of Children's Exposure to Violence (NatSCEV), which was designed to obtain incidence and prevalence estimates of a wide range of childhood victimizations (Finkelhor et al. 2009). NatSCEV I was the first national incidence and prevalence study to comprehensively examine the extent and nature of children's exposure to violence across ages and contexts. Conducted between January and May 2008, it measured the past-year and lifetime exposure to violence for children aged 17 and younger. NatSCEV II, which was conducted in 2011, gathered information about the past-year and lifetime exposure to violence in the same general categories among a new group of children aged 1 month to 17 years (Finkelhor et al. 2015). The samples were obtained from a mix of random digit dialing and address based sampling methods.

*Response rates and weighting.* The NatSCEV I survey overall cooperation rate was 71% and the response rate was 54%. In the NatSCEV II survey, the overall cooperation rate was 58%, and the overall response rate was 45%. In both surveys, sample weights were applied to adjust for differential probability of selection due to the complex study design; the demographic variations in non-response; and the variations in within-household eligibility (Turner et al. 2011). More information about the sample and weighting is available in previous publications (Finkelhor et al. 2009; Finkelhor et al. 2015).

*Procedure.* Interviews with parents and youth were conducted over the phone by trained staff of a professional survey research firm. Initial interviews were conducted with an adult parent or caregiver in the household to gather family demographic information, and one child was randomly selected from all eligible children living in the household by sampling the child with the most recent birthday. If the eligible child was nine years old or younger, the adult parent or guardian who was most familiar with the everyday experiences of the child completed the entire interview on behalf of the child. If the child was 10 years old or older, a short interview was conducted with the parent or guardian and then permission was requested to conduct the remainder of the interview with the 10–17-year-old eligible child. After obtaining consent from both the parent and the child, telephone interviews were conducted with the adolescents concerning their experiences.

Interviews averaged about 50 minutes in length and were conducted in either English or Spanish. Some of the parent interviews were conducted in Spanish, and almost all of the adolescents aged 10–17 chose to be interviewed in English. Participants were assured of complete confidentiality and were paid \$20 for their participation. If a participant disclosed a serious threat or ongoing victimization, an approved protocol was followed whereby they were re-contacted by a clinical member of the research team who was trained in telephone crisis counseling. The crisis counselor stayed in contact with the respondent until the situation was resolved and provided them with contact information for support in their local community. The Institutional Review Board for the Protection of Human Subjects at the University of New Hampshire approved all aspects of this study.

*Analytic Sample.* The analysis for the current study used data for the adolescent respondents from these two survey waves, which were pooled for a total sample size of 4407



youth aged 10-17 who had non-missing sociodemographic data. This included 2095 adolescents from Wave 1, and 2312 from Wave 2. Pooling the data from two waves not only increases the overall sample size, allowing for the power to detect smaller effects, but it also allows for examination of specific subpopulations, and for estimation of more complex models including those with interaction effects, both of which are a key element in this research.

### *Measures*

#### *Dependent Variables*

*Psychological distress.* Adolescent respondents were assessed with a slightly modified version of the Trauma Symptom Checklist for Children (TSCC) (Briere 1996), which has shown very good reliability and validity in both population-based and clinical samples. The TSCC collects information on measures of both internalizing (*Depression; Anxiety; Dissociation; and Post-Traumatic Stress*) and externalizing symptoms of distress (*Anger/Aggression*). Respondents were asked to report on a four-point scale, from 1 (not at all) to 4 (very often), as to how frequently they had experienced each symptom within the past month. In this study, the Cronbach's alpha measure of internal consistency for the internalizing items is .92, and for the externalizing items it is .79.

Item responses for the internalizing items and the externalizing scale items were summed to create an aggregate symptom score for each dimension of psychological distress for use in the bivariate analyses and mean scores were calculated for the multivariate analyses. Less than two percent of data is missing for the internalizing scales, and less than one percent for the externalizing scale.

## *Independent Variables*

*Neighborhood disorder.* A measure of neighborhood/community disorder, covering both physical and social aspects of disorder, was created for the NatSCEV survey research by developing items from domains that are common to variety of existing measures (Turner et al. 2013). Adolescent respondents were asked nine yes/no questions regarding social and physical disorder in their neighborhoods and in their schools in the past year. Cronbach's alpha for these items is .78, indicating good internal consistency.

Following Turner (Turner et al. 2013), this research will use eight of the neighborhood disorder items instead of nine, because items 3 and 4 are highly correlated, therefore item 4 is dropped. Also, due to questionnaire construction, item 6 is not included in the data. Question numbering was not changed to avoid confusion. "Yes" responses to these items were summed to form a community disorder score with possible values of 0 to 8. In this sample, 38 percent of adolescents had a community disorder score of 0; 22 percent had a score of 1, and 40 percent had a score of 2 or higher.

**Table 1. Community Disorder Survey Questions and Frequencies**

<b>Item</b>	<b>Yes Percent</b>	<b>No Percent</b>
1. Ever see someone selling marijuana or other illegal drugs?	23.11	76.89
2. Ever see the police arrest someone in your neighborhood?	33.09	66.91
3. Ever lived in a neighborhood where there were gangs?	18.79	81.21
5. Ever seen the police raid or enter a house in your neighborhood?	19.35	80.65
7. Ever live in a house where your parents did not like to let you play outside?	8.04	91.96
8. Ever live in a neighborhood run down, disrepair, etc.?	6.47	93.53
9. Ever gone to a school where there were kids in gangs?	25.85	74.15
10. Ever gone to a school where a kid brought a gun or knife to school?	31.06	68.94

*Resources.* Four resources were measured at both Wave 1 and 2: family support, friend support, self-esteem, and mastery. For each of these four resource variables, the number of "yes" responses is summed to create a score for each respondent.

*Family support.* Adolescents were asked four questions about the relationship they have with their family to create a measure of family support. The questions were drawn from the family support aspect of the Multidimensional Scale of Perceived Social Support (Turner et al. 2013; Zimet et al. 1988). Response choices were “never = 1,” “sometimes = 2,” “usually = 3,” or “always = 4.” Scores ranged from 4 to 16. The reliability coefficient for the family support measure in the pooled data is .82.

1. My family really tries to help me
2. My family lets me know that they care about me
3. I can talk about my problems with my family
4. My family is willing to help me make decisions

*Friend support.* The four friend support items were also taken from the Multidimensional Scale of Perceived Social Support (Zimet et al. 1988), to assess the degree of support adolescents perceived that they could draw from friends. Response choices were “never = 1,” “sometimes = 2,” “usually = 3,” or “always = 4.” Scores ranged from 4 to 16. The reliability coefficient for the friend support measure in the pooled data is .82.

1. My friends really try to help me
2. I can count on my friends when things go wrong
3. I have friends with whom I can share my good times and bad times
4. I can talk about my problems with my friends

*Self-esteem.* Adolescents’ self-esteem was measured in Waves I and II using an adapted version of an instrument developed by Rosenberg (Rosenberg 1965). Following Turner (Turner et al. 2017), this study focuses on three of the original 10 items. Adolescent respondents were asked to rate each statement about their self-beliefs on a 3-point scale: “1 = very true,” “2 = sometimes true,” or “3 = not true.” In this study, the coding was reversed for ease of interpretation so that higher scores indicate greater self-esteem. The Cronbach’s alpha coefficient for these items is .73.

1. You are happy with yourself.
2. You have a lot to be proud of.
3. You take a positive attitude toward yourself.

*Mastery.* Mastery was assessed using a shortened, age-sensitive 5-item version of a 7-item scale developed by Pearlin and Schooler (Pearlin and Schooler 1978). Potential responses were “1 = very true”; “2 = a little true”; or “3 = not true.” Higher scores indicate a greater sense of mastery. Cronbach’s alpha coefficient for the mastery scale is .71.

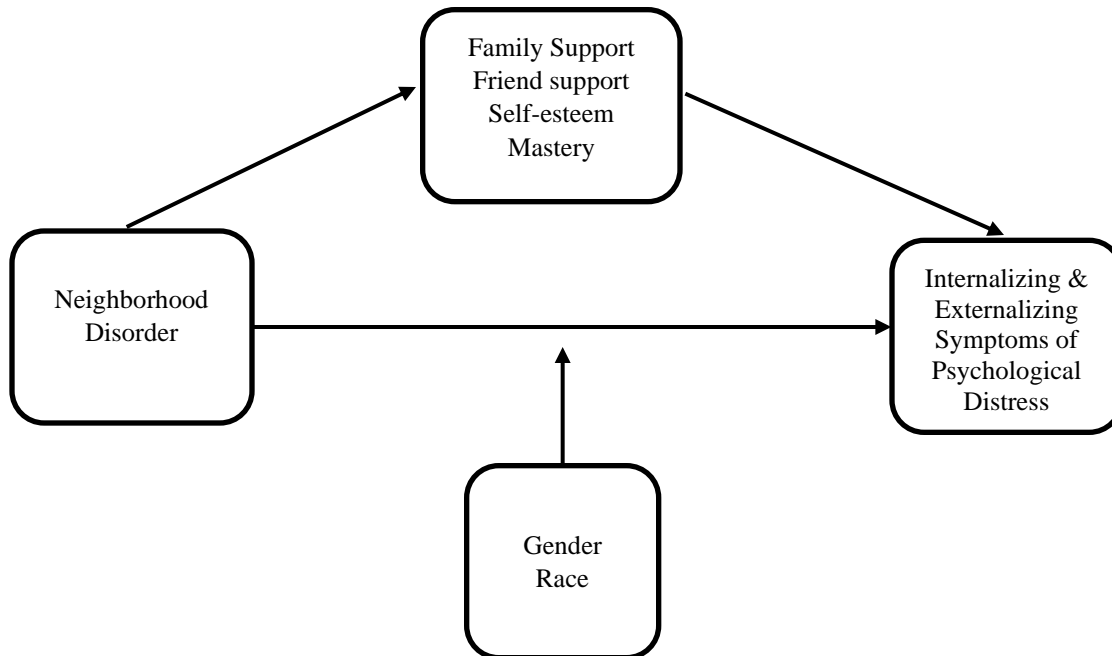
1. You often feel helpless in dealing with problems.
2. Sometimes you feel that you are being pushed around in life.
3. You cannot change important things in your life.
4. You have little control over the things that happen to you.
5. There is no way you can solve some of the problems you have

*Demographics.* Parents/caregivers were asked for demographic information about the selected child during the initial parent interview, including the child’s gender (female/male); their race/ethnicity (subsequently coded into four groups: White, non-Hispanic; Black, non-Hispanic; Other, non-Hispanic; and Hispanic, any race); the child’s age (in years); household income; parent education; and family structure (two parent, stepparent, single parent, other custodial adult). A socioeconomic status (SES) variable was calculated based on the sum of the standardized household income and standardized parental education (for the parent with the highest education) scores, which was then re-standardized.

### *Conceptual Model*

The overall conceptual model for this study is shown below in Figure 1.

Figure 1. Overall Conceptual Model



### *Analysis plan*

Descriptive and bivariate statistics were calculated for the sample variables, including both parametric tests such as ANOVA, and non-parametric tests such as Kruskal-Wallis rank sum test as appropriate, to evaluate differences in means of variables. Multivariate linear regression analyses were employed to estimate models of the effects of perceived neighborhood disorder on psychological distress for both internalizing and externalizing symptoms, as well as the conditional effects of race and gender on the relationship between neighborhood disorder and distress. For the moderation analyses to answer research questions two and three, each psychological distress dependent variable was regressed on neighborhood disorder and

covariates, and an interaction term was created between gender and disorder (Q2) and between race and disorder (Q3) and included in the OLS regression analyses. If any of the interaction terms were statistically significant, it indicated that the relationships between neighborhood disorder and psychological distress were not the same for subgroups of gender or race/ethnicity.

To answer research question four, Ordinary Least Squares (OLS) regression examined the relationship between neighborhood disorder and psychological distress and determined whether and to what extent it was explained by social and personal resources. A mediation effect showed a reduction in the strength of the association between the independent neighborhood disorder and the dependent variable, psychological distress once the mediating variable was introduced, as well as a statistically significant association between neighborhood disorder and the potential mediating variable. The mediation analyses entailed three different regression equations, and additional post hoc testing (Baron and Kenny 1986). Initially I regressed psychological distress on neighborhood disorder to confirm that neighborhood disorder is a significant predictor of psychological distress; then regressed the resource variable on neighborhood disorder to confirm that neighborhood disorder was a significant predictor of the resource, since if the resource was not associated with neighborhood disorder it could not mediate the relationship. Finally, I regressed psychological distress on both the resource and neighborhood disorder variables to confirm that the resource significantly predicted distress and assessed any change in the coefficient of neighborhood disorder. Post hoc analyses were conducted to evaluate the statistical significance of any changes in the coefficient (Holmbeck 1997, 2002; Sobel 1988).

Research questions are reiterated below for convenience.

1. *To what extent does neighborhood disorder influence adolescent psychological distress? Specifically, how does neighborhood disorder affect internalizing and externalizing clusters of symptoms of psychological distress?*
2. *Is the relationship between neighborhood disorder and internalizing and externalizing symptoms clusters of psychological distress moderated by gender, that is, does the relationship differ for female adolescents compared with male adolescents?*
3. *Is the relationship between neighborhood disorder and internalizing and externalizing symptoms clusters of psychological distress moderated by race, that is, does the relationship differ for adolescents of different races/ethnicities?*
4. *How do social resources and personal resources affect the relationship between neighborhood disorder and internalizing and externalizing symptoms clusters of psychological distress for adolescents? Specifically, does family support, friend support, mastery, or self-esteem mediate the relationship between neighborhood disorder and psychological distress?*

### III. RESULTS

This chapter presents findings from a series of analyses conducted to investigate the research questions proposed by this study. A description of the sample used in the analysis is provided, as well as bivariate correlations and analysis of means. Additionally, several multivariate analyses are presented including a series of hierarchical linear regressions designed to examine the direct effects of neighborhood disorder on each of the psychological distress outcomes, two moderation analyses to examine the conditional effects of gender and race on the relationship between neighborhood disorder and psychological distress, and an analysis of the mediating effects of each of the four resource variables on the relationship between neighborhood disorder and psychological distress.

Most analyses were run using survey data weights in Stata by prefacing the commands with “svy” which is designed to provide accurate estimates using the weights. There are some analyses that were conducted without the “svy” command as Stata does not support them, and these are noted.



## *Descriptive Statistics*

Univariate and bivariate statistics are presented in tables below.

**Table 2. Summary Statistics for Categorical Variables (Weighted Data)**

<b>Variable</b>	<b>Percent</b>	<b>N</b>
<b>Gender</b>		4407
Female	0.49	
Male	0.51	
<b>Race/ethnicity</b>		4391
African American	0.15	
Hispanic/Latino	0.19	
White	0.59	
Other	0.07	
<b>Parent structure</b>		4407
Two bio/adoptive parents	0.53	
Single parent	0.32	
Parent and partner	0.11	
Other adult	0.05	

The sample is evenly split between females and males as seen in Table 2, and 59% of respondents are White, 19% Hispanic, 15% Black, and 7% Other race/ethnicity. Just over half of the adolescents lived in a two-parent home with either biological two parents or two adoptive parents, 32% lived in single parent homes, 11% in a home with a biological parent and a step-parent or partner, and 5% lived with another adult. In Table 3, the means, standard deviations, medians, and skewness statistics for measurement-level variables are presented. The means and standard deviations were calculated using weighted data, but the medians and skewness were estimated with unweighted data, as Stata does not accommodate using the “svy” prefix to weight the data for these commands.

**Table 3. Summary Statistics for Measurement-level Variables (Weighted Data\*)**

Variable	Mean	SD	Median*	Skewness*	Observations
Age	13.57	2.27	14.00	-0.17	4,407
Household SES	0.09	0.89	0.12	-0.42	4,407
Internalizing	34.31	9.35	33.00	1.21	4,328
Externalizing	9.29	2.96	9.00	1.39	4,373
Neighborhood disorder	1.68	1.94	1.00	1.23	4,215
Family support	12.71	2.31	12.00	-0.07	4,386
Friend support	12.06	2.56	12.00	-0.08	4,391
Self-esteem	8.29	1.16	9.00	-1.80	4,382
Mastery	12.70	2.21	13.00	-0.95	4,309

\*Skew and median were estimated with unweighted data

While the skewness statistic for most of the variables is between -1 and 1, indicating that the variable is not excessively skewed, several of the variables (internalizing, externalizing, neighborhood disorder, and self-esteem) have skewness values greater than |1|. While this skewness could pose a problem with a small sample size, the large sample size here provides robustness to the influence of outliers, per the Central Limit Theorem (Hamilton 1992). The medians, which are also resistant to the pull of outliers, are fairly close to the means as well.

*Bivariate analyses.* The correlation between two variables measures how one variable changes relative to changes in a second variable. The correlation matrix in Table 4 below, shows that in pairwise correlations neighborhood disorder is significantly correlated with both internalizing and externalizing symptoms, age, SES, family support, self-esteem, and mastery, and all of the correlations are significant at the .001 level. The correlation coefficients of neighborhood disorder with internalizing, externalizing, and age indicate moderately positive relationships, and the correlation coefficient for mastery indicates a moderate negative linear relationship. The coefficients for SES, family support, and self-esteem indicate weaker negative relationships with neighborhood disorder.

**Table 4. Pairwise Correlation Matrix of Measurement Variables (unweighted data)**

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) NH disorder	1.000								
(2) Internalizing	0.330***	1.000							
(3) Externalizing	0.382***	0.691***	1.000						
(4) Age	0.286***	0.104***	0.121***	1.000					
(5) SES	-0.183***	-0.053***	-0.093***	0.034**	1.000				
(6) Family sup	-0.098***	-0.313***	-0.260***	-0.116***	0.069***	1.000			
(7) Friend sup	0.018	-0.148***	-0.121***	0.089***	0.135***	0.467***	1.000		
(8) Self-esteem	-0.179***	-0.495***	-0.349***	-0.077***	0.085***	0.287***	0.145***	1.000	
(9) Mastery	-0.305***	-0.588***	-0.465***	-0.075***	0.100***	0.234***	0.121***	0.426***	1.000

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.5$

*ANOVA*. One-way ANOVA compares the means of measurement variables across groups within categorical variables, and in this study, the focal categorical variables of interest are gender and race/ethnicity. As a parametric test, ANOVA has basic assumptions such as normality, equal variance in each group, and random and independent sampling. Because the sample here is large, some deviation from these assumptions is not problematic, although confirmatory Kruskal-Wallis non-parametric rank sum tests were performed where there was any discrepancy (not shown), as Kruskal-Wallis does not have the same assumptions as does ANOVA.

The null hypothesis of ANOVA is that means are equal across groups, and the F-test statistic provides a way to examine whether this is true and Bartlett's  $\chi^2$  tests the equal variance assumption. Additionally, Scheffé tests for multiple comparisons were calculated with each ANOVA, although in the case of gender with just two categories, the multiple comparison result is the same as the comparison of means with the F test.

As seen in Table 5, there is a significant difference in means between males and females for internalizing symptoms, with females having a higher mean, but for externalizing symptoms the difference is not significant. The means for neighborhood disorder score are not significantly different, but means for three of the resource variables — family support, friend support, self-

esteem, and mastery — differ across gender. Males report greater levels of family support, self-esteem, and mastery, while females report greater friend support.

**Table 5. ANOVA Comparison of Means of Measurement Variables by Adolescent Gender**

<b>Variable</b>	<b>Female</b>	<b>Male</b>	<b>F</b>	<b><math>\chi^2</math></b>
Internalizing	35.63	33.16	0.00	0.00
Externalizing	9.36	9.21	0.08	0.00
NH disorder	1.60	1.69	0.13	0.74
Family support	12.52	12.69	0.01	0.03
Friend support	12.39	11.66	0.00	0.36
Self-esteem	8.17	8.36	0.00	0.00
Mastery	12.59	12.72	0.07	0.09

In Table 6, significant differences in means are seen in all variables across race/ethnicity categories except for internalizing symptoms. Hispanic youth report the lowest level of externalizing symptoms, while Black youth report the highest. Black and Hispanic youth report higher levels of both neighborhood disorder and family support than do White or Other adolescents. White youth report the greatest level of friend support and mastery, while Black youth report the highest levels of self-esteem.

Significant differences are seen in the results of the Scheffé multiple comparisons between groups in all variables except internalizing symptoms. For example, the mean of externalizing symptoms is higher for Black youth compared to White youth or Hispanic youth ( $p < .001$  in both cases). Black youth also report greater neighborhood disorder than White youth, Hispanic youth, and Other youth, all comparisons are significantly different at the  $p < .001$  level. Black and White youth significantly differ on several other variables: White youth report greater levels of friend support and mastery than Black youth, while Black youth report a significantly greater level of self-esteem than White youth and Hispanic youth.

**Table 6. ANOVA Comparison of Means of Measurement Variables by Adolescent Race/Ethnicity**

<b>Variable</b>	<b>Black</b>	<b>White</b>	<b>Hispanic</b>	<b>Other</b>	<b>F</b>	<b><math>\chi^2</math></b>
Internalizing	34.61	34.33	34.04	35.07	0.46	0.40
Externalizing <sup>ab</sup>	9.98	9.18	8.95	9.44	0.00	0.00
NH disorder <sup>abcd</sup>	2.53	1.33	2.03	1.70	0.00	0.00
Family support	12.77	12.54	12.80	12.42	0.01	0.00
Friend support <sup>a</sup>	11.67	12.15	11.97	11.76	0.00	0.00
Self-esteem <sup>bc</sup>	8.46	8.26	8.15	8.21	0.00	0.00
Mastery <sup>f</sup>	12.44	12.74	12.58	12.55	0.01	0.13

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

Scheffé test multiple comparisons:

<sup>a</sup> Black and White differ\*\*\*

<sup>b</sup> Black and Hispanic differ\*\*\*

<sup>c</sup> Hispanic and White differ\*\*\*

<sup>d</sup> Black and Other\*\*\*

<sup>e</sup> Black and White\*\*

<sup>f</sup> Black and White\*

### *Multivariate Analyses*

**RQ1:** *To what extent does neighborhood disorder influence adolescent psychological distress?*

*Specifically, how does neighborhood disorder affect internalizing and externalizing clusters of symptoms of psychological distress?*

Hierarchical linear regression analysis was employed to answer this question. This approach allows for substantively related variables to be added to the regression equation in steps to assess whether the additional blocks of variables significantly improve the model's ability to predict the dependent variable. In each case, initially neighborhood disorder alone was entered as the sole independent variable to predict internalizing symptoms or externalizing symptoms, demographic variables were added in the second block, and finally the four resource variables entered in the third block.

*Internalizing.* Results of the hierarchical regression analysis of internalizing symptoms on neighborhood disorder are presented in Table 7, below. Model 1 shows that neighborhood disorder significantly predicts internalizing symptoms of psychological distress with an  $R^2$  value of .13, suggesting that while neighborhood disorder is a statistically significant predictor, it explains a relatively small amount of the variance in internalizing symptoms.

The second analysis shown in Model 2, includes the demographic variables age, gender, race/ethnicity, household SES, and parent structure in the regression equation. The F-test shows that the overall model is statistically significant, and the increase in the  $R^2$  value from 0.13 to 0.15 suggests that Model 2 accounts for more of the variation in internalizing symptoms than did Model 1. In Model 2, the coefficient of disorder is slightly reduced, but remains significant, ( $p < .001$ ), and gender (female = 1) is also significant at the  $p < .001$  level, indicating that with all other variables controlled, females have higher levels of internalizing symptoms than males. Also in Model 2, with other variables held constant, Black youth have lower levels of internalizing symptoms than White youth, and the same is true for Hispanic youth ( $p < .05$  for both). Adolescents in parent/partner households have higher levels of internalizing symptoms than children living with two biological parents, controlling for neighborhood disorder, age, gender, and race/ethnicity.

With the addition of social and personal resources in Model 3, the coefficient of neighborhood disorder is reduced by approximately 50%, although it remains significant at the .001 level, and the model  $R^2$  greatly increases to 0.46. In the full model, gender remains significant at the .001 level, although parent structure is no longer significant with the addition of resources. However, household SES becomes significant ( $p < .05$ ), and the coefficient suggests that adolescents living in households with higher SES experience higher levels of internalizing

symptoms, when other variables are controlled. Family support, self-esteem, and mastery are all significant predictors in Model 3, indicating that those with greater resources experience lower levels of internalizing symptoms.

**Table 7. Hierarchical OLS Regression Models: Neighborhood Disorder and Internalizing Symptoms**

Variable	Model 1	Model 2	Model 3
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
NH disorder	1.71*** (0.12)	1.68*** (0.12)	0.84*** (0.09)
Age		0.08 (0.08)	-0.04 (0.07)
Gender		2.65*** (0.35)	1.95*** (0.29)
Race/ethnicity			
White <sup>#</sup>			
Black		-1.28* (.60)	0.01 (0.47)
Hispanic		-1.23 <sup>‡</sup> (0.51)	-0.69 <sup>‡</sup> (0.42)
Other		0.34 (.70)	0.21 (0.64)
Household SES		-0.12 (0.24)	0.44* (0.20)
Parent structure			
Two bio/adoptive <sup>#</sup>			
Single parent		0.13 (0.43)	-0.20 (0.36)
Parent/partner		1.88** (0.64)	0.42 (0.46)
Other adult		-0.14 (0.88)	-0.22 (0.85)
Family support			-0.54*** (0.07)
Friend support			-0.01 (0.07)
Self-esteem			-1.84*** (0.17)
Mastery			-1.70*** (0.08)
Constant	31.35*** (0.22)	29.17*** (1.07)	76.41*** (1.80)
Overall F test	0.00	0.00	0.00
R <sup>2</sup>	0.13	0.15	0.46
N	4,153	4,140	4,050

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ , <sup>‡</sup>  $p < .10$

<sup>#</sup>Reference category

*Externalizing.* The regression of externalizing symptoms on neighborhood disorder in Model 1 of Table 8 shows that neighborhood disorder significantly predicts externalizing symptoms ( $p < .001$ ). With the addition of demographic variables in Model 2, the coefficient of neighborhood disorder is slightly reduced, but remains significant, ( $p < .001$ ), and gender (coded male = 0, and female = 1), is significant indicating that females have greater levels of

externalizing symptoms than males. Hispanic youth report significantly lower levels of externalizing symptoms than white youth ( $p < .001$ ) and the parent/partner category of the parent structure variable are both significant predictors ( $p < .01$ ) of externalizing symptoms. Compared with White youth, Hispanic adolescents report lower levels of externalizing symptoms, and compared with two-parent households, and youth living in parent/partner households have higher levels of externalizing symptoms than those living with two biological parents or adoptive parents, controlling for neighborhood disorder, age, gender, and race/ethnicity.

**Table 8. Hierarchical OLS Regression Models: Neighborhood Disorder and Externalizing Symptoms**

<b>Variable</b>	<b>Model 1</b> Coefficient (SE)	<b>Model 2</b> Coefficient (SE)	<b>Model 3</b> Coefficient (SE)
NH disorder	0.58*** (0.05)	0.54*** (0.05)	0.36*** (0.05)
Age		0.03 (0.02)	0.01 (0.02)
Gender		0.25* (0.11)	0.12 (0.12)
Race/ethnicity			
White <sup>#</sup>			
Black		0.15 (0.21)	0.39 <sup>‡</sup> (0.21)
Hispanic		-0.54*** (0.16)	-0.43** (0.15)
Other		0.15 (0.29)	0.11 (0.29)
Household SES		-0.05 (0.08)	0.07 (0.08)
Parent structure			
Two bio/adoptive <sup>#</sup>			
Single parent		0.21 (0.14)	0.14 (0.13)
Parent/partner		0.57** (0.20)	0.26 (0.17)
Other adult		0.20 (0.30)	0.18 (0.31)
Family support			-0.15*** (0.03)
Friend support			0.00 (0.03)
Self-esteem			-0.30*** (0.06)
Mastery			-0.38*** (0.03)
Constant	8.30*** (0.07)	7.74*** (0.34)	17.72*** (0.72)
Overall F test	0.00	0.00	0.00
R <sup>2</sup>	0.15	0.16	0.29
N	4,186	4,174	4,076

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ , <sup>‡</sup>  $p < .10$

<sup>#</sup> Reference category



In Model 3, social and personal resources were added to the regression equation, and the coefficient of neighborhood disorder is reduced by about 30%, although disorder remains significant at the .01 level, and the  $R^2$  increases to .29 for this model. Gender is no longer significant in Model 3 with the addition of social and personal resources, nor is parent structure. Hispanic adolescents report significantly lower levels of externalizing symptoms than do white adolescents ( $p < .01$ ), with other variables controlled.

As with internalizing symptoms, family support, self-esteem, and mastery are all significant predictors of externalizing symptoms at the .001 level, while friend support is not. The negative coefficients on family support, self-esteem, and mastery indicate that when other variables are held constant, greater levels of each resource result in lower levels of externalizing symptoms.

**RQ2:** *Is the relationship between neighborhood disorder and psychological distress (internalizing and externalizing symptoms) moderated by gender, that is, do the relationships differ for female adolescents compared with male adolescents?*

OLS regression was conducted to examine the conditional relationship by gender between neighborhood disorder and psychological distress symptoms, with results for each of the two dependent variables, internalizing symptoms and externalizing symptoms, presented below.

*Internalizing.* Table 9 below, displays the results of OLS regression incorporating an interaction term side-by-side with the full model without the interaction for comparison.

**Table 9. Regression of Internalizing Symptoms of Psychological Distress with Interaction Between Neighborhood Disorder and Gender**

Variable	Model 1	Model 2 Interaction
	Coefficient (SE)	Coefficient (SE)
NH disorder	0.84*** (0.09)	0.64*** (0.10)
Age	-0.04 (0.07)	-0.04 (0.07)
Gender		
Female	1.95*** (0.29)	1.21** (.36)
Male <sup>#</sup>		
NH disorder x gender		
Female		0.44** (.17)
Race/ethnicity		
White <sup>#</sup>		
Black	0.01 (0.47)	-0.03 (0.47)
Hispanic	-0.69 ‡ (0.42)	-0.70 (0.42)
Other	0.21 (0.64)	0.25 (0.62)
Household SES	0.44* (0.20)	0.43* (0.20)
Parent structure		
Two bio/adoptive <sup>#</sup>		
Single parent	-0.20 (0.36)	-0.24 (0.36)
Parent/partner	0.42 (0.46)	0.44 (0.46)
Other adult	-0.22 (0.85)	-0.19 (0.85)
Family support	-0.54*** (0.07)	-0.53*** (0.07)
Friend support	-0.01 (0.07)	-0.02 (0.07)
Self-esteem	-1.84*** (0.17)	-1.83*** (0.17)
Mastery	-1.70*** (0.08)	-1.69*** (0.08)
Constant	76.41*** (1.80)	76.62*** (1.79)
Overall F test	0.00	0.00
R <sup>2</sup>	0.46	0.46
N	4,050	4,050

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ , ‡  $p < .10$

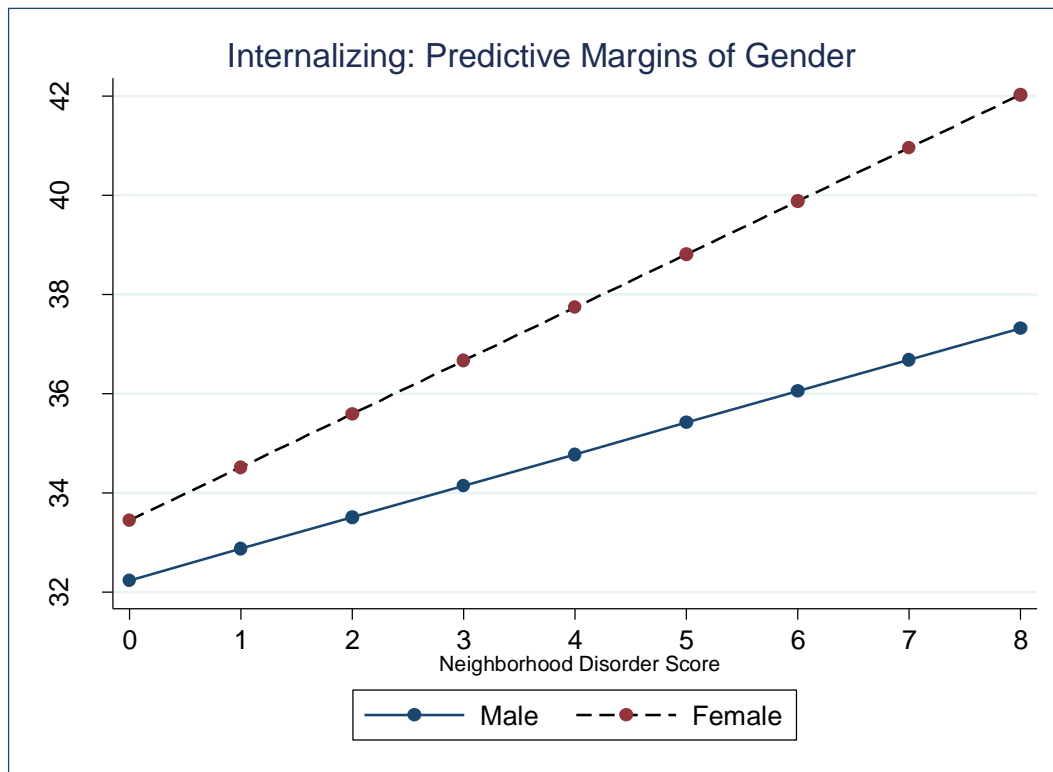
<sup>#</sup>Reference category

The interaction model, Model 2 was estimated to assess whether the relationship between neighborhood disorder and internalizing symptoms of psychological distress differs for females and males. As seen in Model 2, neighborhood disorder, female, and household SES all significantly and positively predict internalizing symptoms, and the significant positive

coefficient of the interaction term ( $p < .01$ ) indicates that the effect of neighborhood disorder on internalizing symptoms is stronger for females when compared with males. The coefficients for family support, self-esteem, and mastery are negative and significant at the  $p < .001$  level.

Figure 2, below, illustrates graphically the interaction of neighborhood disorder and gender, reflecting the different slopes of the regression lines for females and males, showing that the effect of neighborhood disorder on internalizing symptom is stronger for females than for males.

**Figure 2. Margins Plot of Conditional Effects of Gender on the Relationship Between Neighborhood Disorder and Internalizing Symptoms\***



\*Gender x neighborhood disorder interaction was significant at  $P < .01$ , controlling for all other variables in the full model

At each value of neighborhood disorder on the x-axis, the value of the prediction equation on the y-axis significantly differs for females when compared to males over each value of neighborhood disorder (0, 8). Note that the 95% confidence intervals for each of the predictive values do not overlap. For example, if neighborhood disorder score = 0, the predicted values of internalizing symptoms for males = 30.75 and females = 32.10. At the other end of the range of values, if neighborhood disorder score = 8, then male = 41.08 and female = 48.56, reflecting the differential slope of the two lines. Since male is coded 0 and female is 1, the interaction term drops out of the prediction equation for males, but the value increases with each subsequent step in the neighborhood disorder score for females, illustrating the stronger effect of neighborhood disorder on internalizing symptoms for females compared with males.

*Externalizing.* In Table 10, Model 2 displays the results of OLS regression incorporating an interaction term to assess whether the relationship between neighborhood disorder and externalizing symptoms of psychological distress differs for females and males. Neighborhood disorder, Black (marginal), Hispanic ( $p < .01$ ), and three of the four resource variables are all significant predictors of externalizing symptoms, however, neither the gender main effect nor the interaction term gender x neighborhood disorder are significant in the externalizing model, indicating that the relationship does not differ for females when compared with males.

**Table 10. Regression of Externalizing Symptoms of Psychological Distress with Interaction Between Neighborhood Disorder and Gender**

Variable	Model 1 Coefficient (SE)	Model 2 Coefficient (SE)
NH disorder	0.36*** (0.05)	0.35*** (0.04)
Age	0.01 (0.02)	0.01 (0.02)
Gender		
Female	0.12 (0.12)	0.10 (0.13)
Male <sup>#</sup>		
NH disorder x gender		
Female		0.01 (0.09)
Race/ethnicity		
White <sup>#</sup>		
Black	0.39 <sup>‡</sup> (0.21)	0.39* <sup>‡</sup> (0.21)
Hispanic	-0.43** (0.15)	-0.43** (0.15)
Other	0.11 (0.29)	0.11 (0.29)
Household SES	0.07 (0.08)	0.07 (0.08)
Parent structure		
Two bio/adoptive <sup>#</sup>		
Single parent	0.14 (0.13)	0.13 (0.13)
Parent/partner	0.26 (0.17)	0.26 (0.17)
Other adult	0.18 (0.31)	0.18 (0.31)
Family support	-0.15*** (0.03)	-0.15*** (0.03)
Friend support	0.00 (0.03)	0.00 (0.03)
Self-esteem	-0.30*** (0.06)	-0.30*** (0.06)
Mastery	-0.38*** (0.03)	-0.38*** (0.03)
Constant	17.72*** (0.72)	17.72*** (0.71)
Overall F test	0.00	0.00
R <sup>2</sup>	0.29	0.29
N	4,076	4,076

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , <sup>‡</sup> $p < .10$

<sup>#</sup>Reference category

**RQ3:** *Is the relationship between neighborhood disorder and psychological distress moderated by race, that is, does the relationship differ for adolescents of different races/ethnicities?*

Moderation analyses using OLS regression examined the conditional effects of race/ethnicity on the relationship between neighborhood disorder and internalizing and externalizing symptoms, presented below.

*Internalizing.* Table 11, below, displays the results of OLS regression incorporating an interaction term to assess whether the relationship between neighborhood disorder and internalizing symptoms of psychological distress differs by race/ethnicity.

**Table 11. Regression of Internalizing Symptoms of Psychological Distress with Interaction Between Neighborhood Disorder and Race/Ethnicity**

Variable	Model 1	Model 2 Interaction
	Coefficient (SE)	Coefficient (SE)
NH disorder	0.84*** (0.09)	0.98*** (0.12)
Age	-0.04 (0.07)	-0.04 (0.07)
Gender	1.95*** (0.29)	1.96*** (0.29)
Race/ethnicity		
White <sup>#</sup>		
Black	0.01 (0.47)	0.74 (0.62)
Hispanic	-0.69 <sup>‡</sup> (0.42)	-0.33 (0.55)
Other	0.21 (0.64)	0.37 (0.85)
Race/ethnicity x NH disorder		
White <sup>#</sup>		
Black, non-Hispanic		-0.34 <sup>‡</sup> (0.20)
Hispanic		-0.22 (0.24)
Other, non-Hispanic		-0.12 (0.39)
Household SES	0.44* (0.20)	0.45* (0.19)
Parent structure		
Two bio/adoptive <sup>#</sup>		
Single parent	-0.20 (0.36)	-0.21 (0.36)
Parent/partner	0.42 (0.46)	0.38 (0.46)
Other adult	-0.22 (0.85)	-0.26 (0.85)
Family support	-0.54*** (0.07)	-0.54*** (0.07)
Friend support	-0.01 (0.07)	-0.01 (0.07)
Self-esteem	-1.84*** (0.17)	-1.82*** (0.17)
Mastery	-1.70*** (0.08)	-1.70*** (0.08)
Constant	76.41*** (1.80)	76.11*** (1.79)
Overall F test	0.00	0.00
R <sup>2</sup>	0.46	0.46
N	4,050	4,050

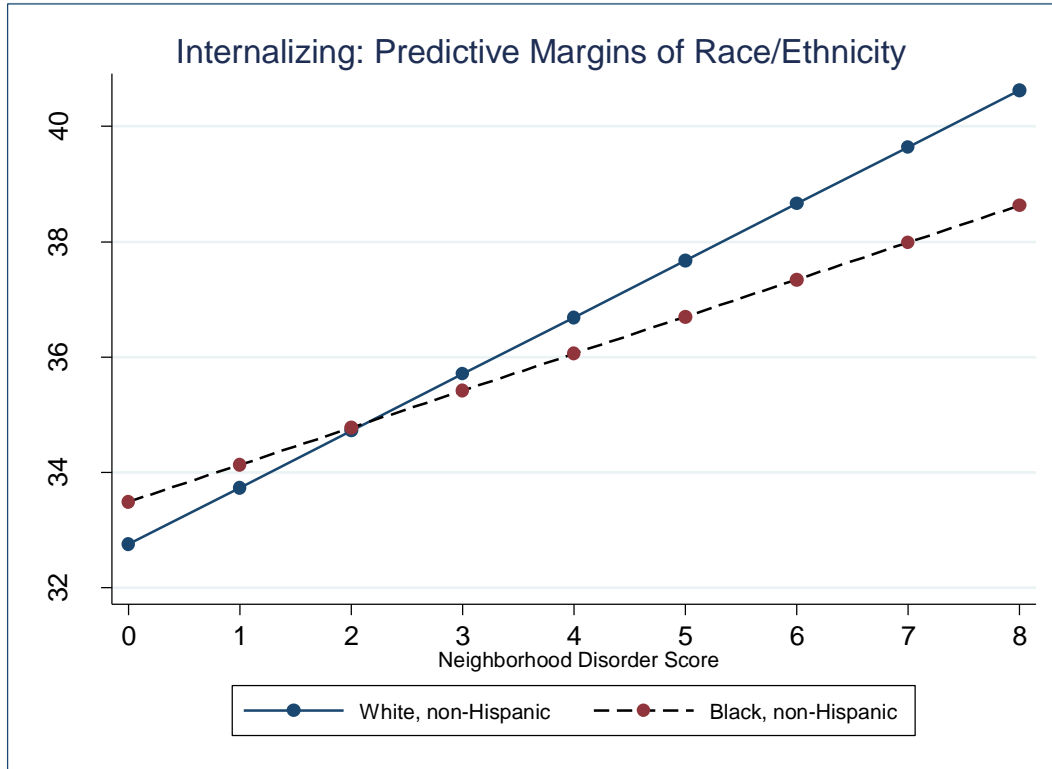
\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ , <sup>‡</sup>  $p < .10$

<sup>#</sup> Reference category

In Model 2 with the interaction term, neighborhood disorder significantly predicts internalizing symptoms, as do gender and SES, although none of the main effects for the race/ethnicity categories are significant. The black x neighborhood disorder interaction term is marginally significant ( $p < .10$ ), but none of the other interaction terms are. The significant negative coefficient for Black adolescents indicates that when all other predictors are held constant, the effect of neighborhood disorder on internalizing symptoms is less strong for Black youth when compared with White youth, the reference group. The Hispanic and Other race/ethnicity interaction terms are not statistically significant. As in previous models, three of the four resource variables are significant at  $p < .001$ .

Figure 3, below, illustrates the interaction of neighborhood disorder and race/ethnicity, for Black youth as compared with White youth as this was the only (marginally) significant interaction. The slope of the line for White youth is steeper than for Black youth, reflecting the negative coefficient when compared to the White reference group. The range of possible values of neighborhood disorder are plotted on the x-axis, and the value of the prediction equation for each value of neighborhood disorder for each race/ethnicity group is on the y-axis. The confidence intervals for each group overlap at the lower range of values of scores on neighborhood disorder, but at scores of three and above, the CI do not overlap and the differences between black and white youth are significant, indicating that the effect of neighborhood disorder on internalizing symptoms is stronger for white youth than for black youth in the context of higher levels of neighborhood disorder.

**Figure 3. Margins Plot of Conditional Effects of Gender on the Relationship Between Neighborhood Disorder and Internalizing Symptoms\***



\*Race/ethnicity x neighborhood disorder interaction was marginally significant at  $P < .10$ , controlling for all other variables in the full model

*Externalizing.* Table 12 displays the results of OLS regression incorporating an interaction term between neighborhood disorder and race/ethnicity to assess whether the relationship between neighborhood disorder and externalizing symptoms of psychological distress differs by racial/ethnic group. Neighborhood disorder is a significant predictor of externalizing symptoms ( $p < .001$ ), although none of the demographic variables reaches significance, nor are any of the interaction terms significant in predicting externalizing symptoms. As previously seen with internalizing symptoms, family support, self-esteem, and mastery are all significant at the  $p < .001$  level.



**Table 12. Regression of Externalizing Symptoms of Psychological Distress with Interaction Between Neighborhood Disorder and Race/Ethnicity**

Variable	Model 1	Model 2
	Coefficient (SE)	Coefficient (SE)
NH disorder	0.36*** (0.05)	0.31*** (0.06)
Age	0.01 (0.02)	0.01 (0.02)
Gender	0.12 (0.12)	0.12 (0.12)
Race/ethnicity		
White <sup>#</sup>		
Black	0.39 <sup>‡</sup> (0.21)	0.17 (0.22)
Hispanic	-0.43** (0.15)	-0.41* (0.18)
Other	0.11 (0.29)	-0.25 (0.35)
Race/ethnicity x NH disorder		
White <sup>#</sup>		
Black, non-Hispanic		0.11 (0.11)
Hispanic		0.00 (0.10)
Other, non-Hispanic		0.21 (0.24)
Household SES	0.07 (0.08)	0.06 (0.07)
Parent structure		
Two bio/adoptive <sup>#</sup>		
Single parent	0.14 (0.13)	0.13 (0.13)
Parent/partner	0.26 (0.17)	0.27 (0.17)
Other adult	0.18 (0.31)	0.17 (0.32)
Family support	-0.15*** (0.03)	-0.15*** (0.03)
Friend support	0.00 (0.03)	0.00 (0.03)
Self-esteem	-0.30*** (0.06)	-0.31*** (0.06)
Mastery	-0.38*** (0.03)	-0.39*** (0.03)
Constant	17.72*** (0.72)	17.85*** (0.70)
Overall F test	0.00	0.00
R <sup>2</sup>	0.29	0.30
N	4,076	4,076

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ , <sup>‡</sup>  $p < .10$

<sup>#</sup> Reference category

**RQ4:** *Do social and personal resources explain the relationship between neighborhood disorder and psychological distress for adolescents? Specifically, does family support, friend support, mastery, or self-esteem mediate the relationship between neighborhood disorder and both internalizing and externalizing symptoms of psychological distress?*

Three of the four social and personal resources were significantly correlated with neighborhood disorder as previously seen in the bivariate correlation matrix above, indicating that testing for mediation effects is appropriate. Mediation may be partial or complete, contingent on whether the influence of the independent variable on the dependent variable is reduced after the mediator is controlled, and to what extent.

Employing the Baron and Kenny method (Baron and Kenny 1986) for testing hypothesized mediation involves three separate tests:

1. *Does the independent variable predict the dependent variable?*
2. *Does the independent variable predict the mediator?*
3. *Do the independent variable and mediator both predict the dependent variable?*

Table 13 displays the results of OLS regressions of the internalizing and externalizing variables on neighborhood disorder and the demographic variables excluding the potential mediators and is the first step in determining mediation under the Baron and Kenny method, above. Neighborhood disorder does significantly predict both internalizing symptoms and externalizing symptoms, and in both cases, greater neighborhood disorder increases the symptoms of psychological distress.

**Table 13. OLS Regression of Internalizing and Externalizing Symptoms on Neighborhood Disorder and Demographic Variables without Resource Variables**

<b>Variable</b>	<b>Internalizing Coefficient (SE)</b>	<b>Externalizing Coefficient (SE)</b>
Neighborhood disorder	1.68*** (0.12)	0.54*** (0.05)
Age	0.08 (0.08)	0.03 (0.02)
Gender (Female = 1)	2.65*** (0.35)	0.25* (0.11)
Race/ethnicity		
White <sup>#</sup>		
Black	-1.28* (0.60)	0.15 (0.21)
Hispanic	-1.23* (0.51)	-0.54*** (0.16)
Other	0.34 (0.70)	0.15 (0.29)
Household SES	-0.12 (0.24)	-0.05 (0.08)
Parent structure		
Two bio/adoptive <sup>#</sup>		
Single parent	0.13 (0.43)	0.21 (0.14)
Parent/partner	1.88** (0.64)	0.57** (0.20)
Other adult	-0.14 (0.88)	0.20 (0.30)
Constant	29.17*** (1.07)	7.74*** (0.34)
Overall F test:	0.00	0.00
R <sup>2</sup>	0.15	0.16
N	4,140	4,174

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ , †  $p < .10$

<sup>#</sup>Reference category

In the internalizing equation, gender is significant and positive, indicating that females report greater levels of internalizing symptoms. Black youth and Hispanic youth report lower levels of internalizing symptoms compared to White youth, and youth who live in a parent/partner household report greater internalizing symptoms when compared with youth living in two biological parent households. In the externalizing model, gender is also a significant predictor of increased distress, and as in the internalizing model, Hispanic youth report lower levels of externalizing symptoms compared with White youth. Also as in the internalizing model, youth who live in a parent/partner household report greater externalizing symptoms when compared with youth who live in two biological parent households.

As previously seen in the bivariate correlation matrix above, the second condition for a test of mediation is met for three of the four potential mediators, as the relationships between neighborhood disorder and family support, self-esteem, and mastery, but not friend support, are significant. Given that this condition is not met for friend support, it cannot mediate the relationship between neighborhood disorder and either the internalizing or externalizing dependent variables.

The third step in testing mediation is to regress the dependent variable on both the independent variable and the mediator, as well as control variables if applicable. To test for significance, I used **sgmediation2**, a user-written Stata command (Mize n.d.), which conducts Sobel, Aroian, and Goodman tests of statistical significance of mediation for linear regression models. This is an updated version (with permission) of the original command **sgmediation**, written by Phil Ender of the UCLA Statistical Consulting Group (Ender n.d.). The updated version allows for the use of the “svy:” prefix to include the survey weights. Since all three tests calculated by **sgmediation2** use the product of coefficients approach, and results from all three tests tend to be similar, Sobel tests are reported unless there is any material difference between the three.

*Internalizing.* Table 14 displays the results of OLS regression of internalizing symptoms on neighborhood disorder and each individual resource variable to assess whether each resource variable mediates the relationship between neighborhood disorder and internalizing symptoms of psychological distress. The coefficients on all of the resources are negative, indicating that increases in the level of each resource results in a decrease in the level of internalizing symptoms.

**Table 14. OLS Regression of Internalizing Symptoms on Social and Personal Resources: Mediation Effects**

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
	Family Support	Friend support	Self-esteem	Mastery	All predictors
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
NH disorder	1.54*** (0.12)	1.69*** (0.12)	1.37*** (0.11)	0.91*** (0.10)	0.84*** (0.09)
Age	-0.05 (0.08)	0.11 (0.08)	0.00 (0.07)	0.06 (0.07)	-0.04 (0.07)
Gender	2.40*** (0.33)	3.07*** (0.35)	1.97*** (0.32)	2.40*** (0.30)	1.95*** (0.29)
Race/ethnicity					
White <sup>#</sup>					
Black	-1.24* (0.57)	-1.62** (0.61)	-0.09 (0.54)	-0.53 (0.50)	0.01 (0.47)
Hispanic	-1.06* (0.48)	-1.39** (0.51)	-0.99* (0.48)	-0.74‡ (0.44)	-0.69‡ (0.42)
Other	0.39 (0.69)	0.08 (0.67)	0.34 (0.69)	0.12 (0.66)	0.21 (0.64)
Household SES	0.24 (0.23)	0.11 (0.24)	0.26 (0.22)	0.07 (0.21)	0.44* (0.20)
Parent structure					
Two bio/adoptive <sup>#</sup>					
Single parent	0.08 (0.42)	0.16 (0.43)	0.05 (0.41)	-0.20 (0.38)	-0.20 (0.36)
Parent/partner	1.48* (0.58)	1.94** (0.63)	1.46** (0.56)	0.64 (0.53)	0.42 (0.46)
Other adult	-0.34 (0.86)	-0.19 (0.87)	-0.26 (0.87)	-0.05 (0.86)	-0.22 (0.85)
Family support	-1.10*** (0.07)				-0.54*** (0.07)
Friend support		-0.59*** (0.07)			-0.01 (0.07)
Self-esteem			-3.31*** (0.18)		-1.84*** (0.17)
Mastery				-2.21*** (0.08)	-1.70*** (0.08)
Constant	45.19*** (1.43)	35.70*** (1.28)	58.40*** (1.94)	59.08*** (1.41)	76.41*** (1.80)
Sobel test	0.000	0.719	0.000	0.000	
Overall F test	0.000	0.000	0.000	0.000	0.000
R <sup>2</sup>	0.22	0.18	0.32	0.39	0.46
N	4,127	4,130	4,127	4,071	4,050

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ , †  $p < .10$

<sup>#</sup>Reference category

Model 1 in Table 14 shows that the mediating variable, *family support* ( $p < .001$ ), and the focal independent variable, neighborhood disorder ( $p < .001$ ) both significantly predict internalizing symptoms, thereby satisfying the third condition of the test of mediation. Since *friend support* is not correlated with neighborhood disorder in bivariate analysis, condition two of the Baron and Kenney (Baron and Kenny 1986) test for mediation was not met. While friend support does not mediate the relationship between neighborhood disorder and internalizing symptoms, it is included in Table 14 as Model 2 for comparison, since it does have significant

direct effects. Both *neighborhood disorder* and *self-esteem* significantly predict internalizing symptoms at the  $p < .001$  level, as seen in Model 3 of Table 14, and the same is true for *neighborhood disorder* and *mastery* in Model 4, thereby fulfilling the final condition of the test of mediation for both self-concept variables.

Sobel tests of mediation for each of the resource models indicate that for family support, mastery, and self-esteem, the mediation effect is significant, and again confirm that friend support does not mediate the relationship between neighborhood disorder and internalizing symptoms of distress, as seen in Table 14. To further examine the mediating effects of the resource variables, Table 15 displays the direct effects of neighborhood disorder on internalizing symptoms, the indirect effects of neighborhood disorder through each individual mediator, and the total effect of neighborhood disorder on internalizing symptoms. Additionally, the proportion of the total effect that is mediated by each resource variable is reported in the right-hand column.

In the mediation model incorporating *family support*, the direct effect of neighborhood disorder on internalizing symptoms (1.52) is the effect that is not explained by family support, the indirect effect (0.128) is the portion of the effect of neighborhood disorder on internalizing symptoms that is explained by the family support, and the total effect of neighborhood disorder on internalizing symptoms (1.65) is the sum of these direct and indirect effects. All of these effects are significant at the .001 level. As seen in Table 15, the proportion of the total effect that is mediated by family support is the indirect effect divided by the total effect, which indicates that about 8% of the effect of neighborhood disorder on internalizing symptoms is mediated by family support.

**Table 15. Direct Effects, Indirect Effects, and Total Effects of Neighborhood Disorder on Internalizing Symptoms and Proportion of Total Effects Mediated by Resource Variables**

Variables	Direct Effect	Indirect Effect	Total Effect	Proportion of Total Effect Mediated
Family support	1.52***	0.128***	1.65***	0.077
Friend support	1.67***	-0.001	1.669***	-0.00
Self-esteem	1.388***	0.280***	1.669***	0.168
Mastery	0.903***	0.754***	1.657***	0.455

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

As noted previously, *friend support* does not mediate the relationship between neighborhood disorder and internalizing symptoms, which is also seen in Table 15, where there is a significant direct effect, however, the indirect effect is not significant. The direct effects of neighborhood disorder and the indirect effect through *self-esteem* are both significant, as is the total effect ( $p < .001$ ), and 17% of the total effect of neighborhood disorder on internalizing symptoms is mediated by *self-esteem*, about twice as much as the portion mediated through family support. In the case of mastery, close to half of the total effect of neighborhood disorder is mediated by mastery (46%), a significantly greater amount than for the other resources. The direct and indirect effects of neighborhood disorder on internalizing symptoms are both significant, as is the total effect.

*Externalizing.* Table 16 displays the results of the OLS regressions of externalizing symptoms on neighborhood disorder along with each individual potential mediator and other covariates. The full model with all predictors is included as Model 5 for comparison. Across all four mediation models, neighborhood disorder significantly predicts externalizing symptoms ( $p < .001$ ), as do all resource variables.

**Table 16. OLS Regression of Externalizing Symptoms on Social and Personal Resources: Mediation Effects**

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
	Family support	Friend support	Self-esteem	Mastery	All variables
	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)	Coefficient (SE)
NH disorder	0.51*** (0.05)	0.54*** (0.05)	0.48*** (0.05)	0.37*** (0.04)	0.36*** (0.05)
Age	0.00 (0.02)	0.04 (0.02)	0.02 (0.02)	0.03 (0.02)	0.01 (0.02)
Gender	0.19‡ (0.11)	0.35** (0.11)	0.12 (0.11)	0.22* (0.11)	0.12 (0.12)
Race/ethnicity					
White#					
Black	0.17 (0.21)	0.08 (0.21)	0.38‡ (0.21)	0.30 (0.20)	0.39‡ (0.21)
Hispanic	-0.50** (0.15)	-0.58*** (0.16)	-0.51** (0.15)	-0.46** (0.15)	-0.43** (0.15)
Other	0.16 (0.29)	0.09 (0.28)	0.14 (0.30)	0.08 (0.29)	0.11 (0.29)
Household SES	0.03 (0.08)	0.00 (0.08)	0.02 (0.08)	-0.01 (0.08)	0.07 (0.08)
Parent structure					
Two bio/adoptive#					
Single parent	0.20 (0.14)	0.21 (0.14)	0.20 (0.14)	0.13 (0.13)	0.14 (0.13)
Parent/partner	0.50** (0.19)	0.59** (0.20)	0.49** (0.19)	0.29 (0.18)	0.26 (0.17)
Other adult	0.15 (0.30)	0.19 (0.30)	0.16 (0.31)	0.21 (0.31)	0.18 (0.31)
Family support	-0.26*** (0.03)				-0.15*** (0.03)
Friend support		-0.13*** (0.02)			0.00 (0.03)
Self-esteem			-0.65*** (0.06)		-0.30*** (0.06)
Mastery				-0.48*** (0.03)	-0.38*** (0.03)
Constant	11.44*** (0.52)	9.18*** (0.41)	13.46*** (0.64)	14.24*** (0.51)	17.72*** (0.72)
Sobel test	0.000	0.659	0.000	0.000	
Overall F test	0.000	0.000	0.000	0.000	0.00
R <sup>2</sup>	0.19	0.17	0.22	0.27	0.29
N	4,161	4,162	4,158	4,101	4,076

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ , ‡  $p < .10$

# Reference category

Model 1 in Table 16 shows that the mediating variable, *family support* ( $p < .001$ ), and the focal independent variable, neighborhood disorder ( $p < .001$ ) both significantly predict externalizing symptoms, thereby satisfying the third condition of the test of mediation. Since *friend support* is not correlated with neighborhood disorder in bivariate analysis, condition two of the Baron and Kenney (Baron and Kenny 1986) test for mediation was not met. While friend support does not mediate the relationship between neighborhood disorder and externalizing symptoms, it has a direct effect and is included in Table 16 as Model 2 for comparison. Both *neighborhood disorder* and *self-esteem* significantly predict externalizing symptoms at the



$p < .001$  level, as seen in Model 3 of Table 16, and the same is true for *neighborhood disorder* and *mastery* in Model 4, thereby fulfilling the final condition of the test of mediation for both self-concept variables.

Sobel tests of mediation for each of the resource models indicate that for family support, mastery, and self-esteem, the mediation effect is significant, and confirm that friend support does not mediate the relationship between neighborhood disorder and externalizing symptoms of distress, as seen in Table 16. To further examine the mediating effects of the resource variables, Table 17 displays the direct effects of neighborhood disorder on externalizing symptoms, the indirect effects of neighborhood disorder through each individual mediator, and the total effect of neighborhood disorder on externalizing symptoms. Additionally, the proportion of the total effect of neighborhood disorder that is mediated by each resource variable is reported in the right-hand column.

In the mediation model incorporating *family support*, the direct effect of neighborhood disorder on externalizing symptoms (0.52) is the effect that is not explained by family support, the indirect effect (0.03) is the portion of the effect of neighborhood disorder on externalizing symptoms that is explained by *family support*, and the total effect of neighborhood disorder on externalizing symptoms (0.55) is the sum of the direct and indirect effects. All of these effects are significant at the .001 level. The proportion of the total effect that is mediated by family support is the indirect effect divided by the total effect, which indicates that about 6% of the effect of neighborhood disorder on externalizing symptoms is mediated by family support.

**Table 17. Direct Effects, Indirect Effects, and Total Effects of Neighborhood Disorder on Externalizing Symptoms and Proportion of Total Effects Mediated by Resource Variables**

Variables	Direct Effect	Indirect Effect	Total Effect	Proportion of Total Effect Mediated
Family support	0.517***	0.031***	0.548***	0.057
Friend support	0.553***	-0.000	0.552***	-0.001
Self-esteem	0.497***	0.055***	0.552***	0.099
Mastery	0.386***	0.163***	0.549***	0.297

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

As previously discussed, *friend support* does not mediate the relationship between neighborhood disorder and externalizing symptoms, which is also illustrated by the lack of a significant indirect effect as seen in Table 17. The direct effects of neighborhood disorder on externalizing symptoms and the indirect effect through *self-esteem* are both significant, as is the total effect ( $p < .001$ ), and 10% of the total effect of neighborhood disorder on externalizing symptoms is mediated by *self-esteem*. The direct effects of neighborhood disorder on externalizing symptoms and the indirect effects through *mastery* are both significant ( $p < .001$ ), as is the total effect. About 30% of the total effect of neighborhood disorder on externalizing symptoms is mediated by *mastery*, a significantly greater amount than for the other social and personal resources, in much the same manner as the findings for internalizing symptoms.

In summary, the mediating effects of social and personal resources on both internalizing and externalizing symptoms vary in both statistical significance, and substantive effects. While mediation by family support is significant in the case of both dependent variables, the proportion of the total effect of neighborhood disorder that is mediated by family support is small in both cases. Friend support is not significant as a mediator of the relationship between neighborhood disorder and either internalizing or externalizing symptoms. In terms of the two personal resources, both have significant indirect effects for both internalizing and externalizing symptom

scores. The portion of the total effect of neighborhood disorder on psychological distress mediated by self-esteem is modest, however, mastery, is both significant and substantial, mediating close to 50% of the total effect of the relationship between neighborhood disorder and internalizing symptoms, and 30% of the relationship between neighborhood disorder and externalizing symptoms.

#### IV. DISCUSSION and CONCLUSION

This chapter presents a discussion of findings from the analyses in Chapter Three, situating them in the broader context of adolescent mental health and the influence of neighborhood environment. The primary focus of this study was to examine the effects of neighborhood disorder on **internalizing** and **externalizing** symptoms of psychological distress in adolescents and additionally to determine whether these effects differ by gender or by race/ethnicity, and whether social and personal resources influence the relationship between neighborhood disorder and psychological distress. The stress process model provided a theoretical framework for examining and explaining these group differences in mental health outcomes based on social statuses, and how they may result from greater exposure to stressors or a greater vulnerability to their effects. Implications of the findings, study limitations and directions for future research follow the discussion of findings.

##### *Neighborhood Disorder*

Neighborhood disorder conveys the negative effects of neighborhood disadvantage, (Mirowsky and Ross 2003; Wheaton and Clarke 2003), and a convincing relationship between neighborhood social and physical disorder and psychological distress has been reported in the literature (Alegría et al. 2014; Aneshensel 2010; Aneshensel and Sucoff 1996; Browning et al. 2013; Gapen et al. 2011; Geis and Ross 1998; Kim 2010; Ross and Mirowsky 2009; Sampson et al. 2002; Turner et al. 2013). As hypothesized, and consistent with prior research, the current study found that adolescents living in more disordered neighborhoods reported greater levels of

both internalizing and externalizing symptoms of psychological distress. Several possible explanations for this finding follow.

Neighborhood disorder is signified by visible social and physical cues, such as public drinking and homes in disrepair in the neighborhood. These indicators of disorder transmit to both residents and visitors the sense that people in the neighborhood are less inclined to reinforce social norms around crime and undesirable behavior and thus people may be predisposed to engage in these activities assuming there is tacit approval (O'Brien et al. 2019; Sampson and Raudenbush 2004; Wilson 1987; Wilson and Kelling 1982). The signs of disorder also convey that, given the lack of social control, the neighborhood may not be a safe place.

Living in a disordered neighborhood exposes adolescents to a greater number of stressors, and to the “ambient hazards” in the neighborhood (Aneshensel 2010; Aneshensel and Sucoff 1996; Turner et al. 2013; Wheaton and Clarke 2003). Adolescents may internalize this perceived hazard as a signal of a threatening environment, which creates an ongoing sense of risk for them and may lead to detrimental effects on their mental health (Pearlin et al. 1981; Wheaton and Montazer 2017). While neighborhood disorder does not necessarily equate to crime (O'Brien et al. 2019; Sampson and Raudenbush 2004), the chronic strain of living in a disordered neighborhood contributes to greater feelings of fear and mistrust whereby neighbors do not feel safe to venture out and interact with others, and therefore do not create the positive social relationships that would promote the very social control which might reduce the sense of disorder (O'Brien and Kauffman 2013; Sampson and Raudenbush 2004).

The chronic strains of neighborhood disorder may also result in stress proliferation, whereby additional stressors develop as a result of the original stressor, increasing the overall stress burden on the individual (Pearlin 1989; Pearlin et al. 1981; Wheaton and Montazer 2017).

In other words, for adolescents, the stressors of neighborhood disorder may lead to stressors in other realms of life, such as school or family life (Pearlin et al. 2005), which would also tend to negatively impact mental health.

It is also possible that the effects of neighborhood disorder contribute to *compound disadvantage*, in that those who are already individually disadvantaged are most negatively affected by the disadvantage of distressed neighborhoods (Wheaton and Clarke 2003). Families experiencing difficulties with financial concerns or physical and mental health problems are more likely to live less stable lives in more disordered neighborhoods, and are also more likely to have been previously evicted and have experienced multiple relocations and therefore less residential stability (Desmond 2016). Not only are they economically disadvantaged, but an eviction on their rental record makes it more likely that they will experience even greater difficulty finding another place to live, leading to greater residential mobility and the likelihood that they and their children will live in more disordered neighborhoods (Desmond and Gershenson 2017; Merrick et al. 2018).

Another possible explanation for the robust effects of neighborhood disorder on adolescent mental health is the *cumulative disadvantage* perspective. While compound disadvantage effect is more of an additive process, cumulative disadvantage implies in this case that being exposed to a stressor continuously and repeatedly for an extended period of time is deleterious to wellbeing (Björkenstam et al. 2015; Nurius, Prince, and Rocha 2015; Turner and Lloyd 1995; Turner et al. 1995; Umberson et al. 2014). For example, if an adolescent lived in their disordered neighborhood for a long period of time or in multiple sequential disordered neighborhoods due to ongoing economic challenges, there would be more negative effects on their mental health than if they resided in a disordered neighborhood in an episodic fashion,

perhaps due to a temporary family economic downturn (McLeod and Shanahan 1993, 1996). The current study did find a correlation between household income and reported neighborhood disorder, whereby greater SES was associated with lower neighborhood disorder scores. This data is not longitudinal, however, and consequently does not allow for assessing cumulative disadvantage effects over time.

Neighborhood disorder is not just related to structural conditions, but to social interactions as well. If adolescent mental health is related to their social relationships and experiences within the neighborhood, then neighborhood *collective efficacy* may provide another possible avenue of explanation for the relationship between neighborhood disorder and psychological distress (Odgers et al. 2009; Sampson et al. 2002; Sampson and Raudenbush 1997). Greater neighborhood collective efficacy has a protective effect for children who live in disadvantaged neighborhoods, (Browning et al. 2013; Donnelly et al. 2016; Fagan, Wright, and Pinchevsky 2014; Odgers et al. 2009), and even neighborhoods that are disordered and disadvantaged may have a sense of collective efficacy (Walton 2016).

A lack of collective efficacy in the neighborhood is traditionally described as a symptom of ineffective community processes, and prior research has demonstrated the potential for a feedback loop between neighborhood disorder and collective efficacy (Ross and Mirowsky 2001). Neighborhood disorder may create an overarching sense of threat and danger that then is carried into all social interactions, resulting in weaker relationships with neighbors and thus a lower capacity for cohesive action within the community. This effect borne out in research on the “brittleness” or fragility of social ties in the neighborhood for families that are disadvantaged and experience frequent residential mobility and instability (Desmond 2012; Merrick et al. 2018). Most of the social ties that they develop are instrumental and transient, such as seeking strategies

or tips for survival, and do not build social relationships or social capital that could promote neighborhood collective efficacy. In contrast, a longer tenure in the neighborhood is linked with a greater sense of collective efficacy (Sampson 1988). While the current study utilized data that did not contain measures of collective efficacy, and as such could not test for these effects, the addition of these indicators would be a fruitful direction for future research.

### *Moderation Analyses*

This research examined several cross-level interactions between neighborhood disorder and individual level characteristics, specifically with gender and race/ethnicity.

*Gender.* Based on previous work, I expected to find gender-based differences in the relationship between neighborhood disorder and psychological distress, specifically that girls would report greater levels of internalizing symptoms than boys, and externalizing symptoms would be greater for boys. Consistent with considerable prior research (Ge et al. 1994; Nolen-Hoeksema and Girgus 1994; Patil et al. 2018; Twenge and Nolen-Hoeksema 2002), this research found that females reported significantly greater levels of internalizing symptoms than did males. Contrary to expectations, however, males did not report greater levels of externalizing symptoms than females.

Not only did this study find convincing evidence of neighborhood disorder and its positive relationship to psychological distress, a test of the moderating effects of gender on the relationship between neighborhood disorder and internalizing symptoms of psychological distress found that the effects of disorder on distress are greater for females compared to males, consistent with prior research (Browning et al. 2013). At each level of neighborhood disorder scores, the effect on internalizing symptoms was significantly greater for females than for males.



This result was as hypothesized based on prior literature that has suggested a greater vulnerability to certain stressors for females. This greater vulnerability to neighborhood disorder for girls found in the current study may be because historically females have a lower social status than males and thus less social power, as well as having less physical power and strength on average than males, which may contribute to perceiving a greater sense of risk than males in the same contexts of disorder. As a consequence of this, the perceived risk of the ambient hazards in the neighborhood, including the threat of victimization, is particularly salient for girls' mental health (Aneshensel and Sucoff 1996). This contingent relationship may also be related to gender role socialization, and the gendered coping strategies that females employ in contrast to those used by males. For example, the current study found that girls report more friend support than boys, which is consistent with prior research which finds that typically females have a broader social network than males. This social network can provide support, but it may also come at a cost, otherwise known as the cost-of-caring proposition (Taylor 2015), which asserts that females have a heightened awareness of stressful events for others in their social network, which is then related to greater psychological stress in their own lives (Turner 1994).

The current research found no evidence of a gender interaction effect in regard to externalizing symptoms, and there was no main effect of gender on externalizing symptoms either. This finding was counter to the hypothesized result that males would be more likely than females to report externalizing symptoms, and may be reflective of the fact that the effects of neighborhood disorder on psychological distress operate differently for internalizing symptoms when compared with externalizing symptoms. These findings are helpful in better understanding the gendered pathways of the effects of contextual stressors on psychological distress. Consistent with prior research (Kessler and McLeod 1984; Turner and Avison 2003; Turner et al. 1995), the

results of this study support the vulnerability hypothesis in regard to internalizing symptoms of distress for females, as contrasted with the possibility of greater exposure to stressors as a cause of greater female distress, since no significant differences in the level of exposure to neighborhood disorder were found.

*Race/ethnicity.* As hypothesized, the conditional effect of race/ethnicity on the relationship between neighborhood disorder and psychological distress was less clearly specified than with gender. While bivariate analysis showed that Black youth reported living in more disordered neighborhoods than other youth, consistent with prior research (Turner et al. 2013), they also reported marginally lower levels of distress than White youth in the analysis of conditional effects of race/ethnicity on the relationship between neighborhood disorder and internalizing symptoms of psychological distress. Further investigation of the interaction revealed that at lower levels of disorder scores, there was no significant difference in internalizing symptoms scores for Black compared to White youth, and in fact Black youth reported slightly greater levels of symptoms than did White youth at the very lowest scores of neighborhood disorder. At the midrange and higher scores on neighborhood disorder, Black youth reported lower levels of symptoms than White youth at each level of reported disorder. This finding suggests that White youth are more vulnerable to the effects of neighborhood disorder in the context of neighborhoods with greater disorder, but not in the case of less neighborhood disorder, indicating that neighborhood effects may operate differently for different racial/ethnic groups (Alegría et al. 2014; Wang et al. 2020).

These differences may be related to other mechanisms that influence race/ethnicity effects, particularly those related to inequality and structural disadvantage, such as racial composition of the neighborhood, desensitization, and social comparison processes.

The concentration of residents of particular racial/ethnic backgrounds in a neighborhood provides a possible explanation for the findings that, while Black youth report more neighborhood disorder, they report fewer internalizing symptoms of distress than White youth at higher levels of disorder.

Although prior research has suggested that the perception of greater neighborhood disorder by residents of all races increases based on the concentration of minority residents in the neighborhood, (Sampson and Raudenbush 2004), there may also be a protective effect for Black youth. Specifically, living in neighborhoods with a higher concentrations of African American residents may result in lower levels of internalizing symptoms of psychological distress because the neighborhood composition leads to greater social support and a greater sense of neighborhood cohesion (Hurd et al. 2013) for black youth relative to whites youth. The current study did not have information on neighborhood composition, however, so this possibility could not be tested.

Desensitization theory (Wolpe 1958) suggests another potential explanation for the lower vulnerability to neighborhood disorder found among black youth. Although Black youth are more likely than White youth to live in disadvantaged and disordered neighborhoods (Turner et al. 2013), and consequently to experience more stressors arising from disadvantage, desensitization theory posits that repeated exposure to stressors can result in a decreased response to those stressors. Chronic exposure to neighborhood disorder and related adversity may create a numbing effect, resulting in a lowered vulnerability to psychological distress (Chen et al. 2020). This phenomenon may help to explain why Black youth reported fewer symptoms of distress in the context of comparable levels of neighborhood disorder than did White youth in the current study. Indeed, some prior studies examining the association between exposure to

community violence and emotional and physiological outcomes have found that Black youth who are exposed to greater levels of stressors exhibit a lowered emotional distress response (Chen et al. 2020; Gaylord-Harden, Cunningham, and Zelencik 2011; Kennedy and Ceballo 2016), which may contribute to understanding the marginal interaction effect in the current research.

Social comparison theory (Festinger 1954) provides another possible explanation for the race/ethnicity interaction effect found in the current research, and is one of the many pathways by which racism and inequality can affect mental health. Social comparison, whereby individuals compare themselves to others, can be directed upward or downward toward those with more or less power, and be either assimilative when the individual doing the comparison likens themselves to the traits of the comparator, or contrastive, where the individual focuses on the differences (Mussweiler, Rüter, and Epstude 2004; Schieman, Pearlin, and Meersman 2006; Taylor and Lobel 1989). Upward social comparison, meaning comparison with more privileged others, may be linked to negative self-evaluations (Vogel et al. 2020), and upward contrastive social comparison to more privileged White youth by Black youth may tend to result in negative self-perceptions. The structural conditions linked to racism, as well as ongoing racial inequality which may manifest in the form of historical neighborhood structural disadvantage, may create the sense for Black adolescents that living in a more disordered neighborhood is not unexpected for them in comparison to more privileged White youth, and therefore may not result in greater distress as might be anticipated by their greater exposure to neighborhood stressors.

As was found with analysis of the conditional effects of gender, there were no significant conditional effects found by race/ethnicity for externalizing symptoms, indicating that the pathway from neighborhood disorder to externalizing symptoms may operate differently than for

internalizing symptoms. The current study highlights the fact that neighborhood disorder may affect adolescents differently, depending on their ascribed statuses such as gender and race, which may be particularly impactful for developing youth since they both involve identity formation (Kessler and McLeod 1984). This suggests that programming to address mental health and wellbeing for youth should be culturally sensitive to address the needs of various groups.

### *Mediation Analyses*

The final hypothesis guiding this research was that greater levels of social and personal resources would result in lower levels of distress, given that these resources have demonstrated beneficial effects on mental health in ample previous research (Brown 2004; Cohen and Wills 1985; Pearlin 1989; Pearlin et al. 1981). This concept is generally supported in the present study, as main effects models found that family support, self-esteem, and mastery all had direct negative effects on both internalizing and externalizing symptoms, meaning that greater levels of these resources resulted in lower levels of psychological distress, in accordance with much prior research (Haney 2007; Louie et al. 2021; Pearlin 1989; Pearlin et al. 1981; Tucker et al. 2020; Turner, Finkelhor, and Ormrod 2010). Previous research has also found specifically that in the context of neighborhood stressors, greater levels of resources predict lower levels of psychological distress (Gilster 2014). This was not the case for friend support, however, which did not demonstrate significant effects on either of the distress outcomes in the current study. Further analysis found that when family support is omitted from the model, friend support is significant, which may indicate that family support is more important in the relationship of neighborhood disorder with psychological distress for adolescents developmentally.

*Mediation models.* The current study examined the potential mediating effects of these social and personal resources in the relationships between neighborhood disorder and both internalizing and externalizing symptoms of psychological distress. In addition to the robust direct relationship between social and personal resources and mental health outcomes seen in the main effects models, the current study found significant indirect effects of neighborhood disorder on distress through social and personal resources, specifically family support, self-esteem, and mastery, but not friend support. While social and personal resources may affect mental health in a positive manner by serving to offset the negative effects of social stressors such as living in a disordered neighborhood, social stressors may indirectly negatively impact mental health by diminishing the social and personal resources that are available for an individual to access in order to cope with stressors (Dupéré, Leventhal, and Vitaro 2012; Haney 2007; Turner et al. 2010).

Consistent with prior research (Turner et al. 2017), the current study found that adversity, in this case neighborhood disorder, diminishes the availability of social support, self-esteem, and mastery for youth. In turn, the negative relationships between these resources and both of the psychological distress outcomes highlight the importance of these social and personal resources for mental health. The chronic strain and sense of risk from living in a disordered neighborhood diminishes the very factors that might help adolescents cope with the stressors, and this erosion of resources may leave them in an even more disadvantageous state as they encounter additional adversity.

Decomposing the total effect of each resource variable demonstrated that while family support and self-esteem are important factors in the relationship between neighborhood disorder and both internalizing and externalizing symptoms, mastery carries the largest indirect effect in

each case, and when compared with family support and self-esteem, mastery mediates the largest proportion of the total effect of neighborhood disorder on both forms of psychological distress. The significant findings for mastery are echoed in the literature by abundant prior research (Gilster 2014; Pearlin et al. 1981; Ross and Mirowsky 2013; Turner et al. 2017; Turner and Lloyd 1999), and mastery was found to be significant specifically in the relationship between neighborhood disorder and adolescent mental health (Dupéré et al. 2012; Gilster 2014).

The sense of mastery is developed through prior life experiences dealing with challenges and thus provides one with confidence in one's ability to influence outcomes when facing other life experiences (Mirowsky and Ross 2003; Turner et al. 1999). Mastery is particularly important in the context of neighborhood disorder (Gilster 2014), and the mediating influence of mastery in the current study is clear as greater levels of neighborhood disorder are associated with lower levels of mastery, and lower levels of mastery are associated with greater psychological distress.

The chronic stress of exposure to conditions of neighborhood disorder not only creates a sense of risk and frequent activation of the fight-or-flight response (Mirowsky and Ross 2003), but also creates a perceived lack of social order, and the sense that life outcomes are ruled by forces outside of one's control. These perceptions can create feelings of powerlessness or learned helplessness—a powerful determinant of psychological distress (Maier and Seligman 1976; Mirowsky and Ross 2003; Nolen-Hoeksema, Girgus, and Seligman 1986; Ross and Mirowsky 2009).

This sense of powerlessness engendered by neighborhood disorder, then, may also be reinforced by the perceived ambient risks in the neighborhood in a process known as structural amplification (Ross and Mirowsky 2013), whereby the diminished mastery or sense of powerlessness not only mediates the relationship, but also moderates the association between

neighborhood disorder and mental health, thus amplifying the adverse effects of neighborhood disorder, since those who have the greatest sense of powerlessness also experience the greatest levels of distress. Essentially, the effects of neighborhood disorder diminish the sense of mastery that would help an individual cope with the negative effects of neighborhood disorder. Although the current study examined mastery as a mediator and not a moderator, longitudinal studies on neighborhood disorder and mental health should consider how mastery may operate in both mediating and moderating processes over time.

### *Implications*

These findings have important implications for adolescent mental health in the context of neighborhood disorder. Ensuring appropriate systems, services, and support for youth should be a priority toward promoting more resilient young people in a gender responsive and culturally sensitive manner so that they may grow and develop into capable adults (Luthar and Cicchetti 2000; Slopen and Williams 2021; Ungar 2008).

Therefore, based on the findings in this study, a multi-pronged approach is warranted. The “socio-ecological model” (Bronfenbrenner 1978) asserts that human development occurs in a nested system that includes the individual, their relationships, the community, and the greater cultural, social, economic, and political influences, and each of these systems interacts with the others. These systems may impact people differently based on social status and cumulative and intersectional experience, and depending on how they are experienced, may either promote or hamper healthy growth and development. Applying this model to the findings of the current research provides a framework for interventions to address this important issue at multiple points in the environment of adolescents.



At the *individual* level, supporting youth with intervention strategies designed to help them develop resilience will ideally mitigate the burden of psychological distress both contemporaneously, and in adulthood (Dray 2021; Grych et al. 2020; Hamby et al. 2020; Ungar 2008). Strategies to increase social and personal resources, particularly a sense of mastery, are especially crucial, especially for youth living in the most disordered neighborhoods who have less of a chance to be exposed to experiences and contexts where they might develop a greater sense of mastery by being successful at new things. This may include strengths-based interventions such as positive youth development programs (Catalano et al. 2004) and resilience portfolios (Hamby, Grych, and Banyard 2018), while also taking into consideration factors such as gender and race/ethnicity (Williams and Deutsch 2016).

In the realm of *relationships*, given that parent support is important for adolescent mental health, finding ways to provide parents with needed resources and supports to help mitigate any stressors they experience will allow them to parent more effectively, and thereby support youth and help them to develop their own personal resources (Conger et al. 2009). Since research has demonstrated that parent/partner family structure can be problematic for youth, a finding that was also seen in this research, parents who have remarried or are cohabiting might benefit from education and support around ways to successfully blend families and continue to support children in the context of any new relationship.

Additionally, since adolescents spend a great deal of time in schools, school-based mental health promotion efforts should be made available there as well. These efforts may include explicitly mental health-directed programming (Clarke, Kuosmanen, and Barry 2015) or making available extra-curricular activities to promote self-esteem and mastery, as well as peer support

(Forgeard and Benson 2019). While evidence for school-based programs varies, (Dray et al. 2017; Katz et al. 2020) there is potential to reach a greater number of youth in this context.

*Community level* factors include social and physical disorder in the neighborhood, and the availability of social services, and these both have potential for interventions to improve adolescent mental health and wellbeing. A reasonable approach to tackle disorder could be to promote neighborhood redevelopment to improve upon existing physical disorder, but even more important is to create a sense of community (Walton 2016) in order to promote more social cohesion and collective efficacy, which have been shown to have a protective effect on mental health (Donnelly et al. 2016; Fagan et al. 2014; O'Brien et al. 2019; O'Brien and Kauffman 2013; Sampson and Raudenbush 2004; Sampson and Wilson 2012). Continued efforts are needed to make mental health services more available, accessible, and affordable to youth and families, particularly in neighborhoods that are service deserts. Additionally, services need to be culturally sensitive and reflect the people they are serving.

At the *societal* level, in which all of the other systems are nested, adoption of favorable policies and programs can play a major role in shaping all of these systems, and thus potentially promote adolescent mental health. A key policy priority should therefore be to promote mental health parity in insurance coverage to ensure treatment is affordable, and the expansion of programs like Medicaid to cover lower-income families who need financial assistance in accessing care. Broader, society-wide intervention initiatives addressing social conditions, economic disparities, and social norms and values are perhaps more difficult to achieve, but are sorely needed so that individuals and families can thrive.

## *Limitations*

Some limitations of the current study should be acknowledged as well. One of the significant limitations of this research is its use of cross-sectional data, and as such, a causal relationship between neighborhood disorder and adolescent mental health cannot be confirmed. It is likely that temporally, residence in a disordered neighborhood precedes psychological distress for adolescents, but a reverse relationship cannot be ruled out whereby adolescents with existing mental health problems may perceive greater neighborhood disorder (Latkin et al. 2009). Additionally, their current psychological state may influence adolescents' perceptions of social resources such as family support, and potentially their own self-esteem and sense of mastery, such that they do not evaluate these resources as clearly as they might without existing psychological distress, thus potentially inflating the relationship between neighborhood disorder and internalizing symptoms in particular.

Another possible limitation is the fact that the study did not examine whether there are differences in the relationship between neighborhood disorder and distress based on adolescents' developmental stage. Adolescence may be thought of as three stages: early adolescence, commonly thought of as ages eleven to fourteen; middle adolescence, ages fifteen to seventeen; and late adolescence, ages eighteen to twenty-one (Allen and Waterman 2019). With the developmental tasks of these different stages, adolescents likely change over time from a more family-oriented focus to a more peer- and school-oriented focus, and with this change may come variations in exposure to neighborhood disorder, since older adolescents typically have greater independence than younger adolescents. So too may the strength of associations between neighborhood disorder, the resources examined, and psychological distress vary across developmental stage (Costello, Copeland, and Angold 2011).

In terms of potential bias due to measurement of psychological distress, the externalizing measure of distress is composed of fewer items and is thus less comprehensive than the measure used for internalizing symptoms, which is composed of several dimensions of internalizing problems. This difference may account for the lack of significant findings for the interaction effects of neighborhood disorder with both gender and race/ethnicity for externalizing symptoms. Another measurement limitation is the use of a dichotomized measure (sex) in the data used to capture gender. Since some adolescents may not identify with either binary category, the current measurement does not allow an assessment of how non-cis-gender gender identities may influence the relationship between neighborhood disorder and psychological distress. Scholars should attend to this broader conception of gender and promote more comprehensive measures in survey research so that gender identity inequalities are not reproduced in future studies (Magliozzi, Saperstein, and Westbrook 2016; Westbrook and Saperstein 2015).

Another potential limitation of this research is spatial, in that the relationship between neighborhood disorder and psychological distress may differ by urbanicity and rurality dimensions, which was not addressed in the current study. Although there are many similarities between rural and urban communities, there are some distinctions (Lichter and Brown 2011; Skobba, Osinubi, and Tinsley 2020), and while much of the neighborhood effects literature has focused on urban areas, it is important to also understand these relationships in areas with less dense populations (De Marco and De Marco 2009). Some prior research has found that the association of neighborhood disorder and disadvantage with mental health is much stronger for urban neighborhoods (Rudolph et al. 2014), and urban disadvantage may be more visible and more concentrated than rural (Sampson et al. 2002). Additionally, the concept of neighborhood may be different in rural areas, where neighbors may live much further away, and residents may

define their neighborhoods differently than those in more urban areas (De Marco and De Marco 2009).

While this study did face limitations, the benefits of using a large nationally representative data set outweigh the limitations, and the findings provide a significant contribution to the literature on neighborhood disorder and adolescent psychological distress.

### *Directions for Future Research*

Although this research discovered several interesting relationships between neighborhood disorder and adolescent mental, more questions remain. Future research might benefit from an explicitly intersectional approach (Crenshaw 1989, 2017) to further examine how the intersection of multiple social statuses, including race/ethnicity and gender, affects the relationships between neighborhood context and psychological distress (Patil et al. 2018). It might also be beneficial to assess whether the effects of mediating resources differ by gender or race/ethnicity, thereby gaining more information to inform interventions. Future research might also utilize longitudinal data to establish the temporal order of exposure to neighborhood disorder and mental health outcomes, and to examine how the effects of neighborhood disorder on adolescent mental health vary over time and developmental stage to assess variations and potential intervention points.

### *Conclusion*

The current study sought to specify the effects of neighborhood disorder on internalizing and externalizing symptoms for adolescents and furthermore, to elucidate the effect that social statuses might exert on this relationship to explain increased psychological distress among youth living in disordered neighborhoods. While previous research has examined the impact of neighborhood disorder on mental health, the current findings provided a more elaborated picture

of for whom these effects occur, and for which mental health outcomes, with the aim of contributing to a more nuanced understanding of this relationship for adolescents.

Given the increased incidence and prevalence of mental health problems for youth in general, and the broader societal and structural issues that impact youth, such as the COVID-19 pandemic (Benner and Mistry 2020; Courtney et al. 2020), school shootings and gun violence exposure (Mitchell et al. 2021; Turner et al. 2019), and climate change (Burke, Sanson, and Van Hoorn 2018; Vergunst and Berry 2021), it is crucial to understand the mechanisms that underlie psychological distress for adolescents in general, and in particular, this study has attempted to highlight how effects on mental health may vary by social status and neighborhood context.

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