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## “Feeling Disorder” as a Comparative and Contingent Process: Gender, Neighborhood Conditions, and Adolescent Mental Health\*

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### Abstract

We explore the effects of neighborhood social disorder on internalizing symptoms among urban youth, focusing on three questions: First, we ask whether the impact of social disorder on internalizing symptoms results from comparisons to conditions measured locally or across the entire city. Second, we consider whether neighborhood collective efficacy modifies disorder's effect on internalizing symptoms. Finally, we assess whether these effects vary by gender. Analyses of survey data of 2,367 youth from the Project on Human Development in Chicago Neighborhoods indicate social disorder is positively associated with girls' internalizing symptoms when measured as a deviation from a “neighborhood cluster” (2–3 census tracts) mean. High collective efficacy within girls' neighborhood cluster attenuates disorder effects on their internalizing symptoms. We find no evidence of disorder or collective efficacy effects on boys' internalizing symptoms.

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Urban life is associated with the threat of exposure to disorder and decline. Historically, social disorder—overt public displays of behavior such as public intoxication and harassment—was thought to pose moral threats to urban residents, particularly youth (Lofland 1973). The consequences of disorder remain a point of intense interest for social scientists (Sampson 2009), with increasing emphasis placed on the implications of disordered environments for mental health (e.g. Aneshensel and Sucoff 1996; Kim 2010;

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Latkin and Curry 2003). Much of this work has addressed adult populations, but disorder effects on youth are an abiding concern (Fagg et al. 2006).

Incipient research on disorder effects suggests perceptible signs of social decay compromise adolescent mental health (Aneshensel and Sucoff 1996; Sampson, Morenoff, and Gannon-Rowley 2002). To date however, few studies have linked neighborhood disorder measured through systematic social observations (Reiss 1971) with adolescent mental health. Systematic social observation yields more reliable estimates of neighborhood disorder cues than can be collected from individual self-reports of survey respondents, which are influenced by both individual and neighborhood-level characteristics (Sampson et al. 2002; Sampson and Raudenbush 1999). As most studies on the association between neighborhood disorder and adolescent mental health rely on respondent self-reports of disorder, it remains unclear whether it is the actual *presence* or mere *perception* of disorder that leads to poor mental health.

Although interest in the effects of disorder on youth mounts, concerns about the meaning of disorder cues have also emerged. Critics of disorder research draw on a longstanding skepticism regarding universal standards for neighborhood evaluations. In this view, what constitutes a visual cue of decline to one may register as neutral or even positive to another (e.g., graffiti as vandalism versus art; Sampson 2009). Between perspectives emphasizing the universal and idiosyncratic (even individual) nature of disorder cues are approaches pointing to both shared understandings regarding indicators of decline and complexity in the social psychology of their interpretation (Sampson 2009). Consistent with this intermediate approach, we develop a model of neighborhood disorder effects on mental health that acknowledges both contextual and individual contingencies related to the impact of disorder on adolescent well-being.

Specifically, we argue the geographic radius of youths' routine activity results in loosely-bounded spatial exposures. Variation in the extent of disorder within these boundaries likely conditions the effect of disorder within one's immediate residential environment on adolescent internalizing symptoms (e.g., depression/withdrawal). We hypothesize internalizing symptoms more likely emerge when disorder cues within adolescents' immediate residential environment are comparatively more prevalent than within adolescents' larger routine activity spaces. We also address the potential for neighborhood social processes to buffer the effects of stressors on health and well-being (Foster and Brooks-Gunn 2013). We suggest social disorder cues may be interpreted as less problematic within neighborhoods characterized by trust and a collective willingness to address local challenges—deemed “collective efficacy” by Sampson and colleagues (1997). Accordingly, we hypothesize collective efficacy attenuates the positive association between social disorder and youths' internalizing symptoms. Finally, we take into account growing recognition of gender differences in the impact of neighborhood conditions on well-being (Aneshensel, Rutter, and Lachenbruch 1991; Popkin et al. 2010). Our study advances the understanding of the relationship between neighborhoods and mental health by highlighting the contingent and comparative processes through which social disorder influences adolescents' internalizing symptoms. We also provide new insight into neighborhood factors that may

contribute to higher levels of internalizing symptoms among girls compared to boys (Rosenfield and Mouzon 2013).

We employ data from the Project on Human Development in Chicago Neighborhoods (hereafter PHDCN)—an extensive data collection effort designed to assess the impact of urban contexts on the well-being of youth. We focus specifically on the consequences of disorder for internalizing symptoms, which become increasingly prevalent during adolescence (Costello et al. 2003). We explore the neighborhood context of adolescent internalizing symptoms using longitudinal data on youth and their caregivers, separately collected survey data on the social climate of larger neighborhoods, and detailed systematic social observation data on street blocks comprising youth residential contexts. Combining these data provides a unique opportunity to investigate factors that shape disorder influences on urban youth.

## BACKGROUND

Internalizing problems (e.g., depression /anxiety) and other health-related outcomes are commonly viewed as potential consequences of individual and collective experiences with stressors that are linked through a “stress process” (Pearlin 1999). Within this view, stressors are conceived as discrete or chronic negative experiences that threaten emotional or physical security. Building on Pearlin’s (1999) framework, we focus on the mental health consequences of ambient stressors within neighborhoods (e.g., disorder). We also test whether gender and neighborhood social organization (e.g., collective efficacy) attenuate the extent to which disorder cues are manifested in internalizing symptoms among youth.

To the extent that neighborhood social disorder provides chronic exposure to fear-inducing experiences, disorder represents a stressor that may trigger internalizing symptoms among vulnerable groups and individuals. Neighborhood disorder is social in nature, in that it both emerges from community (and extra-community) organization and all neighborhood residents are potentially subject to its effects. Social disorder thus represents a chronic stressor surrounds residents’ daily experiences (Pearlin 1999). Chronic stressors contribute to poor mental health by increasing mistrust and compromising residents’ sense of control, which is in turn associated with psychological distress (Hill and Maimon 2013; Mirowsky and Ross 2003). Consistent with this perspective, adolescents’ perceptions of neighborhood “ambient hazards” (e.g., violence and drug use) have been positively associated with depression (Aneshensel and Sucoff 1996).

Despite associations between disorder and internalizing symptoms in past research, the question of whether disorder is a universal and uniform source of stress is the subject of longstanding, and newly resurgent, debate (Skogan 1990; Taylor 2001; Wilson and Kelling 1982). A recent exchange in the *British Journal of Sociology* highlighted the durably contentious nature of discussions surrounding disorder.<sup>1</sup> Questions addressed included the extent to which disorder cues have “objective” character—that is, can disorder be quantified by assessing features of public spaces associated with decline? And, if disorder is

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<sup>1</sup>Volume 60, issue 1.

quantifiable, are assumptions about the universal effects of disorder on well-being justified? We take a middle ground between arguments assuming uniform apprehension, interpretation, and impact of disorder and those challenging the notion that consensus exists regarding the factors that index neighborhood disorder. In particular, with respect to the impact of disorder on youth, we argue disorder cues are usefully quantifiable, but their interpretation and impact on mental health are contingent upon the spatial context in which they are perceived and an individual's gender.

### Youth Activity Spaces and Exposure to Disorder

Our theoretical approach rests on the assumption that youth are typically exposed to both an immediate residential neighborhood and a larger surrounding neighborhood context in which their routine activities are concentrated. Despite the near explosion of interest in the implications of neighborhood contexts, research defining neighborhoods by residents' actual activity spaces remains incipient (Kwan et al. 2008). Limited data from large-scale probability studies of urban contexts suggest the routine activity spaces of urban residents encompass areas beyond the census tract—administrative units typically used to delimit neighborhood boundaries in neighborhood studies. For instance, data from the Los Angeles Family and Neighborhood Study indicate only 15.6% of respondents' grocery stores and 11.6% of places of worship were contained within the boundaries of residential census tracts; 62.5% of grocery stores and 43.7% of places of worship were contained within boundaries encompassing tracts contiguous to the residential tract (Sastry, Pebley, and Zonta 2002). Los Angeles may be characterized by relatively low accessibility of daily activity locations when compared with older, industrial cities of the Midwest and east coast (Reid 1997), suggesting the latter may be characterized by somewhat smaller routine activity spaces. Nevertheless, research suggests routine spatial exposures cover areas beyond census tracts.

Data on urban adolescents' routine activity spaces are sparser still, but research suggests they extend beyond tract boundaries. Basta et al. (2010), for instance, detailed the travel routes of a sample of Philadelphia adolescents over one day. These short-term observations revealed youth spend substantial proportions of time outside residential census tracts, suggesting adolescent spatial exposures are more expansive than previously assumed.

In the absence of detailed information on actual routine activities, definitions of "neighborhoods" must inevitably be based on estimates of ecologically-meaningful units of analysis and geared toward the research questions and theoretical models under consideration. Following Sampson et al. (1997), we employ the *neighborhood cluster* (hereafter NC) to proxy the larger area within which spatial exposures are likely concentrated. The PHDCN Community Survey prompted adult respondents to report on various aspects of their neighborhoods as defined by "the area around where you live and around your house. It may include places you shop, religious or public institutions, or a local business district. It is the general area around your house where you might perform routine tasks, such as shopping, going to the park, or visiting with neighbors" (Earls et al. 1997). The ecological unit employed to operationalize NCs by the PHDCN (aggregations of two to three census tracts) was chosen with this routine activity-based definition in mind. This

space, in turn, is assumed to demarcate perceptions of the social climate of neighborhoods with respect to trust, local attachments, and norms. Indeed, Sampson and colleagues (1997) find substantial variability in measures of collective efficacy (combining social cohesion and shared expectations for maintaining social control of public space) across NCs and high intersubjective agreement.<sup>2</sup>

NCs may be thought to encompass multiple *residential neighborhoods* that may exhibit within-neighborhood cluster variation on some dimensions, particularly disorder (Sampson and Raudenbush 2004). Grannis (1998) argues “T-communities”—areas in which houses may be connected without crossing a non-residential street—offer meaningful micro-residential contexts. Sampson and Raudenbush (2004) suggest census block groups capture similar ecological units and find evidence of variation in a number of aspects of the visible environment—including social disorder—at this level of analysis. While residential neighborhoods likely are salient contexts for urban youth, they are embedded in larger environments in which daily activities are concentrated. We argue youth assessments of residential neighborhoods are likely shaped by comparative judgments involving proximate environments to which they are routinely exposed.

### “Cognitive Landscapes” and Exposure to Disorder

Wilson’s (1996) work on the impact of concentrated poverty on urban residents emphasizes the processes by which “social isolation” shapes normative environments. In Wilson’s view, residence in structurally-disadvantaged neighborhoods precludes access to mainstream institutions and constrains perceptions of normative behavior. Sampson and Wilson (1995) use the term “cognitive landscapes” to describe the process by which neighborhood environments shape perceived options for action among residents. We draw on the assumption that spatial exposures constrain perceptual worlds to develop a model of the process by which urban youth encode and interpret social disorder phenomena. This model identifies the conditions in which social disorder cues most likely represent sources of stress and influence internalizing symptoms.

We argue gang activity, prostitution, drug selling, and similar behaviors are recognized as disorder across neighborhoods (Innes et al. 2004). However, the *implications* of these signs—that is, the degree of disorder they suggest and the corresponding level of stress they induce—may vary as functions of conditions in the larger community. Youth residing on the high end of the disorder spectrum within their NC may view immediate circumstances as comparatively threatening, resulting in increased internalizing symptoms. At the same time, youth residing in relatively lower disorder areas within the larger set of proximate residential neighborhoods may feel more secure, independent of the absolute level of disorder. In this view, disorder cues are consistent across neighborhoods but their association with internalizing problems depends on local comparisons to other locations within individuals’ larger routine activity spaces.

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<sup>2</sup>Intraclass correlation (ICC) captures intersubjective agreement. The ICC for collective efficacy is .21, indicating 21% of the variability in collective efficacy perceptions lies between NCs (Sampson et al. 1997)—a high ICC by the standards of neighborhood research (Duncan and Raudenbush 1999).

### Additional Contingencies in the Interpretation of Disorder

Other collective and individual-level factors may also shape the interpretive process applied to disorder cues. A history of research highlights the potential for neighborhood social organization to mitigate the impact of local stressors. Jacobs' (1961) work on the informal process by which some poor, seemingly disordered urban neighborhoods control public space is an early example. Jacobs' concern focused on the tendency among (typically middle class) urban authorities to interpret mixed residential and commercial space and active street ecologies as signs of urban disorder. In contrast, Jacobs argued population density, mixed land use, and vibrant street life generated the conditions necessary for effective monitoring or what she termed "eyes on the street." Neighborhoods in which residents routinely use streets tend to maintain webs of public trust and "an almost unconscious expectation of street support when the chips are down" (Jacobs 1961:56). Jacobs was among the first urban writers to employ the term "social capital" to describe the benefits of public neighbor networks. Additionally, her emphasis on the protective role of trust and the generalized expectation that neighbors intervene on each other's behalf was a forerunner of the concept of "collective efficacy" (Sampson et al. 1997). Jacobs underscores the importance of trust and expectations for beneficial action as preconditions for effective street management. Absent these preconditions, active streets—particularly those characterized by the presence of strangers—may become salient sources of stress.

Subsequent disorder research also suggests the impact of local disorder cues may depend on broader social contexts. Taub et al. (1984), for instance, found some high-crime areas were nevertheless perceived to be relatively safe. They hypothesized the critical moderating factor was the extent to which institutional actors appeared to be investing in the neighborhood (e.g., through overt security measures) to combat crime. Visible "control signals" provide cues that countervail the impact of otherwise threatening crime and disorder. Bottoms (2009) argues control signals triggered by institutional actors may work, in part, through enhanced collective efficacy. Similarly, Foster and Brooks-Gunn (2009) suggest neighborhood collective efficacy attenuates the negative impact of individually-experienced stressors (e.g., exposure to violence) on adolescents' well-being.

We argue informal processes captured by the concept of collective efficacy alter youths' stress responses to disorder cues. Specifically, we hypothesize social disorder within youths' residential neighborhood is less stressful, and less likely to lead to internalizing symptoms, among those residing in NCs with high levels of collective efficacy. Although collective efficacy is negatively associated with internalizing problems among urban youth (Xue et al. 2005), few have examined whether collective efficacy attenuates the influence of neighborhood stressors on mental health. One study based in Great Britain indicates neighborhood collective efficacy is negatively associated with anti-social behavior among children from economically deprived (but not affluent) neighborhoods (Odgers et al. 2009). While research highlights the variable effect of collective efficacy on adolescent outcomes (Browning et al. 2005; Maimon and Browning 2010), to date, no study has examined whether it mitigates disorder's impact on adolescents' mental health.

Finally, we draw on literature suggesting gender variation in the impact of neighborhood stressors on internalizing symptoms (Aneshensel et al. 1991; Clampet-Lundquist et al.

2011). Among more notable findings from the Moving to Opportunity for Fair Housing Demonstration (MTO) (Goering and Feins 2003) are gender differences in the impact of neighborhood conditions on adolescent outcomes. In the MTO study, public housing residents from high poverty neighborhoods were randomly-assigned to a treatment group and given vouchers to move to lower-poverty neighborhoods and compared to a control group who did not receive this benefit. In follow-up data collection efforts, evidence emerged that girls experienced benefits of the treatment with respect to mental health and behavioral outcomes, in contrast to boys (who were, for some outcomes, *worse off* as a result of the treatment; Kling, Ludwig, and Katz 2005; Orr et al. 2003).

Popkin et al. (2010) hypothesize MTO results showing differential impact of neighborhood conditions by gender may capture girls' experience of public environments rooted in "the female fear" (Gordon and Riger 1989)—i.e., the fear of sexual victimization, exploitation, and harassment. Popkin et al. present ethnographic evidence suggesting girls from the treatment group experienced an increased sense of safety and decreased pressure for sexual activity. Interviews revealed boys from the control group had developed complex sets of skills that allowed them to more effectively avoid neighborhood trouble (Clampet-Lundquist et al. 2011; see also Harding 2009). Finally, boys and girls from the treatment group conceptualized the "quietness" of low-poverty neighborhoods differentially. Boys often complained the new neighborhoods were "too quiet," while girls from the treatment group more often positively described the relative quietness of the new neighborhoods. Given gender variation in violence and disorder avoidance strategies and perceptions of neighborhood disorder, disorder cues may have especially strong implications for girls' internalizing symptoms. Additionally, we expect the heightened sensitivity to disorder hypothesized among girls is coupled with a comparable receptivity to the buffering effect of neighborhood collective efficacy.

### The Present Study

We explore the effects of social disorder on internalizing symptoms among a sample of urban youth from the PHDCN, focusing on three key questions. First, employing systematic observations of social disorder cues, we ask whether the influence of residential neighborhood social disorder on adolescents' internalizing symptoms (if any) is contingent on disorder within NCs or across the city as a whole. Second, we consider whether collective efficacy—measured at the NC-level—attenuates disorder's impact on internalizing outcomes. Finally, we estimate fully-interacted effects of disorder and collective efficacy by gender to assess whether they are more strongly associated with internalizing symptoms among girls.

## DATA AND METHODS

We use data from the PHDCN Longitudinal Cohort Survey (PHDCN-LCS), Community Survey (PHDCN-CS), and Systematic Social Observation (PHDCN-SSO) to examine the association between neighborhood social processes occurring at multiple levels of aggregation and adolescent internalizing symptoms. Individual-level measures are constructed from the PHDCN-LCS. Our measure of social disorder is drawn from the

PHDCN-SSO and constructed at the census block-group-level. Our measure of collective efficacy is based on data from the PHDCN-CS and is constructed at the NC-level. Measures of neighborhood structural characteristics are constructed at the NC-level and are based on 1990 census data.

For the PHDCN-LCS, Chicago's 865 census tracts were combined into 343 NCs that maintained relative population homogeneity in regards to racial/ethnic composition and housing and family structure characteristics. PHDCN investigators also defined NCs on the basis of meaningful ecological boundaries, such as parks, railways, and freeways. Each NC consisted of roughly 8,000 people. From there, a two-stage sampling procedure was used to construct a random sample consisting of 80 of the 343 NCs stratified by SES (high, medium, and low) and racial/ethnic make-up (7 categories). The investigators aimed to obtain equal representation of NCs across 21 strata. While largely successful, low-income primarily white, high-income primarily Latino, and high-income Latino or black neighborhoods did not exist in the city of Chicago in 1990. Youth from seven age cohorts were sampled from randomly-selected households from the 80 representative NCs. In-home interviews were conducted with youth respondents and their primary caregivers (hereafter PCG) in three waves over a six-year period (Wave 1 1994–1997, Wave 2 1997–1999, Wave 3 2000–2002).

### **Community Survey**

The PHDCN-CS consists of a probability sample of roughly 8,700 adult residents of Chicago focusing on neighborhood environmental assessments. The survey used a three-stage sampling strategy in which city blocks within Chicago's 343 NCs were randomly selected. Next, dwelling units within these blocks were sampled randomly, and finally, individuals within dwelling units were randomly selected to complete the survey. Roughly 25 respondents were selected from each of the 343 NCs to allow reliable estimation of neighborhood-level characteristics from individual data. Oversamples were collected among the 80 NCs that included PHDCN-LCS respondents, resulting in an average of 50 interviews per NC.

### **Systematic Social Observation**

For the PHDCN-SSO, observers trained by the National Opinion Research Center drove a sport utility vehicle at five miles-per-hour down every street within the 80 NCs selected for the PHDCN-LCS between June and September 1995. Video recorders captured social activities and physical characteristics on both sides of observed face-blocks. Meanwhile, observers added audio commentary to video noting unusual events (such as drug busts) and logged observations for each face-block. The team produced videotapes and logs for every face-block in the 80 sampled NCs, totaling 23,816 face-blocks, averaging 298 per NC.

PHDCN staff selected 15,141 video-recorded face-blocks for viewing and coding of 126 variables, including business typologies, housing characteristics, physical conditions, and social interactions. All face-blocks were coded for NCs consisting of 150 or fewer face-blocks, while samples were constructed for NCs with more than 150 face-blocks with the aim of approximating a balanced design intended to maximize statistical power for



comparing NCs. Training and other methodological measures helped ensure high inter-coder reliability and quality control (Raudenbush and Sampson 1999).

### Analytic Sample

We focus on youth from the 6–15 year-old PHDCN-LCS cohorts. Our sample includes 2,367 respondents interviewed in the first two waves, nested within 460 block groups, and 79 of the 80 NCs that included respondents from the 6–15 year-old cohorts at wave 2.

### Missing Data

Respondents not participating in wave 2 and those with missing data were dropped using listwise deletion. To assess missing data biases, we constructed multiply-imputed datasets using Imputation by Chained Equations (Royston 2004). After dropping respondents with missing values on wave 2 internalizing, we estimated models with the imputed data that were identical to the models presented in this study using HLM7's multiple imputation estimation procedure (results not displayed, available from authors upon request). Comparing imputed and non-imputed models revealed little difference in parameter estimates. Because we test gender variation in the interactive effects of social disorder and collective efficacy by comparing deviance statistics (which are unavailable for imputed models) from constrained and unconstrained models, we present results from the unimputed models.

### Dependent Variable

*Internalizing symptoms* are assessed with the Child Behavior Checklist (CBCL/4–18) measured at wave 2. CBCL subscales are commonly used in population surveys and clinical settings to assess depressive symptoms among children and adolescents and demonstrate high reliability and validity in clinical and cross-national research (Achenbach 1991; Crijnen et al. 1999). The PCG completed the CBCL over the first two waves. Caregivers were asked to report how true problem behaviors/symptoms were characteristic of their children during the past 6 months. Responses were ordinal and ranged from 0 (“not true”), to 2 (“often true”). Our outcome is a combined internalizing symptoms scale that includes items assessing depression/anxiety (e.g., fearful), withdrawal (e.g., timid), and somatic complaints (e.g., feels dizzy,  $\alpha=.877$ ). Our measure of internalizing symptoms represents the sum of the items, which is square root-transformed to reduce skewness.

### Individual-Level Independent Variables

We include independent variables designed to measure family characteristics and processes hypothesized to be associated with internalizing symptoms.

**Child and Family Demographics**—We model the effects of a number of individual-level demographic characteristics, including *age* and *race/ethnicity* (four dummy variables including *black*, *Latino/a* [second generation or above], *foreign-born Latino/a*, and *other*, with *white* as reference). Because we omit the grand-mean intercept in our models, we include both measures of *male* and *female* in our models (0=no, 1=yes). Family structure is captured with a dummy variable indicating *two-parents, both biological* (1=yes). We control

for family *socioeconomic status* with a measure consisting of the principal component of annual household income, and the highest education and occupational status of the PCG or partner. We also include a measure indicating whether the respondent has a *biological family member with a history of depression* (reported by the PCG, 1=yes).

**Family Processes**—We control for parental aggression and warmth/bonding, as they are associated with adolescent internalizing symptoms (Johnson and Greenberg 2012). *Parent-to-child psychological aggression* is a 7-item scale measuring psychological maltreatment by the PCG. The scale includes items indicating whether the PCG performed such acts as doing/saying something out of spite when he/she had a problem with the respondent in the year prior to the first interview ( $\alpha=.707$ ). Responses ranged from 0 (never) to 6 (> 20 times). *Parental warmth* captures affective parenting styles as measured by the HOME Inventory (Caldwell and Bradley 1984). The scale includes nine interviewer-assessed items indicating whether the PCG performed such acts as mentioning a particular skill of the respondent during the wave 1 interview (0=no, 1=yes). We measure parental aggression and warmth by taking means of the respective scale items ( $\alpha=.756$ ).

Neighborhood disorder may increase exposure to discrete stressors such as violence (Foster and Brooks-Gunn 2009). Accordingly, social disorder may promote internalizing symptoms through personalized stressors (e.g., individual exposure to violence) rather than collectively-experienced chronic stressors associated with disorderly environments. To help ensure disorder effects on internalizing symptoms stem from exposure to ambient neighborhood stressors (versus violent events), we control for youths' *exposure to violence* (ETV). We measure ETV with a binary variable indicating whether the respondent ever 1) witnessed someone shove, kick, or punch someone else, 2) saw someone attack someone with a knife, 3) witnessed a shooting, or 4) heard a gunshot within the past year.<sup>3</sup> These items are self-reported for cohorts 9–15 and parent-reported for cohort 6. Finally, we control for *prior internalizing symptoms*, which comes from the CBCL4/18, and completed by the PCG at wave 1. The scale was constructed in the same manner as the wave 2 internalizing symptoms scale.

## Neighborhood-Level Independent Variables

**Neighborhood Structural Characteristics**—We measure neighborhood structural characteristics for the 79 NCs using 1990 census data. Following research and theory on the determinants of neighborhood processes of interest (Sampson et al. 1997), we construct neighborhood structural variables using a principle components analysis with oblique rotated factor pattern of nine census measures at the NC-level. *Concentrated poverty*, the first component, is dominated by the percentage of residents with incomes below the poverty line, percentage of residents on public assistance, percentage of female-headed families, percentage unemployed, and percentage of residents who are children. The second

<sup>3</sup>PHDCN respondents only indicated the location of the most recent incidence of ETV for each item. We were thus unable to assess whether respondents were exposed to neighborhood violence for respondents who were 1) exposed to violence more than once and 2) if the most recent incidence of ETV occurred outside the neighborhood. Although the vast majority of recent ETV occurred within the neighborhood, we ran models with a measure of ETV that is based on whether the most recent violence occurred within the neighborhood (not displayed, available upon request). Those results are nearly identical to those presented.

component, *immigrant concentration*, is defined by the percentage of Latinos and percentage of foreign-born residents. The final component, *residential stability*, consists primarily of the percentage of persons living in the same house for 5 or more years and the percentage of homes that are owner-occupied.

**Collective Efficacy**—We measure *collective efficacy* by combining information from two subscales asked of adult community members from the PHDCN-CS. First, *social cohesion/trust* includes items gauging respondents' agreement with 5 statements such as: "This is a close-knit neighborhood," and "People in this neighborhood generally don't get along with each other." Responses ranged from 1="strongly disagree" to 5="strongly agree," with items reverse-coded to indicate higher levels of trust/cohesion. Second, *informal social control* assesses the likelihood neighbors would intervene on behalf of the public good in situations such as children spray-painting graffiti or children showing disrespect to an adult. Responses ranged from 1="very unlikely" to 5="very likely." Following Sampson et al. (1997) we combine these highly correlated scales ( $r=.80$ ) into a single measure of collective efficacy using a three-level item-response theory model (reliability=.80).

**Residential Neighborhood Disorder**—Following Raudenbush and Sampson (1999) we construct two measures of disorder with data from the PHDCN-SSO. Because we focus on comparisons of conditions within highly local residential neighborhoods relative to those of larger activity spaces, we measure disorder within the smaller geographical unit of the block-group within the initial 80 NCs for which block faces were observed. The first measure, which is our primary independent variable of interest, *social disorder* is a seven-item scale indicating the presence of 1) adults loitering or congregating, 2) people drinking alcohol, 3) peer group, gang indicators, 4) intoxicated people, 5) adults who are fighting or hostilely arguing, 6) prostitutes, and 7) people selling drugs, with 0=absence of the item and 1=presence of the item. We also measure *physical disorder* and assess its association with internalizing symptoms in sensitivity analyses to help ensure the association between social disorder and internalizing symptoms is not confounded by physical decay in the residential neighborhood. Physical disorder is a ten-item scale indicating the presence cigarettes/cigars on the street or gutter, gang graffiti, and other items (0=item not present, 1=item present). We create social and physical disorder scales using a multivariate three-level Rasch model (see Analytic Strategy).

### Analytic Strategy

We first describe our method for constructing block group-level measures of neighborhood disorder. We then describe our strategy for modeling the effects of neighborhood social processes on internalizing symptoms.

We employ the "ecometric" approach to construct measures of social and physical disorder (Raudenbush and Sampson 1999). Specifically, we fit three-level Rasch models to PHDCN-SSO disorder indicators, taking into account item "severity" at level-one, observation time-of-day at level-two, and reliability of scores across block groups at level-three. Our level-one model is stated as:

$$\eta_{ijk} = D_{sijk} \left( \pi_{sjk} + \sum_{m=1}^6 \alpha_{mjk} X_{mijk} \right) + D_{pijk} \left( \pi_{pjik} + \sum_{m=1}^9 \delta_{mjk} Z_{mijk} \right)$$

where  $\eta_{ijk}$  is the log-odds that the  $i_{th}$  disorder item in block face  $j$  in block group  $k$  is present;  $D_{sijk}$  is binary and takes on a value of 1 if item  $m$  captures social disorder and  $D_{pijk}$  is binary and takes on a value of 1 if item  $m$  captures physical disorder;  $X_{mijk}$ ,  $m=1, \dots, 6$  are dummy variables representing six of the seven items measuring social disorder and  $Z_{pijk}$ ,  $m=1, \dots, 9$  are dummy variables representing nine of the ten items measuring physical disorder (each taking values of 1 or 0). Because we center each  $X$  and  $Z$  around their grand means,  $\pi_{sjk}$  and  $\pi_{pjik}$  are the adjusted log-odds of finding social disorder and physical disorder (respectively) on a “typical item” when observing face-block  $j$  of block group  $k$ , and  $\alpha_{mjk}$  reflects the severity of item  $m$  within the social disorder scale and  $\delta_{mjk}$  reflects the severity of item  $m$  of the physical disorder scale. The level-two, or block-face model, is stated as:

$$\pi_{sjk} = \beta_{sk} + \sum_{q=1}^5 \theta_{sqk} (\text{Time})_{qjk} + u_{sjk}$$

$$\pi_{pjik} = \beta_{qk} + \sum_{q=1}^5 \theta_{pqk} (\text{Time})_{qjk} + u_{pjik}$$

Because the presence of social and physical disorder likely varies throughout the day, we control for time of observation in the level-two model.  $(\text{Time})_{qjk}$ ,  $q=1, \dots, 5$  are five dummy variables indicating whether the observation took place from 8:00–8:59am, 9:00–10:59am, 11:00am–12:59am, 1:00–2:59pm, or 3:00–4:59pm, where the omitted group is 5:00–6:59pm. Coefficients  $\theta_{sqk}$  and  $\theta_{pqk}$  capture the time-of-day effects on observing social or physical disorder (respectively) within block-group  $k$ .  $\beta_{sk}$  and  $\beta_{qk}$  are the “true” scores for block group  $k$  on social and physical disorder (respectively), adjusting for time-of-day. Finally,  $u_{sjk}$  and  $u_{pjik}$  are random effects for social and physical disorder assumed to be normally distributed with means 0 and variances  $\tau_{ss}$  and  $\tau_{pp}$  (respectively). The disorder scales scores used in our study are the level-three empirical Bayes-adjusted intercepts from the Rasch model. The multilevel reliabilities for the social and physical disorder scales were .562 and .907 (respectively).<sup>4</sup>

We fit three-level linear models with neighborhood effects fully-interacted by gender to examine the association between NC collective efficacy, block-group social disorder, and internalizing symptoms. This model omits the overall intercept and instead estimates separate intercepts for boys and girls, which allows for the examination of gender-specific effects of collective efficacy and social disorder. The level-one model is expressed as:

<sup>4</sup>The reliabilities for block-group disorder measures are roughly comparable to those reported in Sampson and Raudenbush (2009).

$$Y_{ijk} = \pi_{1jk}(\text{Male})_{jk} + \pi_{2jk}(\text{Female})_{jk} + \sum_{p=3}^P \pi_{pjk} a_{pijk} + e_{ijk}$$

where  $Y_{ijk}$  is the internalizing symptoms score of child  $i$  in block group  $j$  in NC  $k$ ,  $\pi_{1jk}$  and  $\pi_{2jk}$  are the respective intercepts for boys and girls in block group  $j$  in NC  $k$ , and  $Male_{jk}$  and  $Female_{jk}$  are binary variables (0=no, 1=yes) indicating respondent  $j$  in neighborhood  $k$ 's gender.  $a_{pijk}$  are  $p=3, \dots, P$  respondent characteristics,  $\pi_{pjk}$  are level-one coefficients indicating the effect of characteristic  $p$  on individual  $i$ 's internalizing symptoms score, and  $e_{ijk}$  is a person-specific disturbance term that is normally distributed with mean 0 and variance  $\sigma^2$ . The level-two model equations are as follows:

$$\pi_{1jk} = \beta_{10k} + \beta_{11k}(\text{SocDis}_{jk} - \overline{\text{SocDis}_{.k}}) + r_{1jk}$$

$$\pi_{2jk} = \beta_{20k} + \beta_{21k}(\text{SocDis}_{jk} - \overline{\text{SocDis}_{.k}}) + r_{2jk}$$

where  $\beta_{10k}$  and  $\beta_{20k}$  are the intercepts for boys and girls in NC  $k$ ,  $\beta_{11k}$  and  $\beta_{21k}$  are the effects of group-mean centered social disorder among boys and girls (respectively), and  $r_{1jk}$  and  $r_{2jk}$  are normally-distributed error terms with means of 0 and variances  $\tau_{\pi 1}$  and  $\tau_{\pi 2}$ . Finally, the NC-level model is as follows:

$$\beta_{10k} = \gamma_{100} + \gamma_{101}(\text{CollEff})_k + \sum_{q=2}^Q \gamma_{10q} W_{qk} + u_{10k}$$

$$\beta_{20k} = \gamma_{200} + \gamma_{201}(\text{CollEff})_k + \sum_{q=2}^Q \gamma_{20q} W_{qk} + u_{20k}$$

where  $\gamma_{100}$  and  $\gamma_{200}$  are the intercepts (i.e., the adjusted grand-means of boys' and girls' internalizing symptoms), and  $\gamma_{101}$  and  $\gamma_{201}$  the effects of NC-level collective efficacy for boys and girls (respectively). We also allow the effects of neighborhood structural covariates to be freely estimated (i.e., not constrained to be equal) across boys and girls. Accordingly, the  $\gamma_{10q}$  and  $\gamma_{20q}$  coefficients represent the effects of  $Q$  NC-level structural covariates  $W_q$  among boys and girls. Finally,  $u_{10k}$  and  $u_{20k}$  are normally-distributed error terms with means of 0, and variances  $\tau_{\beta 1}$  and  $\tau_{\beta 2}$ .

Our final model introduces interactions between NC-level collective efficacy and block group social disorder. To test these cross-level interactions we model the association between social disorder and boys' and girls' internalizing symptoms as randomly-varying functions of NC-level collective efficacy as follows:

$$\beta_{11k} = \gamma_{110} + \gamma_{111}(\text{CollEff})_k + u_{11k}$$

$$\beta_{21k} = \gamma_{210} + \gamma_{211}(\text{CollEff})_k + u_{21k}$$

where  $\gamma_{110}$  and  $\gamma_{111}$  are the average adjusted effects of social disorder among boys and girls (respectively),  $\gamma_{111}$  and  $\gamma_{211}$  are the coefficients for the cross-level interactions between collective efficacy and social disorder among boys and girls, and  $u_{11k}$  and  $u_{21k}$  are NC-specific random effects for the slopes of social disorder among boys and girls.

## RESULTS

We estimate the effects of individual- and neighborhood-level measures on internalizing symptoms with multilevel linear models (see tables 2 and 3). All predictors are centered at their grand means, except gender indicators, which are left in their raw metric, and social disorder which is group-mean centered in all models except model 3 (where it is grand-mean centered).

First, to assess variation in boys' and girls' internalizing symptoms across block groups and NCs, we estimate an unconditional model with all predictors omitted (results not shown). Likelihood ratio chi-square tests of variance components revealed no significant variation in boys' internalizing behavior across block groups or NCs ( $\tau_{\pi 1} = .1233$ , *n.s.*;  $\tau_{\beta 1} = .0006$ , *n.s.*). Conversely, the model revealed significant variation in girls' internalizing symptoms across block groups ( $\tau_{\pi 2} = .2084$ ,  $p < .01$ ) and a marginally-significant level of variation in girls' internalizing symptoms across NCs ( $\tau_{\beta 2} = .0146$ ,  $p < .10$ ).

We estimate the effects of individual and neighborhood-level controls on internalizing symptoms in model 1 (table 2). Results indicate few control variables are significantly associated with internalizing symptoms at wave 2 after controlling for prior internalizing symptoms. Parent-to-child psychological aggression ( $b = .18$ ,  $p < .01$ ), exposure to violence ( $b = .09$ ,  $p < .05$ ), and prior internalizing symptoms ( $b = .53$ ,  $p < .01$ ) are positively associated with wave 2 internalizing symptoms. In model 2 we introduce block-group social disorder, which is centered at its grand mean, to level-two equations. Positive and significant coefficients for the grand mean-centered disorder measures would suggest the magnitudes of the adverse effects of local disorder on boys and girls mental health are functions of the block group's deviation from the average level of disorder *across* the NCs (i.e., the city-wide mean). Among both boys and girls, however, we found no such significant coefficients for the grand-mean centered measures of disorder.

In model 3 we omit the grand mean-centered social disorder measure and include the group-mean centered measure of block group social disorder. Here, significant coefficients would suggest the association between local disorder and internalizing symptoms is a function of the degree to which block-group disorder deviates from the level of disorder *within* the surrounding area of the NC, rather than the city-wide mean. The model indicates no significant association between boys' internalizing symptoms and the group-mean centered

measure of social disorder. Conversely, supporting our hypothesis concerning gender-variation in the effects of local social disorder, social disorder is positively and significantly associated with girls' internalizing behavior when centered around the NC mean ( $b=.17, p<.05$ ). Additionally, residential stability is negatively associated with girls' internalizing symptoms when social disorder is centered around its group mean ( $b=-.08, p<.05$ ).

Turning to the results in table 3, model 4 introduces NC-level collective efficacy. Results indicate no significant association between collective efficacy and boys' internalizing symptoms. Conversely, collective efficacy is negatively associated with girls internalizing symptoms ( $b=-.45, p<.05$ ). Furthermore, introducing collective efficacy decreases the magnitude of the negative association between residential stability and girls internalizing behavior from model 3 to a non-significant level.

Finally, model 5 in table 3 introduces cross-level interactions between collective efficacy and group-mean centered social disorder. Results indicate the association between block-group social disorder and internalizing symptoms does not vary by NC collective efficacy among boys. Conversely, among girls, the negative and significant coefficient for the interaction term ( $b=-0.56, p<.05$ ) indicates the effect of disorder on mental health is more pronounced when collective efficacy is lower. Results from the model support our primary hypothesis concerning the interactive effects of collective efficacy and disorder on girls' mental health. We ran an additional model in which the main effects of disorder and collective efficacy, and the interactive effect of disorder and collective efficacy were each constrained to be equal across gender groups (results not displayed). A likelihood ratio test comparing the constrained model with model 5 revealed significant differences in the deviance statistics from the models ( $\chi^2=9.67, df=3, p<.05$ ), indicating the association between collective efficacy, disorder, and internalizing symptoms varies by gender.

Figure 1 illustrates variation in the impact of block group social disorder on girls' internalizing symptoms at various levels of collective efficacy. The figure, based on the estimates from model 5 when all control variables are held at their means, indicates at higher levels of collective efficacy (1.5 standard deviations above the mean), the association between disorder and internalizing behavior is slightly negative, although not statistically significant. We see at mean levels of collective efficacy, the effect of block group disorder is slightly positive, although not significantly associated with the outcome. However, when collective efficacy in the surrounding neighborhood is low (1.5 standard deviations below the mean), block-group disorder is significantly and positively associated with girls' internalizing behavior. Thus it appears the adverse effect of local social disorder on girls' internalizing symptoms is contingent upon low collective efficacy within the surrounding neighborhood.

### Sensitivity Analyses

We performed sensitivity analyses to help ensure our results are not attributable to alternative mechanisms. These results are not displayed but are available from the authors upon request. First, studies suggest stress is more likely to be manifested in externalizing behaviors (e.g., drug use, violence) than internalizing symptoms among males (Aneshensel et al. 1991). Accordingly, the null association between social disorder and boys'

internalizing symptoms may be due to gender differences in the *types* of stress responses, rather than gender variation in the *severity* of stress responses.

To help ensure our results do not reflect gender variation in the type of response to social disorder, we measured youths' *externalizing behavior* with a CBCL subscale based on parental responses to items capturing aggressive (e.g., fighting) and delinquent (e.g., vandalism) behaviors, measured at wave 2. Our measure is the sum of 21 items capturing how true aggressive and delinquent behaviors were characteristic of the youth respondent during the past 6 months (responses ranged from 0="not true" to 2="often true"), which is square root transformed to reduce skewness ( $\alpha=.869$ ). We then ran models that are identical to those presented, but with wave 2 externalizing symptoms as the outcome and controlling for prior externalizing symptoms. Across these models, social disorder (centered both ways) was not associated with boys' or girls' externalizing behavior. These associations did not vary by collective efficacy at the NC level.

Additionally, the relationship between block-group social disorder and internalizing symptoms may be confounded by local neighborhood structural characteristics such (e.g., disadvantage), as well as collective efficacy and physical decay. To help ensure the association between block-group social disorder and girls internalizing symptoms is not confounded by other factors, we ran models similar to models 3 (table 2) and 5 (table 3) that included block-group measures of concentrated disadvantage, residential stability, immigrant concentration, collective efficacy, and physical disorder, centered around the mean of the respective NCs (with the respective measures omitted from the NC-level equations). None of the neighborhood-level measures introduced in these models were associated with boys' or girls' internalizing symptoms, net of social disorder. Furthermore, both the significant association between social disorder and girls' internalizing symptoms (from model 3) and the interactive association between social disorder, collective efficacy, and girls' internalizing symptoms (from model 5) remained after controlling these factors.

## DISCUSSION

Increasingly, researchers interested in neighborhood effects on adolescents are recognizing these associations exhibit greater complexity than previously assumed. In the case of social disorder, we argue while factors such as public intoxication, drug selling, and prostitution are recognized across contexts as indicators of social decline, the impact of these cues is dependent on both contextual and individual factors.

We addressed three key hypotheses. First, we considered whether adolescents' responses to social disorder are rooted in relative comparisons to proximate geographic environments in which they are embedded. Analyses of PHDCN data indicate while the effect of social disorder centered around the *overall* block-group mean was not significantly associated with internalizing symptoms, social disorder centered around the NC-level mean was positively and significantly associated with girls' internalizing symptoms. Importantly, this result is consistent with the expectation that disorder cues are interpreted relative to local, not city-wide conditions. Adolescents at the high end of the citywide social disorder continuum may not experience internalizing symptoms in response to social disorder if they reside in a



relatively low-disorder block group compared to others within their NC. In contrast, adolescents residing in a block-group with low levels of disorder relative to citywide averages may still experience internalizing symptoms in response to social disorder cues if these cues are more prevalent in their block group compared to others nearby. Consistent with insights from Sampson and Wilson (1995) and activity space perspectives (Kwan et al. 2008), we highlight the need to consider characteristics of activity spaces and cognitive/comparative processes when theorizing the relationship between neighborhood conditions and health.

Second, we tested the hypothesis that collective efficacy attenuates the positive association between social disorder and internalizing symptoms. This hypothesis was largely motivated by Jacobs (1961), who suggests neighborhood-based disorder cues may be less detrimental when accompanied by trust and norms of mutual support among neighbors. We found no such association for boys. However, for girls, we found protective effects of collective efficacy and evidence that the association between local social disorder and girls' internalizing symptoms is significant only when collective efficacy within the larger neighborhood context is lower. This result suggests NCs with high levels of trust and expectations for intervention to control public space may reduce the extent to which indicators of social disorder are experienced as stressors. Although visible signs of disorder are likely to be recognized as such in high collective efficacy areas, they may be seen as less threatening in the context of larger communities with strong norms regarding the control of crime. These results are also consistent with past studies that found variable associations between collective efficacy and adolescent outcomes (Browning et al. 2005; Maimon and Browning 2010).

Finally, we examined the effects of disorder and collective efficacy on internalizing symptoms separately for boys and girls in order to test the hypothesis that the latter are more sensitive to potentially threatening environmental conditions. As noted, the significant effects of social disorder and collective efficacy were observed for girls, but not boys in our models. These results are consistent with past research that found stronger associations between some types of environmental stressors and girls' internalizing symptoms (Grant et al. 2006). For instance, the potential sexual victimization threat social disorder cues pose—particularly the presence of groups of unsupervised young men occupying public space—may be a greater source of stress and associated internalizing responses among girls by comparison with boys, as suggested by Popkin et al. (2010). Supplemental models of externalizing symptoms further support for our claim that gender differences in the association between social disorder and internalizing symptoms and the stronger attenuating effect of collective efficacy on the slope of disorder among girls result from gender variation in the *severity* of the response to local social disorder cues among girls (rather than differences in the *types* of stress responses). More research is needed, however, to more fully explore the mechanisms that account for gender differences in the internalizing consequences of neighborhood social disorder and social organization.

Although the magnitudes of contextual findings are not particularly large, contextual effects on individuals are, generally speaking, relatively modest. Regardless, our findings are noteworthy because we make inferences to *neighborhood* populations of girls. Thus, while

the observed associations are relatively modest, they are presumed to impact *all* girls within a given context, which is important from a public health standpoint. Additionally, we likely underestimate the associations as the actual routine activity spaces that bound the comparative processes are only proxied in our study.

The analyses are limited in a number of respects. First, we cannot directly measure the social psychological reaction to objectively measured social disorder cues in the environment. For instance, is objectively-measured social disorder correlated with perceptions and interpretations of disorder by individual adolescents in a manner consistent with our hypothesis? More direct questions asking adolescents to rate their immediate residential neighborhood with respect to disorder and compare it to other communities would allow for assessment of the social psychological mechanism proposed here. Related, detailed activity space data were not collected among adolescent respondents, precluding a more precise assessment of spatial exposures. Although the NC is a plausibly relevant larger community to which comparisons of immediate residential environments are made, the comparative process may vary at the individual level according to the breadth of actual spatial exposures.<sup>5</sup> Future studies that more fully capture the radius of adolescents' routine activity exposures may provide further empirical support for the theoretical model proposed in this study.

These findings point to the need for more detailed understanding of the processes by which perceptual worlds are shaped and the mechanisms through which their consequences unfold. An increasing body of research has established that independently or "objectively" measured characteristics of community environments exert influence on a wide range of adolescent outcomes. However, Jacobs (1961) emphasized the notion that environments that may appear disorderly are not necessarily problematic for neighborhood residents if accompanied by high levels of trust between residents. Our results are consistent with this assertion. It is thus important for policy makers to recognize that disorderly environments may differentially impact youth mental health depending on other aspects of the social climate of the neighborhood. Merely removing signs of disorder may have limited impact on youths' well-being in the absence of understanding other social dimensions of neighborhood organization. That said, literature on the complex processes by which broader social environments reach individuals remains nascent. Further research examining the contingent effects of disorder cues will likely contribute to our understanding of individual variation in mental health outcomes.

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<sup>5</sup>A plausible hypothesis suggests census tracts better capture the geographic radius of adolescents' concentrated activity exposures. If so, then results from models in which tracts serve as the level-three unit should provide larger coefficients for the relative effects of social disorder. We ran supplementary models that are analogous to models 3 through 5, but for which census tracts represent the level-3 unit (results not displayed). Disorder was not significantly associated with girls' internalizing symptoms in those models. The social disorder\*collective efficacy interaction also was not statistically significant.

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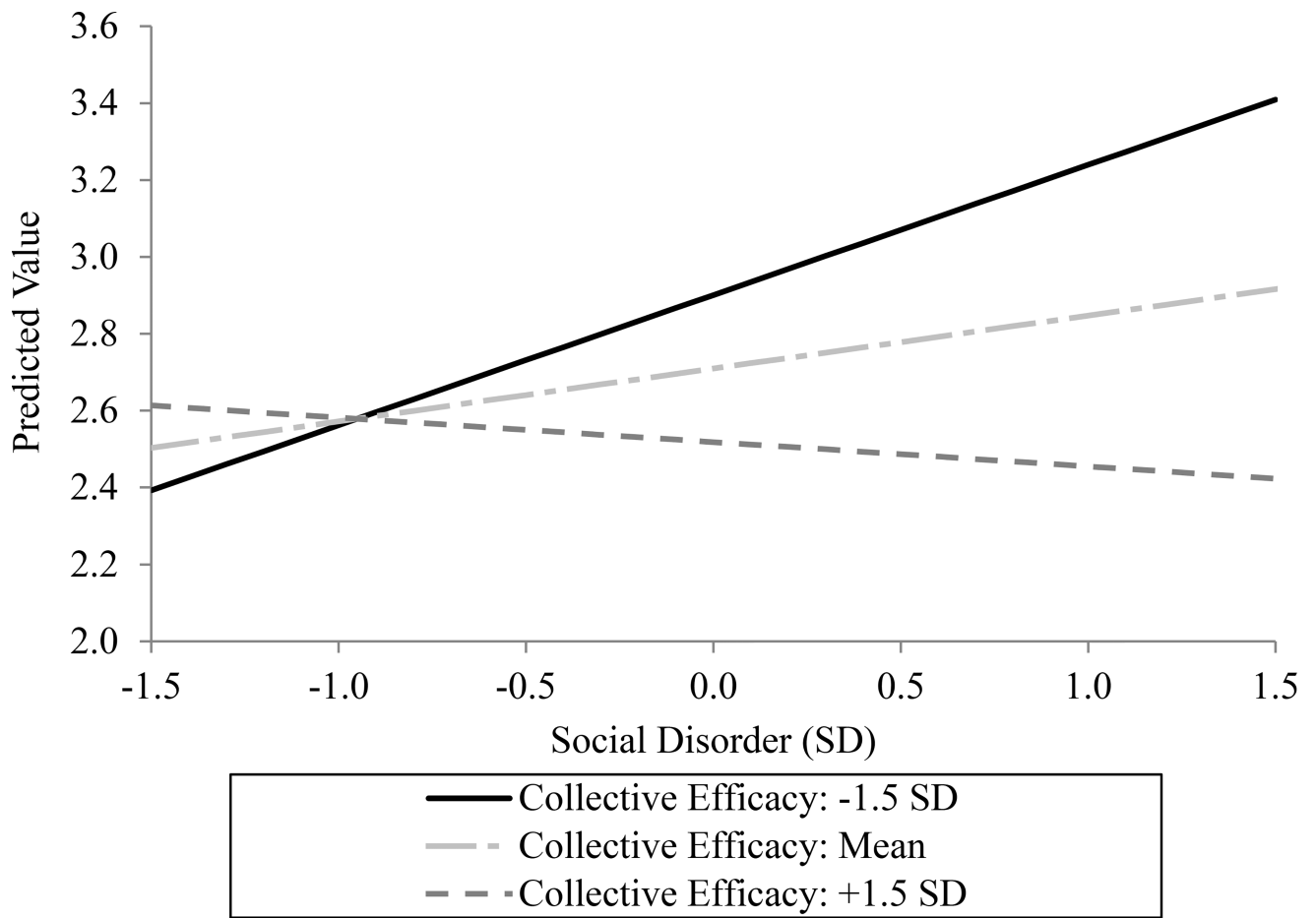
## Biographies

Christopher R. Browning, Ph.D., is a professor of sociology at the Ohio State University. His research interests include the causes and consequences of community social organization; the neighborhood context of crime, risk behavior, and health; multilevel statistical models; and community-based social networks. He is currently Principal Investigator on the *Adolescent Health and Development in Context (AHDC)* study, investigating the influence of community social processes on adolescent psychological and behavioral health in Franklin County, OH (funded by National Institute on Drug Abuse and the W.T. Grant foundation).

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Margo Gardner, Ph.D., is a Research Scientist at the National Center for Children and Families at Teachers College, Columbia University. Dr. Gardner studies contextual influences on socioemotional development in adolescence and young adulthood. Recent publications have addressed the interactive contributions of proximal influences, such as parenting, and more distal influences, such as neighborhood poverty and afterschool resources, on adolescent mental health and behavior.

Jeanne Brooks-Gunn, Ph.D., is Virginia and Leonard Marx Professor of Child Development at Columbia University's Teachers College and the College of Physicians and Surgeons. A developmental psychologist, she studies the life course of children and parents with a focus on family and neighborhood influences. She also does biobehavioral research (DNA, cortisol, hormonal) as influenced by the environment, and designs and evaluates early childhood education, home visiting, and housing programs. She has been elected to the Institute of Medicine of the National Academies, the National Academy of Education, the AAAS, and the American Academy of Political and Social Science and has won lifetime policy achievement awards from APS, APA, SRA, SRCD.



**Figure 1.** Predicted Value of Girls' Internalizing Symptoms (Wave II) for Neighborhoods with +1.5 SD, Mean, and -1.5 SD Collective Efficacy

**Table 1**

Descriptive Statistics

	Total Sample		Boys		Girls	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
<b>Individual Variables</b>						
Wave II Internalizing Symptoms	2.64	(1.37)	2.61	(1.35)	2.66	(1.38)
Prior Internalizing Symptoms	2.48	(1.26)	2.43	(1.25)	2.54	(1.27)
Age	10.14	(3.33)	10.15	(3.29)	10.13	(3.38)
Male	.50		1.00		.00	
White	.14		.14		.14	
Black	.32		.31		.32	
Latino/a	.41		.40		.42	
Foreign Born Latino/a	.10		.11		.09	
Other	.03		.04		.03	
2 Parents, Both Biological	.54		.55		.54	
Family Member with Depression	.24		.22		.25	
Socioeconomic Status	-.18	(1.41)	-.13	(1.42)	-.22	(1.40)
Psychological Aggression	.93	(.91)	.97	(.94)	.90	(.87)
Parental Warmth	.75	(.23)	.73	(.24)	.76	(.23)
Exposure to Violence	.71		.73		.69	
<b>Neighborhood Variables</b>						
Block Group Social Disorder	-7.67	(.89)				
Concentrated Disadvantage	-.11	(.84)				
Immigrant Concentration	.36	(1.11)				
Residential Stability	-.30	(1.06)				
Collective Efficacy	3.44	(.27)				
Individual N	2,367		1,176		1,191	
Block-Group N	460					
NC N	79					

**Table 2**  
Wave II Internalizing Symptoms Regressed on Neighborhood and Individual Measures

Variables	Model 1	Model 2 <sup>a</sup>	Model 3 <sup>b</sup>
<b>Boys' Intercept</b>	2.66** (.08)	2.67** (.08)	2.66** (.08)
Concentrated Disadvantage	.07 (.05)	.08 (.05)	.07 (.05)
Immigrant Concentration	.04 (.04)	.05 (.04)	.05 (.04)
Residential Stability	-.04 (.03)	-.04 (.03)	-.04 (.03)
Social Disorder		-.01 (.05)	-.01 (.06)
<b>Girls' Intercept</b>	2.69** (.08)	2.70** (.08)	2.69** (.08)
Concentrated Disadvantage	.04 (.06)	-.01 (.07)	.04 (.06)
Immigrant Concentration	-.01 (.03)	-.04 (.03)	-.01 (.03)
Residential Stability	-.07 (.04)	-.05 (.04)	-.08* (.04)
Social Disorder		.10 (.06)	.17* (.08)
<b>Individual Variables</b>			
Age	-.01 (.01)	-.01 (.01)	-.01 (.01)
Black	-.12 (.09)	-.13 (.09)	-.12 (.09)
Latino/a	.06 (.08)	.06 (.08)	.06 (.08)
Foreign Born Latino/a	.18 (.11)	.18 (.11)	.18 (.11)
Other	-.11 (.12)	-.11 (.13)	-.11 (.12)
2 Parents, Both Biological	-.12 (.07)	-.12 (.07)	-.12 (.07)
Family Member with Depression	.09 (.06)	.09 (.06)	.09 (.06)
Socioeconomic Status	.02 (.02)	.02 (.02)	.02 (.02)
Psychological Aggression	.18** (.03)	.18** (.03)	.18** (.03)
Parental Warmth	-.11 (.14)	-.11 (.14)	-.11 (.14)
Exposure to Violence	.09* (.04)	.09* (.04)	.09* (.04)
Prior Internalizing Symptoms	.53** (.03)	.53** (.03)	.53** (.03)

*Note:* Robust standard errors in parentheses. Social disorder is measured at the block-group level; all other neighborhood variables measured at NC-level.

<sup>a</sup>Block-group disorder is centered around grand mean;

<sup>b</sup>Block-Group disorder is centered around NC mean.



Individual N=2,367; Block-Group N=460, NC N=79.

\*\*  $P < .01$ .

\*  $P < .05$  (two-tailed tests).

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**Table 3**

Wave II Internalizing Symptoms Regressed on Neighborhood and Individual Measures

Variables	Model 4		Model 5	
<b>Boys' Intercept</b>	2.67**	(.08)	2.67**	(.08)
Concentrated Disadvantage	.07	(.05)	.08	(.04)
Immigrant Concentration	.04	(.04)	.05	(.04)
Residential Stability	-.04	(.04)	-.04	(.04)
Collective Efficacy	-.01	(.15)	-.02	(.15)
Social Disorder	-.01	(.06)	.00	(.06)
Collective Efficacy*Social Disorder			.21	(.22)
<b>Girls' Intercept</b>	2.71**	(.08)	2.71**	(.08)
Concentrated Disadvantage	-.01	(.05)	-.01	(.05)
Immigrant Concentration	-.04	(.03)	-.04	(.03)
Residential Stability	-.01	(.05)	-.01	(.05)
Collective Efficacy	-.45*	(.20)	-.47*	(.20)
Social Disorder	.17*	(.08)	.15*	(.07)
Collective Efficacy*Social Disorder			-.56*	(.28)
<b>Individual Variables</b>				
Age	-.01	(.01)	.00	(.01)
Black	-.14	(.09)	-.13	(.09)
Latino/a	.05	(.08)	.05	(.08)
Foreign Born Latino/a	.16	(.11)	.15	(.11)
Other	-.12	(.13)	-.11	(.13)
2 Parents, Both Biological	-.12	(.07)	-.13	(.07)
Family Member with Depression	.09	(.06)	.10	(.06)
Socioeconomic Status	.03	(.02)	.02	(.02)
Psychological Aggression	.18**	(.03)	.18**	(.03)
Parental Warmth	-.11	(.14)	-.11	(.14)
Exposure to Violence	.09*	(.04)	.07	(.06)
Prior Internalizing Symptoms	.53**	(.03)	.53**	(.03)

**Note:** Robust standard errors in parentheses. Social disorder is measured at the block-group level; all other neighborhood variables measured at NC-level.

Individual N=2,367; Block-Group N=460, NC N=79.

\*\*  
p<.01,

\*  
p<.05 (two-tailed tests).