Neighborhood as a Social Context of the Stress Process

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Running Head: NEIGHBORHOOD AND THE STRESS PROCESS

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A fundamental objective of the stress process model is to explain the connection between low social status and high levels of psychological distress and disorder (Pearlin, 1989, 1999; Pearlin, Menaghan, Lieberman, & Mullan, 1981). This goal has been realized, in part, through the elaboration of the connection between exposure to stressors and status locations within various institutions and social arrangements—education, occupation, economy, gender and race/ethnicity. In addition, the model articulates the role of low social status in limiting access to psychosocial resources that might otherwise ameliorate the adverse mental health impact of exposure to stress.

Applications of the model that emphasize social status generally treat social status as an attribute of the individual, for example, the person's educational attainment. However, Wheaton and Clarke (2003) call attention to the relevance of contextual social inequality to the stress process, conceptualizing inequality as existing across multiple layers of the social hierarchy. In addition, Pearlin's (1999) recent formulations of the stress process model also call attention to the importance of context, accentuating neighborhood in particular.

In this chapter, I review research linking neighborhood to domains of the stress process and then describe an ecological model built around the idea that the mental health impact of neighborhood may be *conditional* upon the person's social status, exposure to stress and access to psychosocial resources.

Neighborhood: The Concept

As a prelude, an overview of the concept of neighborhood is instructive for understanding the several research traditions that link neighborhood to stress and mental health. First, I regard neighborhoods as clusters of people living in close proximity to one another within a particular geographical area. Next, three dimensions of neighborhood are distinguished: *spatial*, *structural*

and *social* (Aneshensel & Sucoff, 2002). Spatial dimensions are the physical boundaries of the neighborhood, its connection to the geographical area. The area within these boundaries is the "container" for social interactions among residents. One approach to operationalizing the spatial dimension relies on official boundaries, most often Census tracts or zip codes, an expedient approach that facilitates the use of official compilations of information about the neighborhood, for example, linking Census tract information to existing survey data about individuals living in the tract. Another approach also takes into consideration the informal boundaries that residents use to separate one neighborhood from another.

The structural dimension of neighborhood is the composite socioeconomic and demographic characteristics of the individuals who reside within the geographical area in the sense that the whole comprises its components. This neighborhood profile accentuates traits generally shared by residents even though not all residents posses these traits, a point I will return to later. For example, if most residents of a neighborhood are African American, the aggregate neighborhood is one with a high concentration of African Americans, but it also contains residents of other racial/ethnic backgrounds. Most studies focus on socioeconomic disadvantage and to a somewhat lesser extent racial-ethnic segregation as the key structural characteristics of neighborhood; others also address residential stability. Wheaton and Clarke (2003) provide a succinct definition of neighborhood socioeconomic disadvantage: the simultaneous absence of economic, social and family resources (cf. Ross & Mirowsky, 2001). Measures of neighborhood socioeconomic disadvantage typically include indicators such as the percent below the poverty line, receiving public assistance, overcrowded households, female-headed single parent households, and youth idleness (e.g., aged 16-19 not in school, armed

forces, labor force, and not a high school graduate). This chapter focuses on neighborhood socioeconomic disadvantage because it is the most consistently studied structural characteristic.

The social dimension of neighborhood refers to the nature of the interactions that transpire within its confines, which are influenced by social norms, culture, and the like. One social function, the normative control of behavior, figures prominently in neighborhood approaches that emphasize the role of disordered neighborhoods in generating stress and psychological distress (e.g., Ross and Mirowsky, 2001). Also relevant are processes that pertain to social psychological mechanisms in the stress process, specifically the perception of informal social support or a sense of personal mastery.

Of these three dimensions of neighborhood, the last two—structural and social—are most relevant to establishing the connections necessary to situate the stress process within a neighborhood context whereas the spatial dimension is used to delineate neighborhood boundaries. If neighborhood structural properties influence mental health outcomes by way of the stress process, then mental health outcomes necessarily vary with these structural properties. The first body of research reviewed below examines evidence in support of this crucial connection.

The dynamics of the stress process occur within the social dimension of neighborhood, specifically the ways in which neighborhood conditions regulate exposure to stress or shape access to social psychological resources that alter the impact of stress exposure on mental health outcomes. Research in this second tradition also is reviewed below.

These reviews are followed by a discussion of how these largely separate lines of research could be better integrated. I then develop an ecological model that extends the

integrated model by including *conditional* relationships between domains of the stress process model and structural aspects of the neighborhood context.

Neighborhood Structure and Mental Health

The Structural Model.

Structural research is built upon a key aspect of the definition of neighborhood, the *clustering* of people within a geographical area. Although these clusters are comprised of the individuals, the clusters have attributes that are conceptually distinct from those of individuals. In other words, neighborhood characteristics are characteristics of the aggregate neighborhood. For example, the proportion of neighborhood residents who live below the poverty line is a characteristic of the neighborhood; at the individual-level, a person either does or does not live below the poverty line.

Thus, the structural model necessarily is a multilevel statistical model with the individual person (*i*) embedded within a particular neighborhood (*j*), as shown in Figure 1: *i* distinguishes one person from another, and *j* distinguishes one neighborhood from another. The double subscript *ij* is critical to understanding this model because it refers to the mechanism that connects the two levels, specifically that individual *i* lives in neighborhood *j*. The double subscript indicates that neighborhoods and individuals are conceptually and analytically linked, so that individuals are nested within neighborhoods. The connection between levels also is illustrated by the double-headed arrow that connotes compositional effects as well as selection effects.[1]

FIGURE 1 ABOUT HERE

In the multilevel model, there are multiple people within each neighborhood and multiple neighborhoods. Consequently, hierarchical linear models are able to differentiate within-

neighborhood variation from between-neighborhood variation. Setting aside statistical details, this design means that it is possible to (1) estimate average differences between neighborhoods in the occurrence of mental health outcomes, (2) ascertain whether these differences are due to the characteristics of the individuals who live in that neighborhood (i.e., compositional effects), and (3) determine whether neighborhood characteristics explain mental health outcomes irrespective of the contribution of the individual's own characteristics. The later cross-level effect is labeled **a** in Figure 1.

This pathway is extremely important because it represents macro-level effects that are not merely the summation of parallel effects at the individual level (i.e., compositional effects). For example, disadvantaged neighborhoods may generate emotional distress not simply because poor families live in these neighborhoods and because personal poverty is distressing, but also because disadvantaged neighborhoods are emotionally harmful to non-poor residents. Neighborhoods characterized by concentrated poverty tend to have a decaying physical environment, a feature associated with public deviance, which leads residents to stay inside their homes, limit social exchanges to only close friends and family, and prompts a breakdown in social connections within the neighborhood (Massey & Denton, 1993). This process has potential depressive consequences for *all* residents. This hypothesized cross-level effect is one of the most compelling reasons for testing a multilevel statistical model because its presence attests to the influence on the individual of the social system as a system.

The Structural Model of Neighborhood: Empirical Results.

Although the presence of inter-neighborhood differences in average mental health outcomes is a necessary condition for testing for the impact of neighborhood disadvantage as such (Wheaton & Clarke, 2003), only a few studies estimate this variation. These studies

generally report very small to medium neighborhood variation, connecting neighborhood structure directly to depressive (Aneshensel et al., 2007; Hybels et al., 2006; Stafford, De Silva, Stansfeld, & Marmot, 2008; Wheaton & Clarke, 2003; Wight, Ko, Karlamangla, & Aneshensel, submitted), general mental health (Propper et al., 2005) and cognitive outcomes (Wight, Aneshensel et al., 2006). However, some studies report that neighborhood-level variation in mental health outcomes is exceedingly small or not statistically significant (e.g., Wainwright & Surtees, 2004). Hence, the evidence is mixed but generally points to sufficient structural variations in mental health to proceed to the question of compositional effects.

Some studies that employ the structural model in Figure 1—in which individuals are nested within neighborhoods—report that statistically significant between-neighborhood differences in mental health remain after rigorously controlling for individual-level characteristics (e.g., Wight et al., 2006; Wheaton & Clarke, 2003; Kubzansky et al., 2005), meaning that these neighborhood effects are not entirely due to the characteristics of the people who live within the neighborhoods. However, other studies suggest that these effects may indeed be compositional (e.g. Propper et al., 2005; Wainwright & Surtees, 2004), at least for some segments of the population, including specifically older persons (e.g., Aneshensel et al., 2007; Hybels et al., 2006; LaGory & Fitzpatrick, 1992; Wight et al., submitted). Potential explanations for these divergent findings are discussed below. The most appropriate conclusion to be drawn from these studies is that meaningful between neighborhood variation in mental health outcomes exist beyond compositional effects for at least some populations, mental health conditions, and geographical regions.

As mentioned above, not many studies apply the structural model illustrated in Figure 1. Instead most studies that examine the relationships between neighborhood-level socioeconomic

disadvantage and mental health do not analytically utilize the nesting of individuals within neighborhoods (except when estimating standard errors). In essence, the clustering of individuals within neighborhoods is treated as a statistical artifact rather than a theoretically meaningful structural property: Visualize Figure 1 with only the subscript *i*, or without subscripts.[2]

Some research in this tradition finds that the association between neighborhood socioeconomic disadvantage and high levels of psychological distress or disorder persist after controlling for individual socioeconomic characteristics. For example, Silver, Mulvey and Swanson (2002) use data from four sites of the Epidemiologic Catchment Area Study (ECA) to examine neighborhood-level effects on the prevalence of several conditions among adults. This study is noteworthy because appropriate individual-level factors are controlled and because multiple dimensions of neighborhood are considered, although the reported analysis is at the individual level. They report that net of individual characteristics, neighborhood disadvantage is positively associated with the prevalence of major depression and substance abuse.

One recent longitudinal study is particularly noteworthy because it examines incident major depression in contrast to most other studies that examine prevalence in a cross-sectional design (Galea et al., 2007). These researchers report a 2-fold difference in the incidence of major depression for adults living in low socioeconomic status (SES) compared to high-SES urban neighborhoods (New York City), net of individual-level sociodemographic characteristics and known risk factors for depression (e.g., stressors, social support). Because their analysis controls for factors that may be conceptualized as mediators rather than cofounders, their analysis potentially over-controls for individual-level factors meaning that the incidence difference may be even greater than estimated (cf. Sampson, Morenoff, & Gannon-Rowley, 2002; Wheaton & Clarke, 2003). The researchers conclude that additional work is needed to

characterize the pathways that may explain the observed association between living in low-SES neighborhoods and elevated risk for depression, a topic taken up in the next section.

In strong contrast, some other studies find that initially strong associations between neighborhood socioeconomic disadvantage and mental health outcomes are *not* sustained when individual social and demographic characteristics are taken into consideration. For example, Henderson and colleagues (Henderson et al., 2005) analyze data on young adults (ages 28-40) from the Coronary Artery Risk Development in Young Adults Study (CARDIA) and find that neighborhood socioeconomic disadvantage is not consistently related to depressive symptoms across race and gender subgroups once individual socioeconomic characteristics are taken into account.

In sum, some studies find neighborhood socioeconomic disadvantage affects mental health outcomes beyond rigorous controls for individual characteristics, but other studies find only compositional effects. How can these discrepant findings be reconciled? It is almost certain that some of the discrepancies are methodological artifacts. Studies differ widely in samples, methods, measures, and statistical methods. The most challenging methodological issue is whether there are sufficient individual-level controls to sufficiently test for compositional effects, although Wheaton and Clarke (2003) and Sampson et al. (2002) argue that some studies may be over-controlled. Also, there is debate about the appropriateness of controls at the individual level referred to as the "partialling fallacy. For example, the influence of personal income is itself mediated by the environment and made possible by that income (Macintyre & Ellaway, 2003). In addition, it may well matter what type of mental health outcome is being examined (Aneshensel & Sucoff, 1996). My best conjecture is that these discrepant findings may reflect the conditional nature of neighborhood effects, that is, that neighborhood socioeconomic

disadvantage may be emotionally distressing, but only for some segments of society (see below). Given that several studies with rigorous individual-level controls continue to report associations between mental health outcomes and neighborhood disadvantage, it is reasonable to consider the pathways that link disadvantage factors to these outcomes.

Stress Process Model of Neighborhood and Mental Health

The Social Model Interpreted as the Stress Process Model.

The quintessential feature of the application of the stress process model to neighborhood effects on mental health is an emphasis on articulating the social *pathways* that connect structural neighborhood disadvantage to mental health outcomes (Aneshensel & Sucoff, 1996). Research in this tradition tends to focus on perceived neighborhood disorder as a core mediator of this association, as illustrated in Figure 2. Neighborhood disorder refers to physical and social signs that social control is lacking, such as the presence of crime, vandalism, unsupervised youth, abandoned buildings, loitering and so forth, resulting in a neighborhood that is experienced as threatening and noxious and that arouses fear (Ross & Mirowsky, 2001).

FIGURE 2 ABOUT HERE

From the stress process perspective, perceived neighborhood disorder can be viewed as a secondary stressor that arises from the objective primary stressor of neighborhood disadvantage via the process of stress proliferation (Pearlin, 1999). As a secondary stressor, neighborhood disorder *mediates* the impact of neighborhood disadvantage. For this to occur, the two stressors need to be associated with one another.

Ross and Mirowsky (2001) summarize theoretical reasons why this should be the case. Specifically, they posit that neighborhood disadvantage leads to neighborhood disorder in part because: 1) limited opportunity structures lead youth to leave school and engage in illegitimate

activities; 2) normative climates are conductive to disorderly behavior; 3) informal social ties that help maintain social order are lacking; 4) there are few institutional resources that bind neighbors together and help maintain social order (cf. Wilson, 1987). In contrast, they describe advantaged neighborhoods as having the assets, capabilities and self-interests that are conducive to safety.

In this regard, Massey and Denton (1993) describe a mutually reinforcing relationship between social decay and social withdrawal. When residents experience neighborhood disorder, they tend to retreat socially and psychologically from their communities: they stay away from certain sites, avoid strangers, remain indoors, and generally keep to themselves. According to Massey and Denton, the withdrawal of residences from active community life loosens surveillance and control over behavior, permitting a growth in increasingly serious social problems and criminal acts. This intensification then leads to greater social withdrawal, a further loosening of social controls, and an accelerating spiral of community instability and decline. Faris and Dunham (1939) originally linked such neighborhood deterioration to rates of schizophrenia and substance abuse (but not affective disorders), positing a linkage through social isolation. From the perspective of the stress process, then, we can anticipate that the mental health impact of neighborhood disadvantage will be mediated by increases in the secondary stressor of neighborhood disorder and by decreases in the resource of social support (Aneshensel & Sucoff, 1996).

The Stress Process Model of Neighborhood: Empirical Results.

Schieman and Pearlin (2006) provide evidence for this crucial link by demonstrating that neighborhood disadvantage is positively associated with perceived neighborhood disorder. However, they find this association is conditional upon financial social comparisons to

neighbors. Specifically, the association between objective and subjective aspects of neighborhoods is weakest for persons who feel relatively similar to their neighbors and is strongest for those who feel relatively advantaged and those that do not know their financial standing. This research indicates that neighborhood disadvantage does not uniformly inform resident's assessment of their neighborhood, but that this connection is conditional upon psychosocial factors.

Ross (2000) demonstrates the mediating role of perceived neighborhood disorder by showing that all of the association between neighborhood disadvantage and adult depressive symptoms is accounted for by these perceptions. In addition, Ross, Reynolds and Geis (2000) report a more complex mediating role for perceived neighborhood disorder in that it accounts for the conditional relationships between neighborhood disadvantage and residential stability with regard to psychological distress.

However, this association may not be uniform for all segments of the population. For example, Schieman and Meersman (2004) examine whether the effect of perceived neighborhood disorder on mental health is uniform or varies by key moderators in the stress process model, namely social support and mastery (see Figure 2). Their results are complex because they examine multiple moderators (received support, donated support and mastery) for multiple outcomes (anger, anxiety and depression) separately for men and women. Although they report some protective effects for received support and mastery and aggravating effects for donated support, their overall conclusion is that the moderating effects of these psychosocial resources are not as consistent as the stress process model posits. The key point, however, is that under some circumstances, for some subgroups, and for some outcomes, the impact of

neighborhood disadvantage on mental health via the intervening variable of neighborhood disorder is conditional upon the person's psychosocial resources and liabilities.

Evidence concerning another key connection in the stress process model of neighborhood is provided by Schieman (2005) who examines the connection between neighborhood disadvantage and social support, contrasting the social disorganization perspective that predicts declining support with increasing disadvantage with the social mobilization perspective that predicts the opposite (cf. Wheaton, 1985). A key aspect of this study is the interaction reported between two neighborhood characteristics: disadvantage and residential stability with regard to effects on received and donated support. Effects vary as well by race and gender. In other words, contextual effects on social support are conditional upon other contextual factors *and* personal characteristics.

An Ecological Model of the Stress Process

The Structural and Stress Process Model Integrated: The Ecological Model.

Thus far, we have seen that some albeit not all multilevel research using the structural model of Figure 1 demonstrates between neighborhood variation in mental health outcomes that is not merely compositional. We also have seen that research using the stress process model of Figure 2 links neighborhood disadvantage to mental health via the pathway of perceived neighborhood disorder, a connection that may be conditional upon two key moderating variables in the stress process model, social support and mastery.

Research that integrates these two lines of research, however, is rare (see Wheaton & Clarke 2003 for an exception). This scarcity largely results from methodological considerations, specifically that the multilevel structural model necessitates multiple observations per neighborhood, a condition not met by many of the existing survey data sets that are used in

neighborhood research (e.g. Project on Human Development in Chicago Neighborhoods[PHDCN], Earls, Brooks-Gunn, Raudenbush, & Sampson, 1997; Los Angeles Family and Neighborhood Survey [LAFANS], Sastry, Ghosh-Dastidar, Adams, & Pebley, 2006, for exceptions of studies specifically designed for multilevel analysis). Nevertheless, these two lines of research collectively point to new directions in situating the stress process within the neighborhood context.

Combining these two models produces an integrated model in which inter-neighborhood variation in mental health is influenced on the one hand by the structural properties of neighborhoods and on the other by exposure to stress and access to psychosocial resources (and other individual-level characteristics). This integrated model is, in its simplest form, an additive model: The impact of neighborhood socioeconomic disadvantage and domains of the stress process are the sum total of each stream of influence. As such, the model contains the hidden assumption that the mental health effects of neighborhood disadvantage are the same across diverse personal characteristics and stress-related circumstances. For instance, neighborhood disadvantage is equally distressing to a socially isolated person as it is to someone who is at the center of a network of family, friends, and acquaintances. I refer to this model as a "person in environment" model because it places the person within an environment, but does not examine how the person stands in relation to that environment. The conceptual limits of this model are self-evident and need not be belabored.

The ecological model of the stress process that I propose takes this synthesis a step forward by positing a "person environment fit" approach in which the impact of the environment varies from person to person as a function of personal attributes and situations, in this instance personal disadvantage, exposure to stress and access to psychosocial resources. My use of this

term echoes Lawton (1982) who uses the term to hypothesize that optimal outcomes occur when the "press" of the neighborhood environment corresponds to the "competencies" of the individual. This ecological model, developed from the work of Bronfenbrenner (1979), is similar to the structural model in that the individual is seen as being embedded in and affected by multiple social contexts. Whereas the structural model emphasizes differences between neighborhoods and homogeneity within neighborhoods, the ecological model calls attention to heterogeneity within neighborhoods. For example, although neighborhoods are differentiated from one another by the level of neighborhood disadvantage, and the persons living within a given neighborhood are on average disadvantaged, some residents are even worse off than average whereas others fare better than average.

This heterogeneity is thought to modulate the extent to which neighborhood disadvantage injures mental and emotional well-being. In statistical terms, this contingency implies a cross-level interaction, a term that captures conditional relationships between neighborhood and individual attributes, exposure to stress, and access to psychosocial resources. In its most basic form, the ecological model addresses the critical question of why some people in adverse social contexts are harmed while others attain more successful mental health outcomes (cf. Jessor, 1993).

From the perspective of the stress process, several possibilities immediately present themselves. Most obviously is the possibility that the mental health impact of neighborhood disadvantage and personal disadvantage interact. In this regard, Wheaton and Clarke (2003, see below) contrast two possible cross-level contingencies, the *compound advantage* model, which predicts that the greatest mental health advantage occurs for those who are personally advantaged and who live with similarly advantaged neighbors, and the *compound disadvantage*

model, which predicts the greatest mental health disadvantage for those who are personally disadvantaged and live with similarly disadvantaged neighbors. The compound advantage model is consistent with the relative deprivation model (Jencks & Mayer, 1990) but in mirror image; the greatest disadvantage is expected for the disadvantaged who live with advantaged neighbors.

An additional possibility concerns the joint mental health impact of neighborhood disadvantage and domains of the stress process. For example, disadvantage may be most emotionally distressing to persons who have recently encountered an acute life event stressor, to persons whose lives are beset by chronic strains at work, or to those lacking meaningful ties to other people. As we shall see, there is some empirical evidence in support of this ecological model of the stress process.

Ecological Model: Empirical Results.

Wheaton and Clarke (2003) provide an exemplar of the ecological approach that elaborates the stress process within a structural model of neighborhood and also examines contingencies across levels.[3] Of particular note, they theorize a series of secondary stressors that arise from the primary stressor of neighborhood disorder via the process of stress proliferation (Pearlin, 1989). For early adult mental health, they posit that the crucial effects of neighborhood disadvantage are indirect, operating through at least three pathways, as illustrated in Figure 3.[4]

FIGURE 3 ABOUT HERE

One pathway concerns the adverse impact of neighborhood disadvantage on parental mental health, which in turn promotes parenting behavior that is inimical to child/adolescent mental health and subsequently contributes to mental health problems in early adulthood (the lower panel in Figure 3). In support of this connection, they cite research demonstrating that high-threat and resource-poor neighborhoods breed consistently unsupportive and harsh

parenting, distraction, and withdrawal of affection. They also suggest that compromised parenting may indirectly affect early adult mental health through its impact on the transitions to adulthood, specifically disrupted and off-time life course transitions during adolescence such as early termination of education, parenting and entry into the labor force (cf. Wickrama, Conger, & Wallace, 2003).

Wheaton and Clarke (2003) also integrate neighborhood research from the crime and delinquency literatures (upper panel of Figure 3). Specifically, they call attention to research on collective socialization at the community-level and its influence on children's developing belief system, involving lower expectations and self-efficacy, reduced goals and planning, and awareness of fewer resources and opportunities (cf. Wilson 1987). Low self efficacy and few achievement expectations are thought to indirectly affect mental health in early adulthood by two pathways, one compromising child/adolescent mental health and the other disrupting the transition to adulthood.

Their model also considers stress proliferation involving two types of stressors (middle panel of Figure 3): the occurrence of life event stressors at multiple points in the early life course and the persistence of ambient neighborhood stress throughout this time. The association between neighborhood disadvantage and ambient neighborhood stress, similar to neighborhood disorder, figures prominently in research on neighborhood and mental health. However, the addition of eventful life change is novel because these events are not inherent aspects of living in a disadvantaged neighborhood, but may result from it, stressors like parental divorce, deaths, unemployment, abuse or school problems.

They test a reduced form of their theory using longitudinal data from the National Survey of Children. Their analytic model contains measures of only some of these pathways presented

in Figure 3, but clearly demonstrates mediation indicative of stress proliferation. Specifically they find that the impacts of neighborhood socioeconomic disadvantage on symptoms of externalizing and internalizing disorder are largely mediated by the cumulative effects of both life course eventful stress and chronic ambient neighborhood stress.

In addition to elaborating neighborhood-related components of the stress proliferation process, they address the joint effects of neighborhood disadvantage and individual-level social class, contending that these effects are intertwined rather than independent. In other words, they theorize that neighborhood disadvantage does not apply equally to everyone living within a neighborhood but may reflect processes of compound advantage or compound disadvantage (see above).

Their results support the "compound disadvantage" model: The effect of neighborhood disadvantage is worst for children of parents with low educational attainment. Thus, there is a specific disadvantage to personal disadvantage in the presence of disadvantaged neighbors. In addition, having college-educated parents completely negates the mental health effect of neighborhood disadvantage; in other words, for these children's mental health, context does *not* matter.

Wheaton and Clarke (2003) interpret this important finding as meaning that well established individual-level effects, such as that between low SES and poor mental health, may vary across social contexts, be produced by social context, or be spurious. In other words, the proper specification of individual-level social class effects on mental health requires the consideration of the *interdependence* between individual and contextual components of social class.[5]

A second example of the type of ecological model I am advocating can be found in work by our research group using data from the National Longitudinal Study of Adolescent Health—Add Health (Wight, Botticello, & Aneshensel, 2006). For this study, we linked Census data to high schools yielding contextual characteristics that are attributes of the larger communities surrounding high schools. This approach bypasses the data sparseness issue, in which too few persons per context preclude intra-neighborhood variability, which is particularly problematic for detecting cross-level interactions. Outcomes were depressive symptoms, minor delinquency, and violent behavior. Our findings support the ecological model in that social support was more consequential in advantaged areas than disadvantaged areas, where social support had little mental health impact. In other words, social support is limited in its ability to offset the negative mental health impact of living in a socioeconomically disadvantaged community. This type of study validates, in my opinion, the promise of the integration of structural and stress process models. This integration has yet to be realized fully, but is emergent in the field.

Studies in the stress process tradition also support the idea that the mental health impact of neighborhood may differ across individual-level characteristics. For example, Schieman, Pearlin and Meersman (2006) report cross-level interactions that are consistent with the ecological approach.[6] Like Wheaton and Clarke (2003), they examine the important question of whether the effects of neighborhood disadvantage are conditional, looking at the outcome of anger among older persons (aged 65 and older). Using a combination of the stress process model and social comparison theory, they find that subjective financial comparisons with neighbors modify the association between disadvantage and anger for elders at different levels of income. In essence, social comparison and income act as an effect modifiers so that people who

experience similar levels of neighborhood disadvantage are not similarly affected by these conditions.

These studies attest to the value of the ecological approach to the stress process, but it must also be noted that some studies report an absence of cross-level interactions (e.g., Henderson et al., 2005; Silver et al., 2002). Much of this work is exploratory, without a firm theoretical foundation for anticipating particular cross-level interactions. Also, some studies do not use multilevel statistical models for estimating cross-level effects, whereas others have limited statistical power for detecting such effects in multilevel models. Conclusions supporting the empirical validity of the ecological model, therefore, are tentative.

Implications for the Future Neighborhood and the Stress Process

The structural and stress process research summarized above lends credence to the existence of meaningful connections between neighborhood and mental health that are mediated by domains of the stress process, but future research needs to establish these links more directly through the use of multilevel statistical models. A fundamental tenet of the stress process model is that differences in mental health among social groups can be explained in terms of differences among groups in exposure to stress and access to resources (Pearlin, 1989, 1999). A common analytic strategy is mediational: the magnitude of between-neighborhood differences is tracked as stressors and resources are added to the model.

With few exceptions, this strategy has not yet been fully implemented in neighborhood research. Instead, between-neighborhood differences are estimated in structural models without subsequent mediational analysis, and stress process models usually do not estimate inter-neighborhood differences or explain it. This yields a substantial substantive and empirical gap in research on neighborhood and the stress process. This gap is problematic because research in the

structural tradition typically reveals only modest mental health differences across neighborhoods, leaving precious little between neighborhood variation to be explained by the stress process model.

This dilemma can be resolved, I submit, through research explicitly designed to assess the extent to which neighborhood differences in mental health can be attributed to domains of the stress process. Thus far, most research on this topic has taken advantage of existing data sets that are not ideally suited to the task at hand. The results of this work, summarized here, are promising but limited by these makeshift designs.

The most serious limitation concerns the definition of neighborhood, specifically the reliance on official boundaries such as Census tracts, which do not correspond to neighborhoods as they are socially constructed by residents. This slippage introduces considerable noise into the estimation of between-neighborhood differences and may account for the generally small effect size observed in structural research. This slippage is compounded by data sparseness issues, specifically the presence of large numbers of neighborhoods represented by few, often one, persons. In this situation, the meaning of between and within neighborhood variation is compromised and effects are estimated by “borrowing” information from larger neighborhoods. These issues are only hidden not resolved by analyses that set aside the structure of between-neighborhood variation. The future of work in this area depends upon the implementation of studies specifically designed to examine how socially defined neighborhoods influence mental health via exposure to stress and access to resources.

A key aspect of the stress process model is the notion of stress proliferation, a process that merits development in future research concerning neighborhood. Thus far, research has focused on neighborhood disorder as the key mediator of the mental health effects of

neighborhood disadvantage on mental health. This tendency is an unnecessarily restrictive approach and tends towards the obvious. The investigation of neighborhood linkages to mental health should not be restricted to domains that are virtually one and the same with neighborhood, but should extend into diverse areas of life that are shaped by the neighborhood context. Work in this area could benefit, for example, by Wheaton's (1994) conceptualization of the universe of social stress and its empirical application by Turner, Wheaton and Lloyd (1995). The articulation of the many ways in which neighborhood intersects with the many areas of social life—marriage, children, work, friendships and so forth—would lead to a more textured and nuanced integration of the stress process within neighborhood research. This expansion of the current focus would enable research to draw more fully on the conceptual complexity of the stress process model as it has been articulated by Pearlin (1999).

The work described in this chapter would be conceptually barren without the contributions that Len Pearlin (1989, 1999) has made to setting forth an agenda for the sociological study of social stress and mental health. Of particular relevance is his insistence on explaining the connections between structured social life and the inner emotional lives of people. Neighborhood research follows in this tradition when it examines the ways in which social status at multiple levels of the social hierarchy influences lives in ways that regularly expose people to stress and limit their access to salutary resources. In addition, a key feature of the stress process model is the emphasis on conditional relationships, for example, that people exposed to the same stressor vary in their mental health responses. This theme is echoed in the ecological model of the stress process that posits that the impact of neighborhood disadvantage is conditional upon the characteristics that differentiate substrata of the population, such as SES, and social group

variation in exposure to stress and access to resources. Work of this type would fulfill the promise of contextualizing the Pearlin stress process model.

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Footnotes

[1] Figure 1 is simplified for heuristic purposes. There are numerous other neighborhood and individual characteristics that could and often are included in structural models. Also, structural models have sometimes been elaborated with additional constructs beyond those shown here, such as social capital and collective efficacy (e.g., Stafford, De Silva, Stansfeld, & Marmot, 2008; Xue, Leventhal, Brooks-Gunn, & Earls, 2005).

[2] In this type of model, the unit of analysis is the individual and only between-person variation is examined; hence, the design does not permit examination of between-neighborhood variability as such or the factors associated with it (Diez Roux, 2003). Although neighborhood data are measured at the neighborhood level, analysis is at the individual level. Thus, this approach is informative about the experiences of people who live in neighborhoods with particular characteristics, but not about whether the structure that generates these characteristics corresponds to between neighborhood differences in risk of psychological distress or disorder. This limitation typically arises because there are two few persons per neighborhood to legitimately estimate between neighborhood variation.

[3] This article emphasizes the intersection of context and time, examining the temporal impact of neighborhood within a life course framework from childhood to early adulthood. However, to emphasize its similarity to the ecological model, I set these life course considerations to the side.

[4] This graphical representation over-simplifies Wheaton and Clarke's theory and analysis in the interest of clarity. In particular, the influences of individual and family characteristics, essential controls for this multilevel model, are not shown, nor are some potential relationships among the mediating variables.

[5] In addition, there are indications that the connection between neighborhood disadvantage and mental health may be conditional upon other characteristics of the neighborhood. For example, Ross, Reynolds and Geis (2000) report that the mental health impact of neighborhood disadvantage is conditional upon the residential stability of the neighborhood. This contingency is explained by perceived neighborhood disorder, which in turn is explained in part by powerless, fear, and their interaction. They conclude that residential stability in a disadvantaged neighborhood can produce a distressing sense of powerlessness when it means being trapped in these circumstances.

[6] However, cross-level interactions between individual and contextual characteristics require multilevel statistical models to be robustly specified and estimated (Subramanian, Jones, & Duncan, 2003).

Figure Captions

Figure 1. Multi-level Structural Model of Neighborhood Effects on Mental Health.

Figure 2. Stress Process Model of Neighborhood Effects on Mental Health.

Figure 3. Stress Proliferation Model of Mediated Neighborhood Effects on Mental Health.[1]

[1] Adapted from "Space meets time: Integrating temporal and contextual influences on mental health in early adulthood," by B. Wheaton and P. Clarke, 2003, *American Sociological Review*, 68, p _. Adapted with permission from the author.

Figure 1. Multi-level Structural Model of Neighborhood Effects on Mental Health.

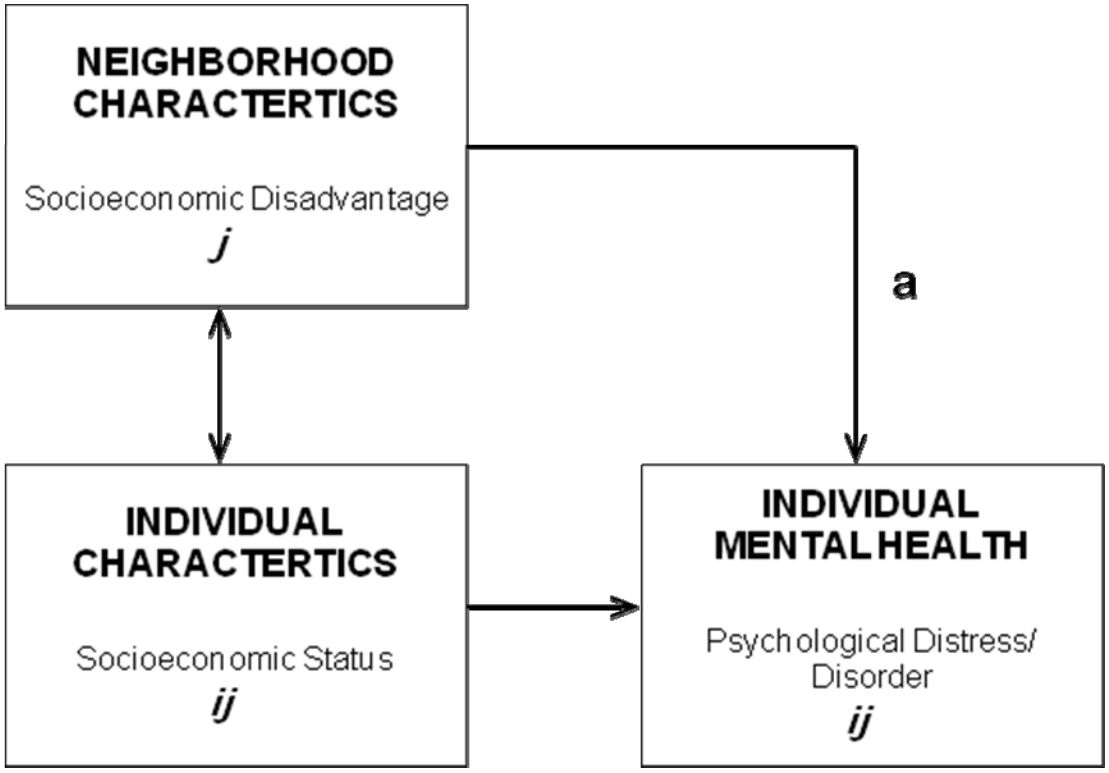


Figure 2. Stress Process Model of Neighborhood Effects on Mental Health.

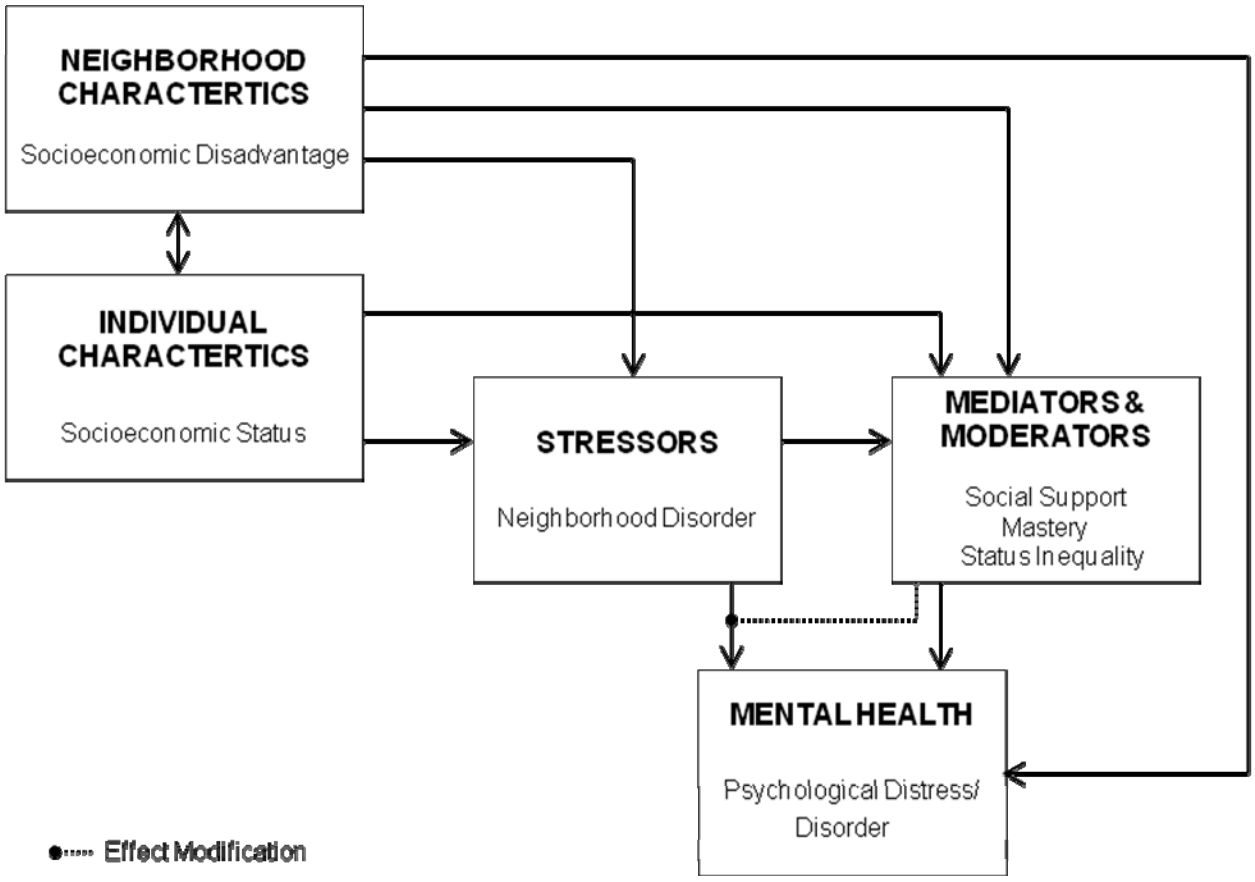
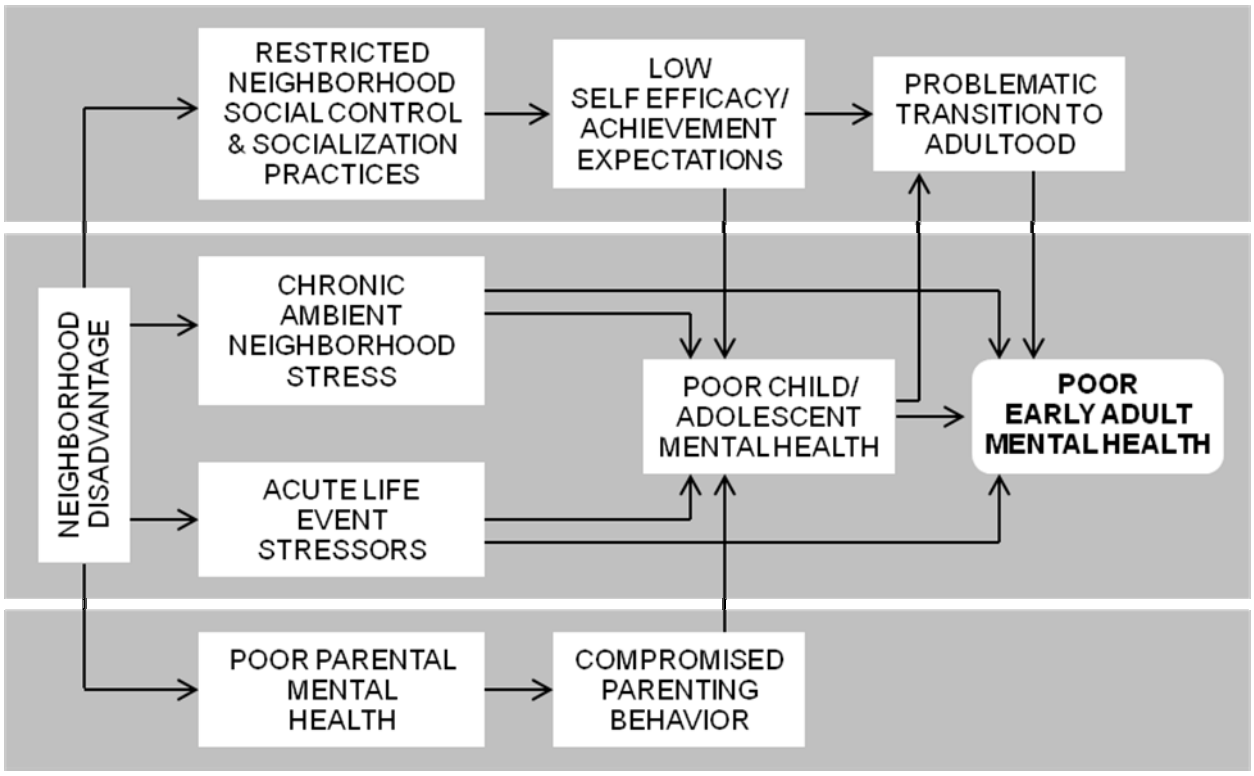


Figure 3. Stress Proliferation Model of Mediated Neighborhood Effects on Mental Health.[2]



[2] Adapted from "Space meets time: Integrating temporal and contextual influences on mental health in early adulthood," by B. Wheaton and P. Clarke, 2003, *American Sociological Review,* 68, p 686. Adapted with permission from the author.