



Socioeconomic status, neighborhood disadvantage, and poverty-related stress: Prospective effects on psychological syndromes among diverse low-income families

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ABSTRACT

Living with persistent poverty is toxic for one's psychological health. This study examined SES, income, neighborhood disadvantage, and poverty-related stress as predictors of a wide range of psychological problems including anxiety, depression, aggression, relationship problems, physical problems, and trouble with the law. Longitudinal analyses were conducted with a low-income multiethnic sample of 98 families recruited from the greater Denver, CO metropolitan area (300 family members: 136 adults, 82 preadolescents, 82 adolescents) using hierarchical linear modeling to predict all eight ASEBA narrow band syndromes. Analyses showed that poverty-related stress was directly related to anxious/depressed symptoms and social problems and interacted with prior symptoms, contributing to worsening symptoms for delinquency, attention problems, somatic complaints, and anxious/depressed symptoms. Hollingshead SES also had direct predictive effects for certain syndromes, though these effects were in the opposite direction predicted. In contrast, lower income-to-needs predicted more problems as expected. Neighborhood disadvantage also predicted psychological syndromes. Developmental differences are discussed. Our data show that parents are not the only family members who are affected by stress from living in poverty. SES, neighborhood disadvantage and poverty-related stress take a toll on children, adolescents, and adults.

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1. Introduction

Living with persistent poverty damages one's psychological health. Social causation studies show that poverty contributes to the development of a wide range of psychopathology (Miech, Caspi, Moffitt, Wright, & Silva, 1999). Understanding how poverty translates to psychopathology for children and adults is critical for developing effective intervention and advocating for sound policy. Socioeconomic status (SES) and low income contribute to negative outcomes by limiting financial resources and opportunities for higher paying employment. In addition, low SES and income are associated with mental health disorders such as depression, because of the stress of living with less money than one needs (Siefert, Bowman, Heflin, Danziger, & Williams, 2000). Living in a poor neighborhood is also a chronic stressor whereby poverty, unemployment and

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residential mobility create neighborhoods with fewer resources, less cohesiveness, and higher crime (Britt, 1994; Brooks-Gunn, Duncan, & Aber, 1997). Poor individuals and families experience more chronic and uncontrollable life events and stressors than the general population (Ennis, Hobfoll, & Schroder, 2000) and these day-to-day stressors are related to poor psychological health (Wadsworth et al., 2008). Thus, poverty contributes to poor psychological health via inadequate income, low socioeconomic status, neighborhood disadvantage, and poverty-related stress (e.g., Attar, Guerra, & Tolan (1994); McLoyd, 1998; Wadsworth et al., 2008).

Though it is clear that SES, neighborhood disadvantage, and poverty-related stress contribute to poor mental health, few studies have examined these predictors in the same model or across such a range of psychopathology and developmental level. The current study examines the predictive utility of income, SES, neighborhood disadvantage, and poverty-related stress in explaining psychological problems including anxiety, depression, physical problems, relationship problems, trouble with the law, hostility, and difficulty concentrating. We examine the relationship between these predictors and outcomes across time, taking into account prior levels of symptoms. We also examine these relationships in a multiethnic sample that includes children, adolescents, and adults.

There is clear evidence that low SES and income are linked to poor psychological and physical health outcomes, showing a clear gradient whereby more health problems are experienced with each step down the SES ladder. Explanations involving social selection and differences in life-style risk factors are limited in their ability to explain this SES-health gradient. The incidence of smoking, drinking, obesity, poor diet, and sedentary lifestyles do increase among lower SES individuals. However, these explanations only account for a small portion of the SES-health gradient (Sapolsky, 2004). In addition, access to healthcare is a real problem faced by many low-income families, but this explanation has also failed to fully explain the SES-health gradient. The gradient exists even in countries with socialized healthcare, and for diseases that are not affected by preventative health care (Sapolsky, 2004). Social causation theory posits that poor people develop psychological and physical health problems as a result of living with poverty-related hardship. Indeed, the SES-health gradient is strongest for diseases with sensitivity to stress such as heart disease, diabetes, metabolic disorders, and psychological disorders (Sapolsky, 2004). Studies comparing social causation of psychological disorders with alternative models such as social selection generally find strong support for the social causation of psychological disorders such as depression and anxiety (e.g., Wadsworth & Achenbach, 2005). Poverty is chronic and toxic, taxing mental and physical resources, ultimately resulting in higher mortality rates for those in poverty (e.g., Rehkopf et al., 2006). Low SES also takes its toll on children and adolescents, with familial SES predicting anxiety at age 15 (Miech et al., 1999). Furthermore, increases in income, or emergence out of poverty, have been linked to declines in psychological problems such as aggression (Costello, Compton, Keeler, & Angold, 2003). Poverty's damage occurs at multiple levels. Poor families are exposed to more dangerous and deteriorating neighborhoods, more crowded and noisier homes, more conflict and instability in the family, and more polluted air and water (Evans, 2004). These multiple risks in turn affect children and adults leading to an array of psychological and physical morbidity (Evans, 2004). The current study examines SES and income as distal predictors of psychological syndromes in conjunction with more proximal predictors such as neighborhood disadvantage and poverty-related stress.

Strong evidence shows the chronicity and stress of poverty account for a significant portion of the negative effects of living in poverty. Neighborhood disadvantage is one type of chronic stress that has been investigated in relation to poor outcomes. Community-level stressors including high poverty rates, low levels of education, high unemployment rates, and high residential mobility in the community are chronic and affect all members of a given community. Attar et al. (1994) coined the term "neighborhood disadvantage" which they measured using a variety of indicators including percentage of families receiving public aid, income levels, and housing. The current study uses census data that provides multiple indicators of neighborhood disadvantage including poverty level, education levels, unemployment, and residential mobility at the zip code level. Previous research has shown that neighborhood disadvantage creates "cumulative risk" (Evans & English, 2002), which intensifies the negative effects of daily stressors on psychological problems (Attar et al., 1994). In addition, children from more affluent neighborhoods with more community resources are less likely to engage in juvenile delinquency (Brooks-Gunn et al., 1997). Though we know that neighborhood disadvantage is a key part of how poverty connotes negative outcomes to poor children and adults, few studies have examined its relevance across such a wide age span or such an array of psychological syndromes. Thus the current study also explores whether neighborhood disadvantage is related to all syndromes or if it is a key predictor of only certain types of psychological problems, such as delinquency.

An additional contribution to psychological problems is made by individual stressors, which tend to aggregate in conditions of poverty. Poverty creates a context of stress in which stressors build on one another and contribute to further stress. Economic strain (the day-to-day hassles that arise when living with less money than one needs) is one example of this type of stress. Additional stressors that affect poor children and adults adversely include conflict among family members (e.g., Wadsworth & Compas, 2002), exposure to violence (Evans & English, 2002), frequent moves and transitions (e.g., Attar et al., 1994), and exposure to discrimination and other traumatic experiences (Simons et al., 2002). We term the multitude of stressors associated with poverty "poverty-related stress" (Wadsworth & Berger, 2006; Wadsworth et al., 2008). Poor families experience disproportionate numbers of these stressful life events as compared to their middle-class counterparts (e.g., Attar et al., 1994), making stress an important proximal process through which poverty exerts its deleterious effects. Such stress is associated with symptoms of depression, anxiety, hostility, and aggression among poor children and adolescents (Evans & English, 2002; Hammack, Robinson, Crawford, & Li, 2004; Wadsworth et al., 2008). This study expands on prior research by examining poverty-related stress in conjunction with SES and neighborhood disadvantage in relation to psychological symptoms over time and across children, adolescents and adults.

With this age span, we can make developmental comparisons of the role of poverty-related stress in placing poor individuals at risk for psychological problems. Developmental level may moderate the associations among SES, stress, and the outcomes of interest. Poverty adversely affects both children and adults (e.g., Cutrona, Wallace, & Wesner, 2006; Wadsworth, Raviv, Compas, & Connor-Smith, 2005), though some evidence suggests poverty-related stressors may be most harmful for children and adolescents (Hammack et al., 2004; Mistry, Vandewater, Huston, & McLoyd, 2002; Wadsworth & Santiago, 2008). Children should be no more or less likely to be exposed to the moves, changes, transitions, and conflict that comprise poverty-related stress or to the chronic stress resulting from neighborhood disadvantage. Still, adults are responsible for the family's finances, which place a unique burden on parents.

The current study uses a longitudinal design. Thus we can control for prior symptoms and examine effects of SES, neighborhood disadvantage and poverty-related stress across time above the effects of symptom stability. This design also allows for testing of interactive effects with previous symptoms. Poverty is a cycle whereby chronic stressors continue to build with little or no relief, ultimately resulting in psychopathology. However, the resulting psychopathology contributes to this continued cycle by making stressors even more difficult to manage or more stressful. Thus, the current study is a snapshot of this cycle that examines how symptom levels at one point in time may interact with poverty predictors to contribute to worsening symptoms.

Previous literature clearly demonstrates that low SES and income are associated with a range of psychological problems and provides good evidence for social causation of psychological problems (e.g., Sapolsky, 2004; Wadsworth & Achenbach, 2005). In addition, previous research shows that neighborhood disadvantage is one pathway whereby poverty leads to psychological problems, especially delinquency (e.g., Attar et al., 1994). Finally, poverty-related stress is another mechanism associated with psychological symptoms and problem behaviors (e.g., Wadsworth et al., 2008). The current study extends this literature in a number of ways. First, we test these predictors, both distal and proximal, concurrently in the same model to examine whether each predictor makes unique contributions to psychological outcomes. Second, we examine these predictors across a range of outcomes testing whether the predictors are relevant for all outcomes or only certain types of problems. Studies often examine broadband psychological difficulties or focus narrowly on depression and/or delinquency as outcomes. In previous cross-sectional research, it is clear that poverty-related stress is linked to a variety of psychological problems ranging from depression, anxiety and attention difficulties to thought problems and aggression (Wadsworth et al., 2008). The current study builds on this prior research to examine all eight ASEBA (Achenbach System of Empirically Based Assessment) narrow band syndromes (e.g., anxious/depressed, aggression). Some symptoms may be more strongly associated with poverty-related stress (e.g., depression) while others may be better explained by neighborhood disadvantage (e.g., delinquency). Third, we examine these predictors among a sample of multiethnic families that includes children, adolescents, and parents living in poverty, shedding light on how poverty predictors affect children and adults. Fourth, the current study examines the predictors within a low-income sample. There is ample research examining poverty-related predictors across a range of SES, but there is less understanding of how these predictors operate within a constrained sample in which everyone is experiencing poverty. Finally, we utilize an analytical approach that allows us to take into account family and neighborhood context, which is better suited for the study's research questions than a simple regression approach conducted only at the individual level.

The current study was designed to test family-level poverty predictors including SES, income-to-needs, neighborhood disadvantage, and poverty-related stress on eight narrow band psychological syndromes in a sample of 300 parents and children. We also examined individual-level predictors: age, sex, and previous levels of symptoms, which allowed us to test for interactive effects among family/neighborhood poverty predictors and individual predictors of outcomes. Based on previous literature highlighting the damaging nature of these poverty predictors, we hypothesized that lower income and SES, along with higher levels of neighborhood disadvantage and poverty-related stress would predict more psychological symptoms controlling for initial levels. Consistent with the cycle of poverty whereby stressors create distress, which in turn makes future stressors more difficult to manage, creating more distress, we hypothesized that previous symptoms would interact with poverty predictors, exacerbating symptoms across time. With regard to specificity we hypothesized that SES would be associated with anxious/depressed and delinquency and that neighborhood disadvantage would be associated with delinquency based on previous research demonstrating these links (e.g., Belle & Doucet, 2003; Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Farrington & Loeber, 2000). Poverty-related stress, on the other hand, has shown links to a variety of problems (Wadsworth et al., 2008). Thus, we hypothesized that poverty-related stress would be associated with a range of psychological problems.

2. Method

2.1. Participants and procedure

Participants were 98 low-income families (300 total participants; at least 1 child and 1 parent or guardian per family; family size range 2–7). A total of 164 children/adolescents participated in the study (44% female; 82 children (ages 6–10) and 82 adolescents (ages 11–18). Ninety-eight primary caregivers participated in the study (95% female, mean age = 34.9 years, $SD = 7.45$). For households with two caregivers in the home, efforts were made to recruit spouses or partners. Thirty-eight secondary caregivers participated in the study (85% male, mean age = 33.9 years, $SD = 8.74$). Thus 136 total parents or

guardians participated in the study and were included in these analyses (hereafter referred to as parents). Participants were: 20% African American, 33.7% European American, 38.3% Latino, 2% Native American, and 5.3% Multiracial/Other. Families were drawn from the Colorado Project on Economic Strain (CoPES) conducted at the University of Denver, a one-year prospective study examining family stress and functioning in the context of poverty.

Recruitment of families targeted low-income families in order to generalize to a low-income population. Parents and children participating in CoPES were recruited from various locations throughout the greater Denver metropolitan area that serve families with school-aged children, such as Denver Great Kids Head Start centers (for families with older siblings) and health clinics serving uninsured and under-insured families. Fliers advertising the opportunity to “earn money by participating in a study looking at stress and coping in families with financial difficulties” were distributed at these centers. Interested families contacted the research lab and were screened for income and family composition eligibility (self-reported family income at or below 150% of federal poverty line; at least one child aged 6–18 and one parent or guardian willing to participate in the longitudinal study). Eighty-one percent (98/121) of eligible families who contacted the lab participated in the study. The mean monthly income for participating families in this sample was \$1615 (SD = \$894). In addition, 49.5% percent of the sample received food stamps, 55.6% were on Medicaid, and 14.1% were receiving Temporary Assistance for Needy Families (TANF) benefits. Sixty-three percent of children in this sample were enrolled in their school's free or reduced price lunch program. In terms of education, 17.4% of the parents in this sample had less than a high school education, 25.4% had a high school diploma, 37.6% had a training certificate or some college but no degree, and 13.1% had an associate's or bachelor's degree. An additional 3.6% were currently attending school. Families reported experiencing economic hardship for an average of 115 months or 9.6 years (range 3–501 months), with only 8% of families indicating they had been experiencing economic hardship for less than 1 year. At Time 2, only 7% of families indicated their income had increased substantially, while 25% of families indicated their income had decreased substantially. These data suggest that the majority of families were living in persistent poverty.

Families completed questionnaires at home prior to a lab or home visit (3/98 families chose to have a home visit), which allowed family members to take their time with questionnaires, completing them at their convenience. Another in-person assessment was conducted 1 year later and entailed a lab or home visit (4 families chose to have their second visit at home). For the present study, data were analyzed from these two time points, which will be referred to as Time 1 and Time 2. Twenty-nine families that completed Time 1 did not complete Time 2, yielding a retention rate of 70%. Data collection for Time 1 occurred primarily between 2002 and 2003, with Time 2 follow-ups occurring between 2003 and 2004. Data from the 2000 census were used for measures of neighborhood disadvantage. During these years, no major state or national financial crises occurred, though nearly one out of every five, 17.6%, children were living in poverty in 2003 (US Census Bureau, 2003).

2.2. Measures

2.2.1. Socioeconomic status (SES)

Parents completed a semi-structured interview in which they reported their monthly income from all sources, their level of education, and their current occupation (or usual occupation if currently unemployed). There is growing consensus that SES is best computed from parental education, occupational status, and family income. Thus, we use all three constructs (parent education, occupation status, and income-to-needs) to assess SES. Occupation was coded using Hollingshead's (1975) 9-point scale of occupational prestige. A Hollingshead composite variable was created by averaging standardized education and occupation scores for each family. Income was divided by the federal poverty line for the appropriate family size to create an income-to-needs ratio. We combined education and occupation into the Hollingshead composite variable and treated income-to-needs as a separate variable/indicator of SES.

2.2.2. Neighborhood disadvantage

Data from the 2000 Census (gathered at the zip code level) were used to examine neighborhood disadvantage (US Census Bureau, 2000). Levels of poverty, unemployment, educational attainment, and residential mobility were utilized. Based on the support of previous studies using census data, these four variables are reliable for measuring structural neighborhood disadvantage (Cutrona, Russell, Hessling, Brown, & Murry, 2000; Pashall & Hubbard, 1998; Sampson, Raudenbush, & Earls, 1997). Such variables provide objective information on neighborhood disadvantage that can be utilized in conjunction with the subjective data on poverty-related stress provided by participants.

2.2.3. Family poverty-related stress

The Multicultural Events Schedule for Adolescents (MESA; Gonzales, Gunnoe, Samaniego, & Jackson, 1995; Gonzales, Tein, Sandler, & Friedman, 2001) was used to measure child/adolescent poverty-related stress. Parents reported on their children and adolescent's experiences of stress. Adolescents (ages 11–18) also provided reports of their own stress, while parent-only report was utilized for children (ages 6–10). The MESA consists of 84 items assessing daily hassles and major life events that commonly occur in the lives of poor, urban youths, divided into eight subscales. As in Wadsworth et al. (2008), a composite poverty-related stress variable was computed from the following five subscales: Economic Strain, Family Conflict, Family Transitions/Changes, Discrimination, and Victimization/Violence Exposure. These subscales were highly correlated with each other (r 's ranged from .35 to .67). Additional scales not included in the poverty-related stress composite include Peer and Academic Stress. Parent and adolescent reports were highly correlated ($r = .51$) and thus averaged to create a composite

score. Cronbach's alpha was .67 for the parent-report of the adolescent poverty-related stress composite, .64 for the parent report of the child poverty-related stress composite, and .71 for the adolescent-parent combined poverty-related stress composite. The MESA was developed and validated using an ethnically diverse (including African American, European American, and Latino adolescents), low-income population and has demonstrated adequate 2-week test-retest reliability ($r = .71$).

Parents were interviewed using the Economic Hardship Questionnaire (EHQ), a measure that assesses the number of constraints the family felt as a result of economic hardship and the adjustments they have had to make in order to make ends meet in the last 6 months (Lempers, Clark-Lempers, & Simons, 1989). Questions were completed on a 5-point scale indicating how often each of 11 items was true for them in the last 6 months. Sample items include: *We have had to sell possessions to make ends meet; We had to apply for federal assistance*. Cronbach's alpha was .74 in this sample. EHQ scores from parents and MESA scores from parents and children were standardized and averaged to create an overall family poverty-related stress variable. Scores from the EHQ and MESA were significantly correlated ($r = .30$). Correlations between poverty-related stress and psychological problems were highly similar across informants, suggesting that the different measures of poverty-related stress captured similar constructs.

2.2.4. Psychological syndromes

Parents completed the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) to assess their perceptions of children's emotional and behavioral problems. Adolescents completed the Youth Self Report (YSR; Achenbach & Rescorla, 2001) to assess their own psychological symptoms. Parents (both primary and secondary) completed the Adult Self Report (ASR; Achenbach, 2005) about their own psychological symptoms. The CBCL contains 113 items, the YSR has 112 items, and the ASR has 126 items. Items are rated on a three-point Likert scale ("0" = never true; "1" = sometimes true; "2" = very often true). The eight narrow band syndromes were used to assess a wide range of psychological problems. The ASR, CBCL, and YSR are part of the Achenbach System of Empirically Based Assessment (ASEBA) and consistently demonstrate excellent reliability and validity. Adolescent self-reports were significantly correlated with parental reports (r 's ranged from .28 to .48) and were thus averaged to create a composite score.

2.3. Analyses

2.3.1. Model

A hierarchical linear model (e.g., Raudenbush, Bryk, & Congdon, 2004) was used to examine the primary research hypotheses. Hierarchical linear modeling is an ideal analytical approach for studying family processes, as it allows for inclusion of multiple family members in the same analysis without concern for problems resulting from dependent observations. Without utilizing a hierarchical model, family members may have correlated error terms, violating a basic assumption of multiple regression (see Luke, 2004). Hierarchical linear modeling is ideal for analyses that take into account multiple contexts. Specifically, this study analyzes individual characteristics (i.e., age, sex) in addition to predictors at the family/neighborhood level or context. HLM allows predictors at multiple levels, making this a much stronger analytical tool for including contextual predictors than ordinary multiple regression which remains at the individual level of analysis. A hierarchical analysis allows for families to be measured as units and for all family members to be included in the lowest level of analysis. Few studies have employed this approach in exploring contextual poverty predictors along with individual factors across a sample of poor multiethnic families.

Level 1 of the model consists of all family members—parents and children. Level 2 consists of the family each person belongs to. SES, income-to-needs, neighborhood disadvantage, and family poverty-related stress were entered as predictors at level 2. Age, sex, and Time 1 syndromes were entered at level 1. Initial models revealed that ethnicity was not a significant predictor of outcomes and was thus dropped from the model so as to not overstress the number of parameters estimated. Interactive effects were examined between level 2 predictors and age and level 2 predictors and Time 1 syndromes. Interactive effects were not examined with sex in order to conserve power. The Level 2 equations predicting age, sex, and prior symptoms were set as fixed, as their slopes were assumed to be similar across families. Final models were as follows (with i referring to Level 1 units or persons, j referring to Level 2 units or families, β s representing Level 1 coefficients, γ s representing Level 2 coefficients, r referring to Level 1 random error associated with person i in family j , and μ_0 referring to variation between families on intercepts):

Level 1: (T2 Psychological Syndrome) $_{ij} = \beta_{0j} + \beta_{1j}(\text{T1 Age})_{ij} + \beta_{2j}(\text{Sex})_{ij} + \beta_{3j}(\text{T1 Psychological Syndrome})_{ij} + r_{ij}$.

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}(\text{T1 Income-to-Needs})_j + \gamma_{02}(\text{T1 Hollingshead})_j + \gamma_{03}(\text{T1 Family poverty-related stress})_j + \gamma_{04}(\text{T1 Neighborhood Education})_j + \gamma_{05}(\text{T1 Neighborhood Poverty})_j + \gamma_{06}(\text{T1 Neighborhood Unemployment})_j + \gamma_{07}(\text{T1 Neighborhood Mobility})_j + \mu_{0j}$

$\beta_{1j} = \gamma_{10} + \gamma_{11}(\text{T1 Income-to-Needs})_j + \gamma_{12}(\text{T1 Hollingshead})_j + \gamma_{13}(\text{T1 Family poverty-related stress})_j + \gamma_{14}(\text{T1 Neighborhood Education})_j + \gamma_{15}(\text{T1 Neighborhood Poverty})_j + \gamma_{16}(\text{T1 Neighborhood Unemployment})_j + \gamma_{17}(\text{T1 Neighborhood Mobility})_j$

$\beta_{2j} = \gamma_{20}$

$\beta_{3j} = \gamma_{30} + \gamma_{31}(\text{T1 Income-to-Needs})_j + \gamma_{32}(\text{T1 Hollingshead})_j + \gamma_{33}(\text{T1 Family poverty-related stress})_j + \gamma_{34}(\text{T1 Neighborhood Education})_j + \gamma_{35}(\text{T1 Neighborhood Poverty})_j + \gamma_{36}(\text{T1 Neighborhood Unemployment})_j + \gamma_{37}(\text{T1 Neighborhood Mobility})_j$.

3. Results

3.1. Preliminary analyses

Descriptive statistics and correlations among variables are reported in Table 1. The data were checked for skewness and kurtosis as well as extreme outliers before primary analyses were conducted. Twenty-nine families that completed Time 1 did not complete Time 2 due to factors such as relocation out of state, death, and incarceration. Attrition analyses comparing families that completed and those that did not complete the study found no significant differences on any key variables, including families' income-to-needs ratios as well as children's and parents' ages, genders, ethnicities, and poverty-related stress levels. Missing data were handled using data imputation. Data were missing at random. Data imputation was conducted with PRELIS (Lisrel 8.52; Jöreskog & Sörbom, 1993). This approach yields unbiased and efficient estimates and is superior to list-wise deletion or mean-substitution (Graham, Cumsille, & Elek-Fisk, 2003). The program successfully imputed all missing values. For all analyses, imputed scores are included.

3.2. Models

Models were run using hierarchical linear modeling (HLM 6.03 software; Raudenbush et al., 2004). Income-to-needs, Hollingshead SES, poverty-related stress, neighborhood poverty, neighborhood unemployment, neighborhood education levels, and neighborhood mobility were entered at level 2 as family-level variables. At level 1, age, sex, and Time 1 psychological syndrome were entered as individual predictors of each Time 2 psychological syndrome. Models were run separately for each Time 2 psychological syndrome outcome. Table 2 contains full results from all eight HLM analyses, including coefficients, standard errors, and *t*-values.

Main effects of poverty-related stress were found for anxious/depressed and social problems, showing that higher levels of poverty-related stress were related to more symptoms. A main effect of income-to-needs was also found for anxious/depressed, with higher income-to-needs predicting fewer symptoms. Hollingshead SES showed direct effects on aggression, delinquency, and anxious/depressed, though in the opposite direction predicted. Higher status predicted more aggression, delinquency, and anxiety/depression. Neighborhood education also had a main effect on withdrawn symptoms, while neighborhood poverty had a main effect on social problems, with less neighborhood education and higher levels of poverty predicting more symptoms. Neighborhood unemployment had main effects on aggression, attention problems, and social problems. However, these effects were in the opposite direction predicted, with more neighborhood unemployment predicting fewer psychological problems. Neighborhood mobility had a main effect on delinquency, with more mobility predicting more delinquency.

With regard to age, older family members showed more withdrawn symptoms, somatic complaints, and thought problems, while younger family members showed more anxiety/depression and social problems. Age also interacted with other independent variables. Age interacted with poverty-related stress to predict anxiety/depression, showing that poverty-related stress is most harmful for children and adolescents, exacerbating symptoms for them more than adults. Age interacted with neighborhood mobility to predict withdrawn symptoms and thought problems, showing that mobility is more harmful for adults. An interaction was found between age and unemployment, suggesting that social problems decrease more substantially for children as unemployment increases. An interaction between age and neighborhood education shows that neighborhood education levels are more protective for children than for adults. With regard to sex, males showed higher levels of aggression, while females showed higher levels of somatic complaints.

Time 1 levels of symptoms predicted Time 2 symptoms for all outcomes except anxious/depressed. Prior levels of symptoms also interacted with numerous independent variables to predict Time 2 outcomes. Poverty-related stress interacted with previous symptoms to predict anxiety/depression, delinquency, somatic complaints, and attention problems, suggesting that higher levels of poverty-related stress are particularly harmful for those with higher levels of symptoms at Time 1. Income-to-needs interacted with previous symptoms to predict social problems, showing that lower income exacerbated preexisting social problems. Hollingshead SES also interacted with previous symptoms, predicting anxiety/depression and social problems, showing that higher SES exacerbated preexisting symptoms. Neighborhood education interacted with previous attention problems to predict Time 2 attention problems, suggesting that lower levels of education in the neighborhood exacerbate attention problems across time, especially for those with more attention problems at Time 1. Neighborhood poverty interacted with previous symptoms to predict withdrawn symptoms and thought problems with more poverty in the neighborhood exacerbating symptoms across time. An interaction was also found between T1 social problems and neighborhood unemployment in the opposite direction predicted.

Table 3 contains additional statistics including the variance components from each HLM model and R^2 terms, which can be considered indicators of model fit. Luke (2004) suggests interpreting these as the proportional reduction of prediction error. For example, for the somatic complaints model, by including the level 1 and level 2 predictors, we are able to improve the predictive ability of the model compared to a null model by 28% to 42%. Further, for each HLM model, residuals were explored at both level 1 and level 2 to ensure assumptions were not violated. Due to the conceptual overlap of numerous predictors, possible multicollinearity was also examined. Only neighborhood poverty and neighborhood unemployment showed possible multicollinearity. Thus HLM models with significant effects from these variables were repeated dropping

Table 1
Correlations and descriptive statistics.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
1. T1 Age																										
2. T1 Sex	-.31**																									
3. T1 Poverty-related stress	.05	-.09																								
4. T1 Income-to-needs	.05	-.02	.06																							
5. T1 Hollingshead SES	.04	-.01	.23**	.23**																						
6. T1 Neigh. Education	-.07	.00	.19**	-.10	.18**																					
7. T1 Neigh. Poverty	.06	-.02	-.12*	.06	-.17**	-.58**																				
8. T1 Neigh. Unemployment	.06	-.02	-.03	.16**	-.16**	-.49**	.86**																			
9. T1 Neighborhood Mobility	-.05	-.02	.10	-.01	.08	.32**	-.14**	-.01																		
10. T1 Aggression	-.23**	.11	.28**	.05	.06	.07	-.02	-.03	.13*																	
11. T1 Delinquency	-.09	.08	.15**	-.03	.05	.07	-.01	-.06	.10	.64**																
12. T1 Attention Problems	.21**	-.08	.26**	.01	.06	.02	.07	.04	.05	.54**	.48**															
13. T1 Social Problems	.32**	-.08	.18**	-.03	.08	-.03	.04	.03	-.02	.36**	.28**	.67**														
14. T1 Anxious/Depressed	.51**	-.29**	.25**	.02	.07	.03	.00	-.01	.04	.30**	.23**	.57**	.64**													
15. T1 Withdrawn	.32**	-.11	.20**	.04	.11	.03	.04	.02	.03	.38**	.37**	.57**	.63**	.70**												
16. T1 Somatic Complaints	.47**	-.28**	.21**	.02	.04	.01	.02	.00	.15**	.19**	.13**	.46**	.52**	.75**	.56**											
17. T1 Thought Problems	.07	-.02	.22**	-.02	.12*	.01	.08	.07	.13*	.49**	.47**	.64**	.61**	.49**	.57**	.48**										
18. T2 Aggression	-.15**	.17**	.10	.00	.14*	.01	-.02	-.08	.01	.42**	.42**	.26**	.17**	.02	.21**	.04	.26**									
19. T2 Delinquency	.04	.06	.12*	-.05	.14*	.06	-.04	-.09	.18**	.36**	.48**	.30**	.24**	.27**	.35**	.24**	.36**	.70**								
20. T2 Attention Problems	-.40**	.08	.11	.04	.02	.00	-.02	-.08	-.01	.51**	.51**	.36**	.12*	-.04	.14*	-.04	.23**	.64**	.51**							
21. T2 Social Problems	-.18**	-.05	.17**	-.02	.01	.09	-.01	-.07	.04	.37**	.35**	.36**	.24**	.12*	.19**	.12*	.32**	.42**	.45**	.61**						
22. T2 Anxious/Depressed	-.14*	-.03	.19**	-.10	.15**	.04	-.07	.13*	-.04	.28**	.28**	.24**	.26**	.11*	.21**	.08	.28**	.59**	.45**	.43**	.47**					
23. T2 Withdrawn	.38**	-.16**	.12**	.01	.09	-.09	.02	-.02	.00	.05	.08	.24**	.31**	.45**	.37**	.38**	.22**	.35**	.54**	.16**	.25**	.37**				
24. T2 Somatic Complaints	.47**	-.34**	.14**	.06	.01	-.03	.04	.01	.00	.09	.07	.31**	.34**	.57**	.42**	.60**	.32**	.01	.25**	-.02	.31**	.11	.48**			
25. T2 Thought Problems	.54**	-.21**	.15**	-.03	.00	-.02	-.00	-.02	.01	.09	.16**	.45**	.40**	.56**	.42**	.49**	.32**	.25**	.50**	.12**	.38**	.27**	.65**	.66*		
M	21.63	.43	.00	1.04	-.03	22.37	9.06	5.40	25.04	5.66	2.81	5.06	4.16	7.12	3.15	3.99	2.47	5.04	2.99	3.28	2.00	2.74	3.69	3.01	3.36	
SD	13.28	.50	.72	.61	.82	13.37	4.97	2.07	6.93	4.75	2.67	4.02	4.10	6.75	2.77	3.90	2.67	3.59	2.73	3.00	2.17	2.32	4.04	3.21	3.15	

* $p < .05$.

** $p < .01$.

Table 2
Hierarchical linear models: regression coefficients and statistical tests.

	Coefficient	SE	t-Ratio		Coefficient	SE	t-Ratio
<i>Aggression model</i>				<i>Anxious/depressed model</i>			
Intercept	4.5871	.2089	21.96**	Intercept	2.786	.1851	15.05**
T1 Poverty-related stress (PRS)	-.0110	.3071	-.04	T1 Poverty-related stress (PRS)	.4815	.2247	2.14*
T1 Income-to-needs	-.2289	.2867	-.80	T1 Income-to-needs	-.4856	.2300	-2.11*
T1 Hollingshead SES	.5956	.2133	2.79**	T1 Hollingshead SES	.4457	.1753	2.54*
T1 Neighborhood Education	-.0142	.0211	-.67	T1 Neighborhood Education	-.0106	.0111	-.95
T1 Neighborhood Poverty	.1262	.0862	1.46	T1 Neighborhood Poverty	.0128	.0498	.26
T1 Neighborhood Unemployment	-.3692	.1843	-2.00*	T1 Neighborhood Unemployment	-.1419	.1160	-1.22
T1 Neighborhood Mobility	-.0063	.028	-.29	T1 Neighborhood Mobility	-.0165	.0112	-1.47
T1 Age	-.0044	.0149	-.30	T1 Age	-.0336	.0097	-3.47**
T1 Age × PRS	-.0230	.0231	-.97	T1 Age × PRS	.0708	.0163	-4.34**
T1 Age × Income-to-needs	-.0316	.0268	-1.18	T1 Age × Income-to-needs	-.0058	.0215	-.27
T1 Age × Hollingshead SES	.0171	.0188	.91	T1 Age × Hollingshead SES	-.0033	.0100	-.33
T1 Age × Neighborhood Education	-.0004	.0015	-.28	T1 Age × Neighborhood Education	-.0007	.0009	-.74
T1 Age × Neighborhood Poverty	-.0069	.0068	-1.02	T1 Age × Neighborhood Poverty	-.0068	.0052	-1.31
T1 Age × Unemployment	.0168	.0163	1.03	T1 Age × Unemployment	.0203	.0109	1.86
T1 Age × Neighborhood Mobility	-.0012	.0026	-.46	T1 Age × Neighborhood Mobility	.0021	.0019	1.12
Sex	.9453	.4638	2.04*	Sex	-.2642	.3076	-.86
T1 Aggression	.2815	.0542	5.20**	T1 Anxious/Depressed (Anx/Dep)	.0361	.0210	1.72
T1 Aggression × PRS	.0596	.0675	.88	T1 Anx/Dep × PRS	.0791	.0362	2.18*
T1 Aggression × Income-to-Needs	.0638	.0898	.71	T1 Anx/Dep × Income-to-Needs	-.0079	.0389	-.20
T1 Aggression × Hollingshead SES	-.0329	.0579	-.57	T1 Anx/Dep × Hollingshead SES	.0406	.0200	2.03*
T1 Aggression × Neigh. Education	-.0051	.0056	-.92	T1 Anx/Dep × Neigh. Education	.0006	.0016	.35
T1 Aggression × Neigh. Poverty	-.0005	.0230	-.02	T1 Anx/Dep × Neigh. Poverty	-.0040	.0120	-.33
T1 Aggression × Unemployment	-.0342	.0497	-.69	T1 Anx/Dep × Unemployment	.0084	.0243	.35
T1 Aggression × Neigh. Mobility	.0027	.0077	.35	T1 Anx/Dep × Neigh. Mobility	-.0049	.0042	-1.16
<i>Delinquency model</i>				<i>Withdrawn model</i>			
Intercept	2.9001	.1845	15.72**	Intercept	3.7091	.2505	14.81**
T1 Poverty-related stress (PRS)	.1519	.2176	.70	T1 Poverty-related stress (PRS)	.2743	.2387	1.15
T1 Income-to-needs	-.1534	.2416	-.64	T1 Income-to-needs	-.1529	.2940	-.52
T1 Hollingshead SES	.3787	.1690	2.24*	T1 Hollingshead SES	.2365	.2516	.94
T1 Neighborhood Education	-.0118	.0147	-.80	T1 Neighborhood Education	-.0512	.0191	-2.68**
T1 Neighborhood Poverty	.0807	.0567	1.42	T1 Neighborhood Poverty	.0449	.0777	.58
T1 Neighborhood Unemployment	-.2565	.1365	1.88	T1 Neighborhood Unemployment	-.3275	.1691	-1.94
T1 Neighborhood Mobility	.0622	.153	4.08**	T1 Neighborhood Mobility	.0327	.0267	1.22
T1 Age	.0163	.0097	1.69	T1 Age	.0877	.0159	5.51**
T1 Age × PRS	.0027	.0147	.18	T1 Age × PRS	-.0034	.0208	-.17
T1 Age × Income-to-needs	.0055	.0192	.29	T1 Age × Income-to-needs	-.0328	.0243	-1.35
T1 Age × Hollingshead SES	-.0101	.0125	-.81	T1 Age × Hollingshead SES	.0108	.0208	.52
T1 Age × Neighborhood Education	-.0009	.0008	-1.13	T1 Age × Neighborhood Education	-.0023	.0012	-1.80
T1 Age × Neighborhood Poverty	-.0027	.0036	-.76	T1 Age × Neighborhood Poverty	-.0012	.0059	-.19
T1 Age × Unemployment	.0010	.0088	.12	T1 Age × Unemployment	-.0003	.0138	-.02
T1 Age × Neighborhood Mobility	.0022	.0016	1.35	T1 Age × Neighborhood Mobility	.0047	.0019	2.48*
Sex	.2383	.3000	.79	Sex	-.2238	.5274	-.42
T1 Delinquency	.4643	.0724	6.41**	T1 Withdrawn	.3543	.0802	4.42**
T1 Delinquency × PRS	.1710	.0870	1.97*	T1 Withdrawn × PRS	.1626	.1149	1.42
T1 Delinquency × Income-to-Needs	-.0069	.1123	-.06	T1 Withdrawn × Income-to-Needs	.0610	.0984	.62
T1 Delinquency × Hollingshead SES	.0359	.0844	.43	T1 Withdrawn × Hollingshead SES	-.0273	.1053	-.26
T1 Delinquency × Neigh. Education	-.0032	.0058	-.57	T1 Withdrawn × Neigh. Education	.0071	.0086	.83
T1 Delinquency × Neigh. Poverty	.0127	.0246	.52	T1 Withdrawn × Neigh. Poverty	.0768	.0340	2.26*
T1 Delinquency × Unemployment	-.0402	.0539	-.75	T1 Withdrawn × Unemployment	-.1367	.0739	-1.85
T1 Delinquency × Neigh. Mobility	.0135	.0109	1.24	T1 Withdrawn × Neigh. Mobility	-.0065	.0120	-.55
<i>Attention problems model</i>				<i>Somatic complaints model</i>			
Intercept	3.2977	.1957	16.85**	Intercept	3.4232	.2031	16.86**
T1 Poverty-related stress (PRS)	.1457	.1944	.75	T1 Poverty-related stress (PRS)	.0691	.2531	.27
T1 Income-to-needs	.3305	2383	1.39	T1 Income-to-needs	.2414	.2666	.91
T1 Hollingshead SES	-.0278	.2259	-.12	T1 Hollingshead SES	-.1045	.2177	-.48
T1 Neighborhood Education	-.0167	.0126	-1.33	T1 Neighborhood Education	.0003	.0196	.02
T1 Neighborhood Poverty	.0740	.0560	1.32	T1 Neighborhood Poverty	.0553	.0805	.69
T1 Neighborhood Unemployment	-.3283	.1537	-2.14*	T1 Neighborhood Unemployment	-.1525	.1780	-.86
T1 Neighborhood Mobility	-.0132	.0164	-.81	T1 Neighborhood Mobility	-.0215	.0224	-.96
T1 Age	-.1125	.0107	-10.51**	T1 Age	.0517	.0118	4.38**
T1 Age × PRS	-.0178	.0121	-1.47	T1 Age × PRS	-.0314	.0185	-1.70
T1 Age × Income-to-needs	-.0172	.0191	-.90	T1 Age × Income-to-needs	-.0021	.0265	-.08
T1 Age × Hollingshead SES	.0196	.0160	1.23	T1 Age × Hollingshead SES	-.0359	.0191	-1.88
T1 Age × Neighborhood Education	.0001	.0009	.14	T1 Age × Neighborhood Education	.0006	.0013	.46
T1 Age × Neighborhood Poverty	-.0042	.0034	-1.26	T1 Age × Neighborhood Poverty	-.0003	.0066	-.05

(continued on next page)

Table 2 (continued)

	Coefficient	SE	t-Ratio		Coefficient	SE	t-Ratio
T1 Age × Unemployment	.0153	.0090	1.69	T1 Age × Unemployment	.0027	.0138	.20
T1 Age × Neighborhood Mobility	-.0012	.0020	-.63	T1 Age × Neighborhood Mobility	-.0005	.0022	-.21
Sex	-.1474	.3058	-.48	Sex	-1.1331	.2763	-4.10**
T1 Attention Problems	.3347	.0382	8.77**	T1 Somatic Complaints	.3517	.0490	7.17**
T1 Attention × PRS	.0935	.0474	1.97*	T1 Somatic × PRS	.1420	.0698	2.04*
T1 Attention × Income-to-Needs	.0951	.0747	1.23	T1 Somatic × Income-to-Needs	.1089	.1004	1.08
T1 Attention × Hollingshead SES	-.0493	.0591	-.83	T1 Somatic × Hollingshead SES	.0868	.0673	1.29
T1 Attention × Neigh. Education	-.0049	.0024	-2.04*	T1 Somatic × Neigh. Education	.0032	.0062	.52
T1 Attention × Neigh. Poverty	.0151	.0133	1.14	T1 Somatic × Neigh. Poverty	.0416	.0264	1.58
T1 Attention × Unemployment	-.0610	.0343	-1.78	T1 Somatic × Unemployment	-.0507	.0579	-.88
T1 Attention × Neigh. Mobility	.0021	.0088	.24	T1 Somatic × Neigh. Mobility	.0001	.0053	.02
<i>Social problems model</i>				<i>Thought problems model</i>			
Intercept	2.1641	.1475	14.67**	Intercept	3.470	.1742	19.92**
T1 Poverty-related stress (PRS)	.3464	.1758	1.97*	T1 Poverty-related stress (PRS)	.3044	.2075	1.47
T1 Income-to-needs	.1199	.1887	.64	T1 Income-to-needs	-.2089	.2029	-1.03
T1 Hollingshead SES	-.0891	.1587	-.56	T1 Hollingshead SES	-.2407	.1864	-1.29
T1 Neighborhood Education	.0199	.0131	1.51	T1 Neighborhood Education	-.0118	.0152	-.78
T1 Neighborhood Poverty	.1592	.0570	2.79**	T1 Neighborhood Poverty	.0481	.0669	.72
T1 Neighborhood Unemployment	-.3450	.1195	-2.89**	T1 Neighborhood Unemployment	-.2575	.1554	-1.66
T1 Neighborhood Mobility	-.0059	.0197	-.30	T1 Neighborhood Mobility	.0389	.0227	1.72
T1 Age	-.0500	.0085	-5.87**	T1 Age	.1288	.0125	10.33**
T1 Age × PRS	-.0233	.0138	-1.69	T1 Age × PRS	.0153	.0191	.80
T1 Age × Income-to-needs	-.0350	.0195	-1.80	T1 Age × Income-to-needs	-.0147	.0217	-.68
T1 Age × Hollingshead SES	.0053	.0105	.50	T1 Age × Hollingshead SES	-.0093	.0153	-.61
T1 Age × Neighborhood Education	.0028	.0008	3.36**	T1 Age × Neighborhood Education	-.0002	.0010	-.21
T1 Age × Neighborhood Poverty	-.0022	.0035	-.62	T1 Age × Neighborhood Poverty	.0006	.0042	.15
T1 Age × Unemployment	.0218	.0079	2.75**	T1 Age × Unemployment	-.0010	.0110	-.09
T1 Age × Neighborhood Mobility	.0005	.0014	.37	T1 Age × Neighborhood Mobility	.0040	.0020	2.01*
Sex	-.3382	.1996	-1.69	Sex	-.0817	.2870	-.29
T1 Social Problems	.1815	.0325	5.58**	T1 Thought Problems	.3422	.0726	4.72**
T1 Social Prob. × PRS	.0581	.0460	1.26	T1 Thought Prob. × PRS	.0384	.1202	.32
T1 Social Prob. × Income-to-Needs	.1118	.0524	2.13*	T1 Thought Prob. × Income-to-Needs	.1410	.0925	1.53
T1 Social Prob. × Hollingshead SES	-.0879	.0350	-2.51*	T1 Thought Prob. × Hollingshead SES	-.1169	.0722	-1.62
T1 Social Prob. × Neigh. Education	-.0042	.0030	-1.37	T1 Thought Prob. × Neigh. Education	.0020	.0096	.21
T1 Social Prob. × Neigh. Poverty	.0212	.0129	1.65	T1 Thought Prob. × Neigh. Poverty	.0580	.0293	1.98*
T1 Social Prob. × Unemployment	-.0744	.0274	-2.72**	T1 Thought Prob. × Unemployment	-.1229	.0732	-1.68
T1 Social Prob. × Neigh. Mobility	-.0074	.0087	-.85	T1 Thought Prob. × Neigh. Mobility	-.0224	.0152	-1.48

* $p < .05$.** $p < .01$.

Table 3

Variance components and model R^2 .

	r	μ_0	R_1^{2a}	R_2^{2b}
Aggression model	10.5371	.0162	.1833	.1840
Delinquency model	5.0096	.5965*	.2484	.2926
Attention problems model	5.4305	.3427	.3591	.2814
Social problems model	3.3313	.3903*	.2085	.1439
Anxious/depressed model	4.4903	.0460	.1545	.2632
Withdrawn model	12.9828	.0253	.2044	.2044
Somatic complaints model	5.1900	.7218*	.4237	.2829
Thought problems model	5.8067	.3308	.3801	.3178

a Level 1 R^2 .b Level 2 R^2 .* Chi Square is significant at $p < .05$.

one of the variables to ensure effects were not artifacts of collinearity. Results of these additional analyses were fairly consistent with the primary analyses, with all effects of neighborhood poverty and neighborhood unemployment remaining in the same direction. Thus, results of the primary analyses with all predictor variables included are presented.

4. Discussion

This study examined the relationships between socioeconomic status, neighborhood disadvantage, poverty-related stress, and psychological functioning in a sample of poor families. Neighborhood disadvantage, poverty-related stress, and income clearly contribute to psychological problems among poor children and adults. However, within a constrained sample of lower SES families, those with higher status actually show worse functioning.

McMahon, Grant, Compas, Thurm, and Ey (2003) emphasize the importance of examining specificity in which types of stress are associated with particular outcomes. Poverty-related stress was directly related to anxious/depressed symptoms and social problems. Poverty-related stress also interacted with prior symptoms, contributing to worsening symptoms for delinquency, attention problems, somatic complaints, and anxious/depressed symptoms. Our results indicate that poverty-related stress directly predicts internalizing symptoms (i.e., depression and anxiety) across age groups, while externalizing problems including delinquency and attention problems are exacerbated by poverty-related stress across time. In their review, McMahon et al. (2003) found that most research has not found links between poverty and specific outcomes. However, research on other types of poverty-related stress such as family conflict, suggests a more specific link to internalizing problems rather than externalizing problems. Our findings are consistent with this limited evidence for specificity, but make a clear addition to the literature. Poverty-related stress may contribute more directly to internalizing problems, but poverty-related stress exacerbates both internalizing and externalizing problems such as delinquency and attention problems over time. The development of internalizing problems such as anxiety and depression may be more of a product of poverty-related stress, which tends to invoke feelings of uncertainty and demoralization, while externalizing problems may be more related to harsh or coercive discipline (e.g., Snyder, Reid, & Patterson, 2003), yet still aggravated by the stress of poverty.

Socioeconomic status also had direct predictive effects for certain syndromes including main effects on aggression, delinquency, and anxious/depressed symptoms. However, contrary to expectations and most prior research, Hollingshead SES was positively associated with symptoms. By definition, all families in our sample were experiencing poverty and were of low SES. The low-income nature of our sample may be driving these results, with educational and occupational status operating differently at the extreme low end of SES. When one is experiencing poverty, but has higher levels of educational and occupational attainment than others experiencing poverty, one may be more frustrated with one's circumstances. Aggression and delinquency may be more influenced by status in society and aggravation about continued poverty despite higher educational and occupational attainment compared to fellow low-income community members (Berkowitz, 1989). MacLeod (1995) suggests that when aspirations for climbing the ladder of social mobility are diminished among adolescents and young adults, lives that involve crime, aggression, and delinquency become more appealing. SES also exacerbated initial symptoms to predict worsening symptoms for social problems and anxious/depressed symptoms, again with higher SES predicting worse symptoms. Initial levels of symptoms may worsen as a result of feeling defeated or stuck on one's rung on the SES ladder, especially when educational and occupational attainment do not improve the experience of poverty. Though consistent with Berkowitz's (1989) reformulated Frustration–Aggression Hypothesis, this finding contrasts with much previous research showing that low SES is related to a range of psychological problems (e.g., Wadsworth & Achenbach, 2005). Thus, this finding needs replication and calls for additional examination of how poverty operates within a constrained sample and the extreme low end of SES.

Despite Hollingshead SES being related to problems in the opposite direction predicted, our other measure of SES, income-to-needs, predicted problems in the expected direction. Lower levels of income were related to more symptoms of anxiety and depression across time. In addition, low income coupled with prior social problems predicted more social problems across time. Thus, income levels matter even among a constrained low-income sample. Low income levels restrict financial resources to provide basic necessities including food, school supplies, and housing rent, and thus create tremendous financial stress, which contributes to anxiety and feelings of hopelessness and demoralization. The link between poverty and depression is well supported (e.g., Belle & Doucet, 2003). This study supports this link even within a constrained sample where every family is experiencing poverty. Although educational and occupational status may operate differently in a constrained sample, low levels of income clearly play a role in the development of psychopathology among poor families.

Various indicators of neighborhood disadvantage also contributed to psychological syndromes. Social disorganization theory (e.g., Sampson & Groves, 1989) posits that indicators of neighborhood disadvantage such as residential mobility and high poverty rates contribute to problems such as crime and delinquency because they reduce a community's ability to exercise social control, and they reduce interconnectedness within and commitment to the community. Thus, problems like residential mobility simultaneously weaken adult ties to the community and reduce adult monitoring of children. Classically, in our sample residential mobility was associated with more delinquency over time (e.g., Sampson & Laub, 1994). Residential mobility also interacted with age suggesting that mobility is particularly harmful for adults, exacerbating withdrawn symptoms and thought problems. This likely reflects adults' limited ties to a neighborhood in which they are not terribly invested and may wish to leave as soon as they are able (e.g., Sampson & Groves, 1989). Similarly, neighborhood poverty was also detrimental, predicting more social problems, and interacting with initial symptoms to worsen withdrawn symptoms and thought problems across time, showing that neighborhood disadvantage affects not only delinquency and crime, but also contributes to problems in other realms of psychological functioning. Levels of education in the neighborhood appear to worsen initial levels of attention problems. Low neighborhood education levels are especially harmful for children with regard to predicting social problems. Prior research has demonstrated that children in more affluent neighborhoods have fewer social, behavioral, and educational problems than those in poor neighborhoods (e.g., Brooks-Gunn et al., 1997; Harding, 2003; Mcloyd, 1998). Neighborhood education levels may be a key contributor to children's vulnerability to neighborhood disadvantage.

Neighborhood unemployment was actually related to less aggression, fewer social problems, and fewer attention problems, contrary to hypotheses. In addition, social problems appear to decrease primarily for children as unemployment increases. Although this unexpected finding is in need of replication before firm conclusions can be drawn, there may be a number of explanations. Employment generally increases income and reduces poverty stressors, but may also result in

occupational stress and increases in stress related to transportation and childcare. For children and teens, employment may mean less adult supervision and parental presence resulting in increased difficulties. While unemployment may bring additional stress by reducing income, it may also provide buffering by way of having more adults around to monitor children's activities and whereabouts. Other studies have found mixed results with regard to employment, showing that employment in general benefits children and families, but that lower prestige employment can increase negative parenting (Raver, 2003). Thus, especially for children, higher unemployment rates may reflect more adult presence and monitoring, which has positive effects on social relationships (Leadbeater, Banister, Ellis, & Yeung, 2008). Though this finding is in need of further investigation, it may suggest a continued need to consider childcare along with employment in policy. In fact, research has demonstrated that employment alone does not benefit children, and that without income gains, employment could actually increase risk for chronically poor children (Dearing, McCartney, & Taylor, 2006). Again, because our sample is by definition low-income, employment may not be increasing income enough for emergence out of poverty, partially explaining this opposite finding.

This study also found intriguing age differences. Adults showed higher levels of withdrawn symptoms, somatic complaints, and thought problems, while children showed higher levels of social problems, attention problems, and anxious/depressed symptoms. Poverty-related stress exacerbated anxious/depressed symptoms more for children, which was consistent with cross-sectional research demonstrating a stronger link between poverty-related stress and psychological problems for children (Wadsworth & Santiago, 2008). This heightened level of symptoms may be due to the lack of control that children have over their financial situation. In addition, poverty-related stress may be especially detrimental during development. Prior research has found that stress tends to predict new occurrences of depression (rather than recurrences), for example, and these one-year increases could be capturing that developmental process. Exposure to cumulative risk during childhood affects not only mental health, but is related to a range of physiological measures that translate into compromised functioning in multiple realms such as academics and physical health (Evans, Kim, & Ting, 2007). Neighborhood education levels, though, were more protective for children when it came to social problems. While poverty-related stress is especially harmful for children, living in neighborhoods with higher levels of education can be buffering for children. On the other hand, residential mobility was particularly harmful for adults as compared to children and adolescents. Prior research on neighborhood disadvantage has largely focused on the detrimental effects on children. It is interesting to find that adults are also directly affected by living in a poor quality neighborhood. Though logical, given the theory and research related to social disorganization (e.g., Sampson & Groves, 1989), this is some of the first research to document effects on psychological symptoms of adults.

Few significant sex differences were found, though males showed significantly higher levels of aggression and females showed higher levels of somatic complaints. These exceptions are consistent with prevalence rates, showing higher prevalence of aggression for males, and higher prevalence of somatic complaints for females (Achenbach, Howell, Quay, & Conners, 1991). Mistry et al. (2002) suggested that sex may not significantly moderate the influence of poverty-related stress for urban, low-income, ethnically diverse children. When considering poverty indicators and poverty-related stress, these findings may suggest that poverty negatively affects males and females in similar ways. Additionally, in our own research on families and children living in poverty, sex differences in mean levels of variables such as coping and psychological syndromes often emerge, but we have found that the patterns of association tend not to vary by sex or ethnicity (Wadsworth & Santiago, 2008; Wadsworth et al., 2008).

Although this study had a number of strengths including a longitudinal design and a diverse sample, it also had some limitations. The sample is representative of the low-income population of the Denver metropolitan area in terms of racial/ethnic composition, but relatively small. Though sufficiently powered for these analyses, sample size limited our ability to examine additional interactive effects with sex. In addition, this study found some effects that were contrary to hypotheses and are in need of replication before firm conclusions can be drawn. Additional research is needed to understand how mechanisms of risk operate within a low-income sample at the extreme low end of SES to confirm findings from this study. In addition, future research can extend findings further by examining additional complex moderating relationships with sex and ethnicity more fully.

Poverty-related stress plays a key role in placing poor adults at risk for depression, marital conflict, and problematic parenting (e.g., Conger, Reuter, & Conger, 2000). Our data show that parents are not the only family members who are affected by stress from living in poverty. SES, neighborhood disadvantage and poverty-related stress take a toll on children as young as six years of age. Our data indicate that poverty affects all members of the family and that poverty-related stress is especially harmful for children. Thus, investing in poor children's well being is essential for breaking the cycle of poverty. One avenue for reducing poverty-related stress's harming effects on mental health includes interventions geared toward both children and parents that bolster coping skills. Enhancing coping skills among poor families facing economic stress has demonstrated preliminary evidence for buffering against the deleterious effects of poverty-related stress and reducing mental health problems (Raviv & Wadsworth, 2006).

Our findings also highlight the importance of considering neighborhood and family resources in policy and resource allocation. Keels (2008) demonstrated that when low-income families are moved from poor neighborhoods to suburban neighborhoods, there are reductions in delinquency, especially for boys. In addition, families report less exposure to violent crimes, drugs, and gangs (Keels, 2008). Our findings show that lower levels of neighborhood education, higher levels of neighborhood poverty, and more residential mobility are toxic for the mental health of poor families. In addition, income levels matter, even within a constrained low-income sample. Lower levels of income predicted more anxiety and depression

and worsened social problems across time. Thus, income and neighborhoods are key conduits for the transmission of risk for psychological problems. Advocating for neighborhood improvement initiatives, programs that encourage cohesion and investment in the community, and more resources for low-income families will be essential for ultimately breaking the cycle of poverty.

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