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EMPIRICAL RESEARCH

The Long Arm of Community: The Influence of Childhood Community Contexts Across the Early Life Course

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Abstract This study examines the longitudinal effects of childhood community contexts on young adult outcomes. The study uses a sample of 14,000 adolescents (52% female) derived from the 1990 US Census and the National Longitudinal Study of Adolescent Health (Addhealth). The study examines whether community and family environments exert separate and/or joint long-term influences on young adult achievement and depression. We found both direct and indirect long-term influences of childhood community adversity on young adult educational attainment. The indirect influences of childhood community adversity operated through family and individual-level factors. The long-term influence of childhood community adversity on young adult depression was only indirect. Overall, community influences on young adult achievement outcomes were mediated by family context and by the adolescents' adjustments and transitions, including adolescent depression, school adjustment, and disruptive transitional events. The moderating effect of childhood community adversity suggests that the protective effects of family resources on young adult outcomes dissipate significantly in extremely adverse neighborhoods. The findings demonstrate the importance of integrating multiple theoretical perspectives for longitudinal research to capture pathways of community influence on adolescent developmental and young adulthood outcomes.

Keywords Childhood community · Family · Adolescence · Young adulthood · Educational attainment · Depression

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Previous studies have documented cross-level associations between community characteristics and developmental and health outcomes in children and youth. Children and adolescents living in impoverished communities show more developmental and health problems compared to their cohorts from affluent communities (Arneshensal and Succoff 1996; Brooks-Gunn et al. 1993; Entwisle 2007; Wickrama and Bryant 2003). The life course research contends that childhood exposure to community deprivations may exert enduring influences by not only disturbing adolescents' adjustments and transitions, but also by directly influencing outcomes in adulthood, such as socioeconomic attainment and health (Elder 1998; Elder and Liker 1982; Hayward and Gorman 2004; Wheaton and Clarke 2003; Wickrama et al. 2008). However, only a few longitudinal studies have followed children through adolescence to adulthood to delineate pathways through which childhood community contexts exerts long-term effects on quality of life. Most longitudinal studies have focused on limited spans of childhood and adolescence (Brooks-Gunn et al. 1993; Conger and Donnellan 2007; Conger et al. 1994; Duncan and Magnuson 2003; Wickrama et al. 2005a, b, c; Elder 1998), or failed to fully integrate risk factors and protective resources that mediate and moderate the progress from childhood experiences, adolescent adjustment,

to the transition to adulthood (Wheaton and Clarke 2003). Moreover, most family and developmental research was not placed in a community context within which family and developmental processes operate. This study aims to explore longitudinal multilevel associations and cross-level moderations to illuminate the pathways through which childhood community contexts may influence socioeconomic and health outcomes in early adulthood.

Theoretical Model

The present study is framed within the model shown in Fig. 1, which shows a direct longitudinal cross-level association between childhood community contexts (Box 1) and young adult outcomes in terms of socioeconomic attainment and mental health (Box 5). The model also indicates that the influence of childhood community contexts on young adult outcomes is largely indirect, mediated by its cross-level influence on family and individual level factors. The childhood community contexts is believed to carry significant and lasting impacts on family context, including such family adversities as adverse community experiences and family poverty, and such family resources as parental education and stable marriage (Box 2). The childhood community contexts are also expected to have significant and enduring effects on family processes, which are typically represented by parental practices (Box 3). The model also postulates that family context and processes will have significant influences on adolescent adjustment and the quality of the transition from adolescence to adulthood (Box 4). These indirect influences of community contexts on young adult outcomes through a chain of individual-level factors are *cross-level mediations*. Finally, as shown at the bottom of Fig. 1, the vertical arrows with dotted lines depict hypothesized moderating influences of community adversity on the associations between family context and family processes and between family processes and adolescent development, representing *cross-level moderations*.

Community Contexts, Social Disorganization, and Long-term Effects

It has been decades since Wilson's classic work (1987) on inner city communities provided impetus to modern empirical research on the multilevel effects of neighborhood context upon collective community resources, family processes, and child/adolescent development. Earlier, Shaw and McKay (1942) observed that such community characteristics as population instability, disturbed family and marital relations, and concentrated poverty had profound impacts on community crime rates and the extent of social problems and disorder. Social disorganization was defined as the inability of a community to produce and protect common values and to provide collective child socialization and control of adolescent behaviors. Similar to social capital theory (Coleman 1990), the social disorganization perspective suggests direct association between community contexts and child/adolescent behaviors. These and other pioneering studies (Brooks-Gunn et al. 1997) demonstrated that neighborhood adversities or disadvantages, including concentrated poverty, residential instability, single parent families, and lack of collective efficacy, are the roots of social inequalities and health

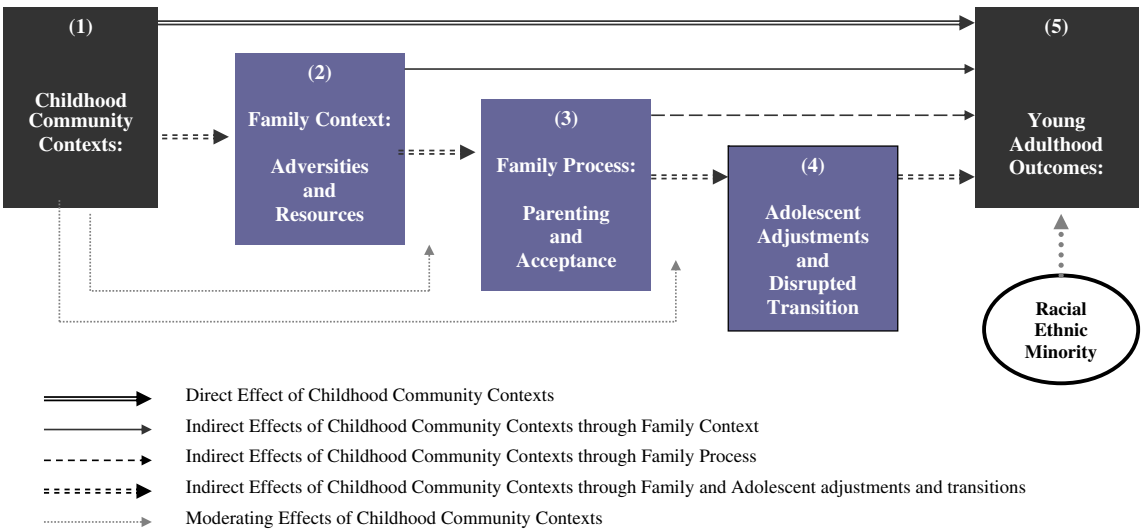

Fig. 1 A Model illustrating of pathways connecting childhood community contexts with family context and process, developmental and transitional experiences and social and psychological outcomes in young adulthood

disparities in later stages of the life course. Wheaton and Clarke (2003) argued that since current individual status should reflect cumulative influences of past life experiences, the real impact of community contexts should be found in lagged, longitudinal relations between early community contexts and individual-level outcomes in later stages of life. The authors' investigated mental health effects of both current and childhood neighborhoods, simultaneously controlling for mental health and social position at diverse points in time. They found no cross-sectional effects of current neighborhood on mental health among a sample of youth and young adults (aged 17–23). Childhood (6–11 years) neighborhood disadvantage, however, had significant long-term cross-level effects. Thus, as shown in Fig. 1, we anticipate longitudinal main effects of childhood community on young adult socio-economic mental health outcomes.

Childhood Community Contexts and Family Context

Community researchers (e.g., Brooks-Gunn et al. 1997; Sampson et al. 2001a, b; Simons et al. 1996a, b; Wickrama and Bryant 2003) have taken the social disorganization model and linked it with family and child development models to evaluate the cross-level developmental impacts of community environment. It has been argued that community social disorganization limits educational opportunities at an early stage of childhood by depleting institutional resources and role models, and undermining intrinsic motivation and ambition (Brooks-Gunn et al. 1993; Elliot et al. 2006; Sampson et al. 2001; Wilson 1987). More specifically, neighborhoods provide social space for residents to interact with one another (Elliot et al. 2006), and the physical and socio-cultural context of the space determines the content and process of social interactions. For example, Wilson (1987) stressed that the true disadvantage of living in a poor neighborhood was not the economic impoverishment itself. He argued that the prevalence of persistent unemployment and disrupted marriage in a community, for example, not only perished physical conditions of the neighborhoods, but also shaped community social norms—the pattern of daily activities, conditions of social relations, and the sense of segregation or community belongingness. With limited or no community capacity to institute social order and to prevent further disorganization, daily experiences of unproductive and dangerous interactions produce a community ambience that is highly stressful (Arneshensal and Sucoff 1996). Meneghan (1991) used the term *mood spillover* to describe the social process by which community disorganization and ambient distress characterize the socio-cultural context of neighborhood families.

Parental marriage, or stable marriage, is an important family resource. The absence of a marital partner is strongly linked to persistent financial strain and stressful life events in various life domains (Avison et al. 2007; Lorenz et al. 2006; Wickrama et al. 2008). The result of these difficult circumstances, which are typically combined with the absence of community support, is stress-related ineffective parenting practices such as parental rejection (Conger and Donnellan 2007; Simons 1996) and poor child management in terms of lack of involvement, supervision, or effective discipline (Sroufe et al. 2000).

Family Context, Family Processes, and Adolescent Development and Transition

Our conceptual model (Fig. 1) shows the link between childhood family context and family process (i.e., parenting and the quality of parent-child relations). Poverty and low socioeconomic status at the family level are known to be related to parental stress, and distressed parents, in turn, are more irritable, authoritarian, and hostile toward their children (Conger and Donnellan 2007; Conger et al. 1994). Uninvolved parenting and parental rejection are related to low self-esteem, school failure, the loss of academic motivation and aspiration, poor mental health in adolescence, and a disrupted transition to adulthood (Conger et al. 1994; Whitbeck et al. 1991, 2008). Conversely, parental warmth and involvement foster effective parenting by offering greater opportunities for their children to explore interests and to challenge their limits in various settings, and by providing a more stable family environment, consistent norms, social resources and cultural capital (Perry 2000, p. 230). Moreover, involved and effective parenting facilitates a successful transition to adulthood (Scaramella et al. 2002).

The family investment model (Duncan and Magnuson 2003) and family stress model (Conger et al. 1994) describe the profound influence of family context on youth development, but emphasizes differential access to financial, social, and human capital. Thus, like the family stress model, the family investment model predicts that family poverty and chronic socioeconomic deprivation constrain youth in the day-to-day choices available for education, recreation, sports participation, food, and clothing. The continuous constraint in choice and repeated experiences of denial is said to induce frustration and anger, erode self-esteem, and compromise educational aspiration. Frustration and impaired self-concept will also trigger depressive symptoms and other forms of distress. In turn, poor self-esteem and mental distress jeopardizes educational aspiration and achievement, school attachment, and social competence, resulting in a disrupted transition to adulthood.

Adolescent Adjustment, Disrupted Transition, and Young Adult Outcomes

The quality of adolescent adjustment and mental health predict successful socioeconomic attainment and mental health in young adults (Miech et al. 1999). For example, compared to their cohorts, depressed adolescents lacked the knowledge, abilities, and skills necessary for high educational and occupational attainment. Distressed youths also showed lower expectations in educational, occupational, and social interactions. Lower expectations, aspirations, and competence during one stage of development jeopardize social attainment and mental health in later stages of the life course.

A disrupted transition to adulthood is associated with early entry into adulthood, resulting in truncated education and impaired health (Wickrama et al. 2008). An important component of the life course perspective is the "timing" of major life events, such as completing one's education, beginning a career, and assuming new family responsibilities. Although recent research show that youths take diverse pathways to adulthood and show varying patterns of transitional events (Schoen et al. 2007), we suggest that, in general, early entry into adult roles or a *rush to adulthood* have deleterious consequences for young adults (Goldscheider and Goldscheider 1998; Kessler et al. 1997; Krohn et al. 1997; Maynard 1996). For most adolescents, this rush represents responses to chronic adverse life conditions that place excessive demands on an individual who is not sufficiently prepared emotionally, socially, or financially for adult and family responsibilities (Goldscheider and Goldscheider 1998; Kessler et al. 1997; Maynard 1996). Thus, it is expected that an early transition to adulthood, as evidenced by teenage pregnancy and school dropout, will have a negative impact on the social attainment and mental health of young adults.

Racial and Ethnic Minority Status

It is important to ensure, empirically, that the effects of community contexts are estimated net of individual racial/ethnic minority status. Previous research shows that racial/ethnic minority status exhibit influences on health, beginning in childhood and continuing across the life course, regardless of income, education (Spencer 2001), family socioeconomic characteristics (Wickrama et al. 2005a, b, c), and levels of community adversity (Wickrama et al. 2005a, b, c). Race and ethnicity are also related to youth outcomes in terms of values and aspirations, as well as differences in family socialization such as parental involvement and relationships with their children (King et al. 2004; Pong et al. 2005). As shown in Fig. 1, we anticipate direct, main effects of race/ethnic minority status on young adult socioeconomic status and health. Hence, the structural path coefficients of childhood community and developmental/transitional factors will be assessed while controlling for the influences of race/ethnic minority status.

Moderating Effects of Childhood Community Contexts

While the long-term effects of childhood community characteristics are expected to occur through a chain of successfully contingent circumstances, childhood community contexts may also exert long-term effects by moderating the course of meditational processes and factors. For example, Wheaton and Clarke (2003) found that the impact of parental education on the externalizing problems of young adults was many times greater at a higher level of neighborhood disadvantage, compared to lower levels or no disadvantage. Other studies (Krivo and Peterson 2000; Wickrama and Bryant 2003) also reported that the protective benefits of family resources such as parental education, marital stability, and parenting skills begin to evaporate or level off at extremely high levels of community adversity, a process known as contextual dissipation. As illustrated by the vertical arrows in Fig. 1, we anticipate that the moderation effects of childhood community adversity will eliminate or minimize the protective functions of family resources and family processes on adolescent and adult outcomes.

Hypotheses

This study examines the complex dynamic displayed in the model (Fig. 1) by focusing on a set of hypotheses. As depicted in the model, this study focuses on a number of direct effect hypotheses. Childhood community adversity has longitudinal associations with educational attainment and depression in early adulthood, controlling for the effects of family and developmental factors (H1). Family context measures, such as experiences of neighborhood adversity, family poverty, parental education, and stable marriage, are significantly related to young adult educational attainment and depression, controlling racial and ethnic minority status (H2). Gender directly influences young adult educational and mental health outcomes, controlling for community, family, developmental factors, and racial and ethnic minority status (H3).

As depicted in Fig. 1, the model includes a number of mediating hypotheses. Childhood community adversity indirectly influences young adult educational and mental health outcomes through family context (H4). Childhood Community adversity indirectly influences young adult educational and mental health outcomes through

adolescent development and transition (H5). Family context indirectly influences young adult educational and mental health outcomes through family processes (H6). Family context indirectly influences young adult educational and mental health outcomes through adolescent development and transition (H7). Family processes indirectly influences young adult educational and mental health outcomes through adolescent development and transition (H8).

As depicted in Fig. 1, the model also includes a number of moderating hypotheses. Childhood community adversity moderates the associations between family context and family process factors, as well as between family process and adolescent development and transition factors (H9).

Method

Sample and Data

Data for this study came from a nationally representative school-based sample of adolescents participating in the National Longitudinal Study of Adolescent Health (Add Health). In 1995, the baseline (Wave1) data were derived from a survey of 20,745 respondents aged 12–19 years, from 134 middle and high schools sampled through a complex stratified cluster sampling. The sample was stratified by region, urban city, school type (public vs. private), racial composition, and size. Of the sample, approximately 22% were from households in poverty, and in 40% of the participating families, at least one parent worked as a manual laborer. Approximately 10% of parents did not respond to the parent questionnaire. Second wave (Wave 2) and third wave (Wave 3) data were collected in year 1996 and 2001 (N2 = 14,738 and N3 = 15,100), respectively. We used the in-home interview data, involving a sample of 14,058 adolescents, composed of 7,280 (52%) females and 6,778 (48%) males, who participated in all three waves of the survey. The sample was represented by whites (52%), African Americans (20%), Hispanics (16%), Asians (8%), and Native Americans (3%). The median education of mothers and fathers was high school or GED completion. About 11% of the households received food stamps. Analyses of attrition and missing data showed no bias, except for a slight overrepresentation of younger adolescents. A comprehensive attrition analysis of the Add Health data reported very small estimated attrition bias in W3 for W1 data (Chantala et al. 2004); bias was less than 0.5 percent for most of the items examined in the analyses including demographic characteristics, school experiences, health reports, and attitudes. Our own analysis on the study variables confirmed little differences between adolescents with missing data in our study sample and those with complete data.

Measurement

Aggregate Community Measure

Childhood community contexts. To characterize community contexts in early age, we derived an index from the 1990 US census, five years prior to the 1995 baseline data survey, when adolescent participants of the study were between 7 and 14 years of age. According to parent reports, about 50% of the participants were still living at the same address as reported in the 1990 census. Over 85% of the sample had not moved during the last 2 years or more since 1993. Following previous research (Jenks and Mayer 1990; Wickrama et al. 2003; Wight et al. 2005), we defined community with *school attendance areas*, in which neighborhoods (an average of 66 census tracks) were nested. This approach describes a geographical context in which teens live, go to school, and interface with individuals beyond their own neighborhood (Wight et al. 2005). *Community contexts* or *adversity* was quantified using multiple indicators corresponding to poverty, residential instability, and racial/ethnic heterogeneity. For each school attendance area, we estimated *poverty* by taking the average percentage of poor families living below the official poverty line across 1990 census tracts. Similarly, *residential instability* was measured by taking the average percentage of families who have lived less than 5 years in the tracts. The *racial/ethnic heterogeneity* was measured by taking the mean percentage of non-white residents in the affiliated census tracts. These indicators, estimated based on the 1990 US census, had loadings of 0.91, 0.55, and 0.63, respectively.

Parent Measures

Measures of family context (family adversity and resources) were taken from the Wave 1 parental survey (1995). Family adversity was measured by parent's experiences of neighborhood adversity and family poverty, whereas family resources included stable marriage and parental education. In addition, an indicator of family process, uninvolved parenting, was assessed based on the Wave 1 parent interviews.

Parents' experience of neighborhood adversity. A 5-item index was developed to measure parent experiences of neighborhood contexts. Parents were asked to respond to the statements: (1) "In this neighborhood, litter or trash on the streets and side walks is a big problem.", (2) "You live here because there is less crime in this neighborhood than there is in other neighborhoods.", (3) "You live here because there is less drug use in this neighborhood and other illegal activity by adolescents in this neighborhood.", (4) "If you saw a neighbor's child getting into trouble,

would you tell your neighbor about it.", and (5) "If a neighbor saw your child getting into trouble, would your neighbor tell you about it?" The items were rated on a scale ranging from 1 (strongly agree) to 5 (strongly disagree), and the item scores were summed in a way to indicate greater experience of adversity with higher scores. The internal consistency of the scale was 0.70.

Family poverty. Parents were asked whether any member of the household received social security, supplemental security income, aid to families with dependent children, food stamps, or housing subsidies. The count of positive responses to the five items yielded an internally consistent ($\alpha = 0.85$) index of family poverty. Standardized scores on this index ranged from −0.48 to 4.52 with higher scores reflecting greater economic hardship.

Stable marriage. We computed a binary variable that separated parents who had been in one marriage (or marriage-like relationship) for 15 or more years by 1995 (=1) from other parents (=0). This measure captures the stability of parents' marriage during the childhood/early adolescence of the adolescent participants.

Parental education. The average of maternal and paternal education (years of formal education) served as an index of parental education in each family. In the case of female-headed families with no data for the corresponding father ($N = 1{,}100$ or 8%), maternal education was used as parental education.

Parental rejection. The baseline (1995) survey included questions about parental perceptions on parenting. Respondent parents were asked to indicate whether they: (1) got along well with the adolescent, (2) made decisions about life with this child, (3) did not understand this child, (4) felt this child could not be trusted, and (5) felt this child interfered with his/her activities. Each item was rated on a scale ranging from *strongly agree* (1) to *strongly disagree* (5). Items were reversed coded and averaged to create a score for parental rejection. This index had an internal consistency of 0.96.

Adolescent Measures

Majority of study variables were measured using data from adolescent interviews. From the 1995 Wave 1 survey data, we measured parental rejection, early depression, and background variables (sex, age, race and ethnicity). Wave 2 (1996) data were used to assess adolescent development and transition variables, including school attachment and educational aspiration, self-esteem, and disruptive transitional events. Depression was assessed three times, in all three surveys of 1995, 1996 and 2001.

Uninvolved parenting. To assess quality of parenting, we used adolescent's perception of parents with respect to: (1) expressing warmth and love, (2) encouraging independence, and (3) explaining why something the adolescent had done was wrong. The responses were coded using a 5-point scale anchored with *strongly agree* and *strongly disagree*. Adolescent respondents also rated their satisfaction with: (4) the overall quality of the relationship with their parents and (5) the way their parents communicated with each other. Adolescents' responses to the five items were averaged to create the *uninvolved parenting* measure. We developed separate indices for mothers and fathers, which had adequate internal consistency ($\alpha = 0.90$ and $\alpha = 0.85$, respectively). The averaged index (of mother and father) was also reliable ($\alpha = 0.90$). For single parent families, we duplicated the his/her score.

Adolescent educational aspiration. Adolescent educational aspiration was assessed at the baseline survey by asking adolescents the degree to which they desired to attend college. The aspiration was rated on an ordinal scale ranging from low (1) to high (5).

School attachment. During the Wave 1 interviews, adolescents reported their experiences in the schools they were currently attending by indicating the degree to which: (1) they felt as though they were part of their school, (2) students at school were prejudiced, (3) they were happy to be at their school, (4) teachers treated them fairly, and (5) they felt safe at school. Respondents used a 5-point scale anchored with *strongly agree* (1) and *strongly disagree* (5). School attachment was measured by summing the item scores, after reverse coding items assessing negative feelings. The index had an adequate internal consistency ($\alpha = 0.75$).

Self-esteem. At Wave 2, participants responded to eight self-esteem items from the Rosenberg Self-Esteem Scale (Rosenberg 1965). These items assessed adolescents' feelings of self-worth (e.g., "You have a lot to be proud of," "You have a lot of good qualities," and "You feel loved and wanted") on a scale ranging from *strongly disagree* (1) to *strongly agree* (5). Self-esteem was measured by summing the item scores ($\alpha = 0.90$).

Disruptive transition. Disruptive transition to adulthood was indexed by counting adolescents' early or premature life experiences of sexual intercourse, pregnancy, marriage or cohabitation, dropping out of high school, leaving home, and full-time employment (more than 30 h a week). We operationalized early or premature experiences based on US national behavioral norm ages, and the events that occurred before the normative ages were considered to be disruptive. For example, the average age was 16 years for first sexual intercourse among American males and females (Centers for Disease Control and Prevention 1996), 24.6 years for childbearing age (Mathews and Hamilton 2002) and 21.1 years for young adults leaving home (Kreiter 2003). The measure of disruptive transition ranged from 0 to 6, with a mean of 0.35.

Depression (1995, 1996, 2001). Participants responded to eight items of the Center for Epidemiological Studies of Depression Scale (CES-D; Radloff 1977; Wickrama and Bryant 2003). CES-D items assessed the frequency of adolescents' feelings of distress (e.g., "felt depressed and sad") during the past week on a scale ranging from 0 (never or rarely) to 3 (most of the time or all of the time). Summing scores for all items after reversing those that tap positive affect (opposite of depressive symptoms) yielded an index of *depressive symptoms* that could range from 0 to 24. Previous research demonstrates that the CES-D is a psychometrically sound instrument for measuring adolescent distress (Radloff 1991). The Wave 3 survey was limited only to 8 CES-D items because the composite measure that constitutes these items provided acceptable psychometric properties. The 8-item measure possessed adequate internal consistency across all study waves (all $\alpha > 0.76$).

Young Adult Outcome Measure. As indicated above, *young adult depression* was assessed based on the Wave 3 (2001) responses to the CES-D scale. *Educational attainment* was measured by the number of years of formal education completed by the time of the Wave 3 survey interview.

Analytic Approach

Because of the nested nature of the data (individuals within communities), individual error terms may be correlated within communities, leading to potentially biased regression coefficients and standard errors (Raudenbush and Bryk 2002). There were 135 school attendance areas in the analyzed data. To account for dependency among individuals within communities, we estimated a multilevel structural equation models (SEM) using. Mplus (version 4) software. Mplus uses full-information maximum likelihood that allows missing data and random intercepts and slopes (Muthén and Muthén 2004).

The within part of the model specified the regression among variables measured at the individual/family level, including parent's experience of neighborhood adversity, uninvolved parenting, parental rejection, adolescent depressive symptoms, school attachment, self-esteem, disrupted transition, young adult depressive symptoms, and young adult educational attainment. In the within part of the model, the intercepts in the regressions were random effects that may vary across communities. The slopes were considered to be fixed effects that do not vary across communities.

The between part of the model specified the regressions of the random intercepts of within models on a community level variable (the latent construct of community adversity). Three community variables (community poverty, ethnic heterogeneity, and residential instability) were used as multiple indicators of the community adversity latent construct. All the individual/family level variables were used as single indicator constructs in the within part of the model. We freed the correlations of error terms among the parenting constructs and among adolescent adjustment constructs.

In the present study, mediation was tested as described by Baron and Kenny (1986). Their explanation of mediation has four essential steps. The first step is for the predictor (X) variable to be significantly associated with the dependent variable (Y), without involving the mediator variable (M). The second step is for the predictor variable (X) to be significantly associated with the mediator variable (M). The third step is for the mediator (M) to be significantly associated with the outcome variable (Y) and the forth step is for the association between the predictor (X) and the outcome variable (Y) to be not significant when M is in the model. If all these steps are fully met, mediation exists. A partial mediation may exist if the bivariate association between (X) and (Y) decreased but remained statistically significant, once (M) is added to the model.

Results

Univariate statistics of the study variables are shown in Table 1. Skewness values for the study variables lie between −2 and +2, indicating acceptable distributions for all variables except for disruptive transition, which was left-skewed with a marginal skewness of 2.77. Intra-class correlations of the variables were greater than 3%, suggesting significant between-community differences in variables measured at the individual (family) level. Between-community variance accounted for about 18% of the total variance of adult educational attainment.

In general, bivariate associations among study variables provided support for the proposed model. As anticipated, three indicators of childhood community contexts (community poverty, residential instability, and ethnic heterogeneity) were correlated with each other (see Table 2). The composite measure of childhood community adversity was significantly related to educational attainment and depressive symptoms in adulthood. A matrix showing correlations among all family and adolescent variables and the composite community adversity scale (sum of three indicators) are shown in Table 2.

Effects of Community and Family Contexts

In Table 3, we summarize results from the incremental multilevel SEM models of adult outcomes measured during the Wave 3 survey in 2001 (adolescent participants aged

Table 1 Descriptive statistics of study variables

Study variables	Minimum	Maximum	Mean	SD	Skewness	ICC
Childhood community contexts						
Community adversity	0.02	0.41	0.14	0.09	0.94	
Residential instability	0.07	0.77	0.32	0.13	0.90	
Ethnic heterogeneity	0	0.93	0.26	0.24	0.64	
Childhood family context						
Adverse neighborhood experiences	4.51	9.75	5.98	0.98	0.56	0.08
Family poverty	1	5	1.40	0.91	0.16	0.11
Parental education	2	18	10.95	4.36	−0.18	0.17
Parents' stable marriage	0	1	0.46	0.50	0.16	0.06
Family process						
Uninvolved parenting	1	5	2.02	0.87	0.66	0.03
Parental rejection	1	5	1.70	0.56	−0.63	0.03
Adolescent development						
Educational aspiration	1	5	4.45	1.01	−1.95	0.06
School attachment	2	25	12.5	3.67	0.45	0.09
Self-esteem	4	71	24.72	5.97	0.14	0.04
Depression (1995)	0	24	5.4	3.88	0.98	0.03
Depression (1996)	0	24	5.44	3.38	0.96	0.03
Disrupted transition events	0	5	0.24	0.58	2.77	0.04
Young adulthood outcomes						
Educational attainment	6	22	13.23	1.96	0.42	0.18
Depression	0	24	4.12	3.79	1.58	0.03
Gender(female)	0	1	0.52	0.50		
Race						
African American	0	1	0.20	0.40		
Hispanic	0	1	0.16	0.37		
Asians	0	1	0.08	0.27		

from 18 to 25 years). All models include a latent variable of childhood community contexts as a predictor (measured based on the 1990 US census, when participants aged from 7 to 14 years).

As shown in the base model (M0), childhood community adversity was significantly and directly related to lower educational attainment ($\beta = -8.23$) and increased depressive symptoms ($\beta = 4.71$) in young adulthood, providing preliminary support for the first hypothesis (H1).

In M1, family context and demographic variables were added. As hypothesized (H2), family context measures were associated with adulthood outcomes. Experience of neighborhood adversity and family poverty were also related to poor educational attainment ($\beta = -0.06$ and -0.21, respectively) and depressive symptoms ($\beta = 0.12$ and 0.22, respectively). Parental education and stable marriage were related to positive adult outcomes, higher educational attainment ($\beta = 0.25$ and 0.41, respectively) and lower levels of depressive symptoms ($\beta = -0.10$ and -0.24, respectively). The results showed modest mediating effects of family context (H4); the addition of family context variables in the model reduced about 10 and 14% of the community adversity coefficients on adulthood education and depression, respectively. In addition, there were significant longitudinal associations between community adversity and family context measures (see Table 4).

As hypothesized (H3) at the bottom of M1 models, educational attainment and depressive symptoms were higher for female than for male participants. Controlling for gender, community and family factors, Asians had substantially higher educational attainment ($\beta = 0.38$), but considerably more depressive symptoms ($\beta = 0.60$) compared to whites. While depressive symptoms were even higher among blacks ($\beta = 0.52$), there was not a significant difference in educational attainment between blacks and whites ($\beta = 0.02$, ns). Finally, although the educational attainment level of Hispanics was slightly but significantly lower than whites ($\beta = -0.09$, $p < 0.01$), there was no significant difference in depression between the two groups ($\beta = 0.10$, NS). More importantly, these influences remained unchanged after adding family process and

Table 2 Pearson's correlation coefficients among study variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Adverse neighborhood experiences																			
2. Family poverty	0.12**																		
3. Parental education	−0.10**	−0.27**																	
4. Stable marriage	−0.06**	−0.23**	0.07**																
5. Uninvolved parenting	0.06**	0.02	−0.02	−0.03*															
6. Parental rejection	0.10**	−0.07**	−0.03**	−0.08**	0.25**														
7. Educational aspiration	−0.08**	−0.12**	0.22**	0.04**	−0.15**	−0.14**													
8. School attachment	−0.09**	−0.05**	0.06**	0.06**	−0.28**	−0.16**	0.20**												
9. Self-esteem	−0.03**	−0.09**	0.02	0.20**	−0.46**	−0.10**	−0.11**	0.23**											
10. Disruptive events	0.05**	0.13**	−0.14**	−0.07**	0.09**	0.15**	−0.18**	−0.18**	−.04**										
11. Depression (1995)	0.07**	0.12**	−0.13**	−0.06**	0.25**	0.16**	−0.15**	−0.26**	−0.21**	0.11**									
12. Depression (1996)	0.07**	0.12**	−0.12**	−0.07**	0.10**	0.07**	−0.10**	−0.22**	−0.17**	0.10**	0.40**								
13. Gender	0.02	0.02	−0.04**	−0.01	0.10**	−0.02	0.08**	−.03**	−.14**	0.02	0.13**	0.13**							
14. African-American	0.03**	0.15**	0.05**	−0.14**	−0.04**	−0.02	0.06**	0.00	0.10**	0.04**	0.03**	0.03**	0.02*						
15. Hispanic	0.06**	0.06**	−0.27**	−0.03*	0.00	0.04**	−0.05**	0.01	−.04**	0.01	0.08**	0.07**	−0.01	−0.15**					
16. Asian	−0.01	−0.04**	0.09**	0.06**	0.03*	−0.01	0.03**	0.02	−.04**	−0.03**	0.07**	0.07**	−0.03*	−0.10**	−.06**				
17. Age	0.06**	0.01	−0.07**	0.00	0.13**	−0.08**	−0.13**	−0.16**	−0.11**	0.27**	0.08**	0.10**	−0.07**	0.00	0.08**	0.02*			
18. Educational achievement	−0.07**	−0.24**	0.36**	0.16**	0.00	−0.15**	0.30**	0.12**	0.04**	−0.22**	−0.14**	−0.09**	0.07**	−0.02	−0.08**	0.06**	0.20**		
19. Depression (2001)	0.05**	0.09**	−0.10**	−0.04**	0.14**	0.11**	−0.09**	−0.15**	−.13**	0.07**	0.36**	0.30**	0.07**	0.05**	0.05**	0.04**	0.02	−0.15**	
20. Community adversity	0.13**	0.17**	−0.12**	−0.08**	−0.03**	0.01	−0.01	0.00	−0.04**	0.05**	0.08**	0.07**	0.01	0.48**	0.21**	0.17**	0.02*	−0.09**	0.06**

* $p < 0.05$, ** $p < 0.01$

Table 3 Testing theoretical model: un-standardized coefficients of incremental multilevel model predicting young adult outcomes

Predictors	M0 for community adversity		M1 for community and family adversity		M2 with family process (parenting)		M3 with adolescent adjustment	
	A-ED	A-DEP	A-ED	A-DEP	A-ED	A-DEP	A-ED	A-DEP
1. Childhood community contexts								
Community adversity (1990)	−8.23*	4.71*	−7.40*	4.05*	−7.26*	3.99*	−4.38*	1.34
2. Family context (1995)								
Adverse neighborhood experience			−0.06*	0.12*	−0.03	0.06	−0.01	0.02
Family poverty			−0.21*	0.22*	−0.19*	0.22*	−0.10*	0.16*
Parental education			0.25*	−0.10*	0.25*	−0.08*	0.15*	−0.04
Parent marital status			0.41*	−0.24*	0.37*	−0.16	0.33*	−0.13
3. Family process (1995)								
Uninvolved parenting (UPAR)					0.03	0.47*	0.09	0.13*
Parental rejection (PREJ)					−0.46*	0.47*	−0.34*	0.27*
4. Adolescent development (1996)								
Education aspiration (EASP)							0.38*	−0.10*
School attachment (SCH)							0.03*	−0.05*
Self-esteem (SELF)							0.00	−0.03
Disrupted events (DISP)							−0.53*	0.12
Depressive symptoms (DEP2)							−0.03	0.28*
5. Demographic characteristics								
Female			0.35*	0.69*	0.36*	0.59*	0.37*	0.36*
Age			0.15*	0.04	0.16*	0.01	0.28*	−0.08*
Race (reference: non-hispanic whites)								
African American			0.02	0.52*	0.02	0.62*	−0.05	0.61*
Hispanics			−0.09*	0.10	−0.09	0.12	−0.09	0.05
Asians			0.38*	0.60*	0.38*	0.59*	0.32*	0.25*
CFI				0.91		0.91		0.91
RMSEA				0.03		0.04		0.03
R-square–level 1 (within)			0.12	0.02	0.14	0.04	0.26	0.11
R-square–level 2 (between)			0.38	0.11	0.38	0.11	0.21	0.02

A-ED: Early adulthood educational achievement (2001); A-DEP: Early adulthood depressive symptoms (2001)

* $p < 0.01$

adolescent factors in subsequent models (in M2, Table 3). M1 models accounted for 38 and 11% of between-community variances of adult education and adult depressive symptoms, respectively.

Effects of Family Process

The model (M2) in the center of Table 3 adds family process variables. Parental report of uninvolved parenting had little influence on young adult educational achievement. Adolescents' report of parental rejection (or lack of parental warmth) was adversely related to adult educational attainment, and the variable reduced the coefficient of parental experience of neighborhood adversity by 50% (−0.06 to −0.03). However, parental rejection had minor influence on the associations of family poverty, parental education, and stable marriage with educational attainment.

With respect to adult depression, both uninvolved parenting and parental rejection had significant effects, and the inclusion of these variables caused 50 and 33% reductions in the effects of parental experiences of community adversity and stable marriage, respectively. Thus, results from M2 provide partial evidence for the mediating role of parental practices (H6) in regard to the educational attainment in adulthood. The inclusion of the family process measures had little effect on the coefficients of childhood community adversity.

Mediating Effects of Adolescent Adjustment and Transition

The last model (M3) of Table 3 adds adolescent adjustment/transition variables. Consistent with H2, Wave 2 (1996) measures of educational aspiration and school

Table 4 Associations among predictors of the complete model (M3) shown in Table 3

Predictors	W1 outcomes				W2 outcomes				
	ANEX	UPAR	PREJ	DEP1	EASP	SCH	SELF	DISP	DEP2
Childhood community contexts									
Community adversity (1990)	2.85*	−3.59*		3.47*	−0.71*		7.66*	0.55*	2.07*
W1 Measures (1995)									
Family context									
Adv neigh experience (ANEX)		0.05*	0.04*	0.11*	0.04*	−0.20*	−0.12*		
Family poverty		0.02*	0.13*	0.20*	−0.05*				0.09**
Parent stable marriage		−0.10*	−0.08*	−0.19*		0.19*			−0.15*
Parental education		−0.01*		−0.08*	0.07*		0.10*		−0.05*
Family process									
Uninvolved parenting (UPAR)				1.29*	−0.12*	−0.95*	−3.12*		
Parental rejection (PREJ)				0.72*	−0.16*	−0.46*		0.08*	0.05
Adolescent development									
Depression 1995 (DEP1)								0.01*	0.36*
W2 Measures (1996)									
Adolescent development									
Education aspiration (EASP)						0.37*		−0.06*	
School attachment (SCH)								−0.02*	−0.05**
Self-esteem (SELF)								0.01*	
Disrupted events (DISP)									
Depression 1996 (DEP2)									
Demographic characteristics									
Female				0.76*				0.04*	0.39*
African American		−0.11*		0.51*	0.15*		0.64*		0.25*
Hispanic				0.34*		−0.38*			0.31*
Asians				0.87*	0.25*	0.52*			0.47*

Note: Only significant unstandardized coefficients are shown (* $p < 0.01$)

attachment were significantly related to higher educational attainment (Wave 3), whereas the experience of disruptive transition was related to lower educational attainment ($\beta = -0.53$). Even after taking these effects into account, the coefficient of community adversity on educational attainment remained large and significant (−4.38), providing further support for the direct effect hypothesis (H1). However, the association of community adversity was substantially reduced from −7.26 to −4.38, a 43% reduction. Reductions in effect were also evident with respect to family context and family process variables, providing evidence for partial mediation by adolescent development. These results are consistent with the hypotheses regarding mediating effects (H4–H8). Psychological adjustment, as assessed by self-esteem and depression, were not directly related to later school attainment, once academic and behavioral adjustment and transition were considered.

Model M3 adult depression includes the measure of adolescent depression. Thus, the coefficients in the model represent predictive power of predictor variables on *changes* in depressive symptoms during the transition from adolescence (Wave 2) to early adulthood (Wave 3). The results clearly demonstrated a considerable 5-year stability (between Wave 2 and Wave 3) in depressive symptoms ($\beta = 0.28$, $p < 0.001$). In addition, educational aspiration and school attachment were associated with decreased levels of adult depression, whereas family poverty and ineffective parenting showed robust and persistent associations with an increased level of depressive symptoms.

The strong effects of adolescent adjustment and transition are also evident in the summary statistics. Across models M1 to M3, within (individual and family level) explained variance increased from 12 to 26%, and between (community level) explained variance decreased from 38 to 21% for young adult education. For adult depressive symptoms, within explained variance increased from 2 to 11%, and between explained variance decreased from 11 to 2%.

Table 5 Effects of childhood community contexts moderating impacts of family resources: differential effects of parental education and stable marriage by the level of childhood community adversity

Paths in the model			Childhood community contexts	
			Lower community adversity	Higher community adversity
Parental education	→	School attachment	0.08*	0.00
	→	Adult educational achievement	0.18*	0.09
Stable marriage	→	Uninvolved parenting	−0.56*	0.07
	→	Parental rejection	−0.47*	−0.31*
	→	Adolescent depression (1995)	−0.28*	0.14*
	→	Adolescent depression (1996)	−0.37*	−0.04*
	→	Adolescent education aspiration	0.15*	0.02
	→	Adolescent disruptive events	−0.06*	−0.03
	→	Adulthood depression (2001)	−0.43*	−0.14*

* $p < 0.01$

Association Among Predictors

The last model (M3) of Table 3 corresponds to the theoretical model shown in Fig. 1. The results demonstrated significant impacts of childhood community adversity on adult attainment in education and mental health, and that a large proportion of the effects operated indirectly through the mediation of adolescent school adjustment, psychological distress, and disrupted transition to adulthood. In order to elucidate these mediations, remaining path coefficients among mediating factors were estimated. Significant ($p < 0.01$) coefficients are presented in Table 4. Results suggest that most of the mediating variables are associated with preceding variables in the theoretical model, providing support for the suggested mediations in regression results in Table 3. For example, in Table 3, we found that adolescent adjustment/transition factors significantly influenced adult outcomes, and the introduction of these factors reduced the magnitude of direct influence of community adversity on adult outcomes. The results in Table 4 show that adolescent adjustment/transition factors are influenced by community adversity, elucidating a process by which childhood community adversity can affect young adult education and mental health outcomes.

Moderation Effects of Childhood Community Contexts

Final analyses included tests of the moderation effects of community adversity. The purpose of the analyses was to examine if severe community adversity would undermine the effects of family and personal resources. We replicated the same models for severely "deprived" communities and "affluent" communities. The two groups of communities were defined according to the adversity scores (sum of three community adversity indicators) received by each of the communities. Deprived communities had adversity scores that were equal to or greater than a standard deviation above the mean, whereas affluent communities had scores equal to or lower than one standard deviation below the mean.

As shown in Table 5, results partially supported the *contextual dissipation* hypothesis with respect to the beneficial influences of family resources (H9). Specifically, parental education was associated with increased adolescent school attachment ($\beta = 0.08$) and young adult education achievement ($\beta = 0.18$) in affluent communities, but there were minimal associations in deprived communities ($\beta = 0.00$ and 0.09, respectively). Significant variations between affluent and deprived communities were also found with respect to the effect of stable marriage on adolescent aspirations ($\beta = 0.15$ vs. $\beta = 0.02$), disruptive transitional events ($\beta = -0.06$ vs. $\beta = -0.03$), Wave 2 depression ($\beta = -0.37$ vs. $\beta = -0.04$), and Wave 3 depression ($\beta = -0.43$ vs. $\beta = -0.14$). The effect of stable marriage on uninvolved parenting ($\beta = -0.56$ vs. $\beta = -0.07$) and parental rejection ($\beta = -0.47$ vs. $\beta = -0.31$) were also substantially greater among affluent communities compared to deprived communities.

Summary of Findings

A number of significant findings are summarized in Fig. 2. First, as indicated by the triple-line arrow at the bottom of Fig. 2, the hypothesis regarding long-term direct effects of childhood community contexts (H1) was supported with respect to adult educational attainment, but not adulthood depression. Second, in regard to the direct effects of family context measures (H2), parental education was directly linked to adult educational attainment, whereas family poverty had a long-term association with higher depressive symptoms in early adulthood; these variables were also related to childhood community adversity, consistent with mediating hypothesis (H4). Third, ineffective parenting (parental reports on uninvolved parenting and adolescents' report on parental rejection) was directly related to poor adult educational attainment and adult depression, and also

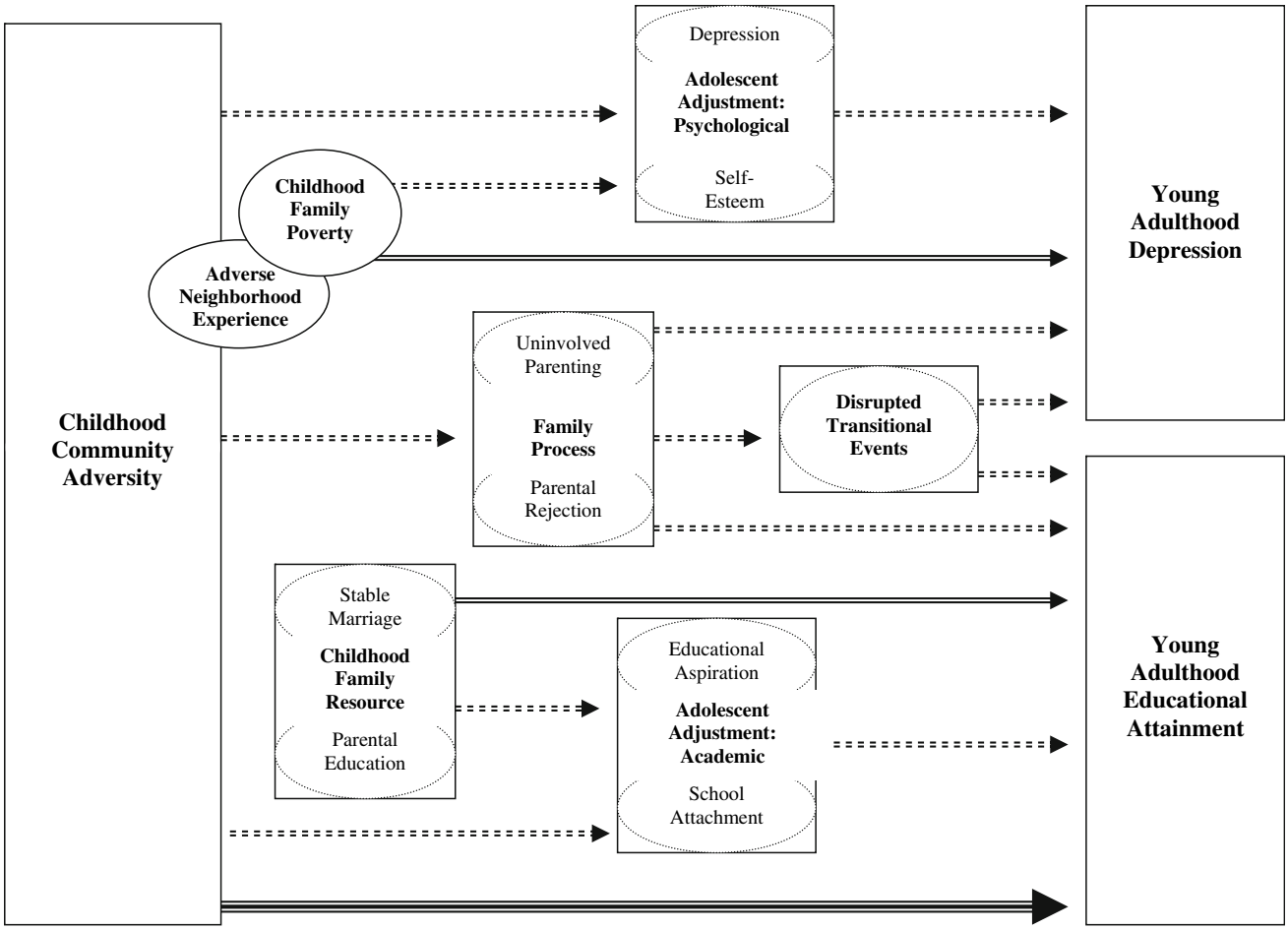

Fig. 2 *Graphic* presentation of direct effects of childhood community adversity (*triple-line arrow*) and childhood family adversity and resources (*double-line arrows*), and indirect pathways (*broken-line arrows*) based on multilevel regressions

mediated the association between childhood community adversity and adult outcomes (H5). Thus, the results suggested that childhood community contexts, family adversity/resources, family processes, and race/ethnicity had more direct and long-term effects on educational attainment than on adult depression. With respect to adult depression, childhood family poverty stood out as an early life context that shows a long-term indirect influence. Next, adolescent adjustment, including psychological, academic, and disruptive transitional events, had significant effects on adult educational attainment. Educational aspiration and school attachment were related to both depression and educational attainment (For the clarity of presentation, these effects are not shown in Fig. 2).

Figure 2 also reveals mediating pathways from childhood community contexts to adult outcomes. Early community contexts exerted a longitudinal influence on adult outcomes through involved parenting (H4), emotional adjustment in adolescents such as self-esteem, depressive symptoms and educational aspiration, as well as disrupted transitional events (H5). Family context also exerted influence through family processes and adolescent adjustment/transition (H6–H8). Finally, female and Asian participants, compared to male and white participants, respectively, had significantly higher educational attainment but significantly greater depressive symptoms (H3).

The results of interaction effects partially supported the contextual dissipation hypothesis, that is, the beneficial influences of family context and family resources on adult outcomes diminished under severe community adversity (H9).

Discussion

The primary goal of this study was to examine the influence of childhood community contexts across the life course. The current literature was fragmented with respect to theoretical and analytic models, and to our knowledge, no previous studies have incorporated a breadth of multilevel constructs that included family structure and process, adolescent experiences and transition, as well as adulthood

outcomes. Wheaton and Clarke (2003) suggested that the limitation in the literature restricted our ability to explain the mediating processes between childhood exposure to community adversities and adult outcomes. The purpose of this study was to respond to this gap in the literature by exploring the transition between adolescence and young adulthood. We built our study on a multilevel longitudinal model, integrating theoretical perspectives of social disorganization theory, developmental life course and family stress research. We found cross-level lagged effects of childhood community adversity on individual level measures of adulthood outcomes. Community adversity was measured based on the 1990 census, when participants were between 7 and 14 years of age. Educational achievement was assessed based on the 2001 survey, as participants were entering early adulthood. The long-term connection was also established through pathways in which the roles of parental rejection, adolescent educational aspiration, and disruptive transition were highlighted. We did not observe a longitudinal association with depression; the effect of early community contexts on depression was indirect, mediated mostly through family poverty, ineffective parenting, and adolescent depression.

Thus, although we hypothesized a unilateral chain of effects connecting community, family, adolescent, and adult outcomes, our results suggested otherwise. It seems that in exerting direct long-term effects on adult well-being and achievement, community contexts effects bypass family context and parenting practices. Instead, family context and processes had direct and indirect impacts that were substantially independent of community context effects. Family poverty had an independent influence on adult depression, while parental education and parental rejection had longitudinal associations with adult education attainment. It is plausible, then, to suggest that both community and family environments exert separate, long-term influences on adult achievement and well-being.

Results of the study were consistent with social disorganization theory. Specifically, various structural community characteristics, such as community poverty, racial/ethnic segregation, and residential instability, are multiple indicators of an underlying construct of community adversity (Elliot et al. 1996; Massey and Denton 1993; Sampson et al. 2001; Wilson 1987). Also consistent with social disorganization theory, it appears that neighborhood interaction patterns and normative environments in poor neighborhoods undermine high educational, work, and health expectations, and the development of social-educational competencies of adolescents (Elliot et al. 2006), which in turn influence adult outcomes. In addition to these indirect influences, the findings showed that structural community adversity exerts a long-term, direct negative influence on adolescent and young adult outcomes. That is, structural community adversity may undermine youth development by constraining institutional resources and creating differential opportunity structures for youths living in disadvantaged communities (Brooks-Gunn et al. 1993; Sampson et al. 2001; Wilson 1987). The findings show that although indirect influences of community diminish with age, direct influences persist over the early life course.

The findings were also consistent with the life course perspective. The findings showed that early community contexts are an aspect of individual life history that exerts a persistent influence on development beginning with childhood. The influence of individual life histories continues over the life course as a *social chain of risks and resources* (House et al. 2005; O'Rand and Hamil-Luker 2005). The findings suggest that youth mental health is an important element in this chain of risks/resources. More importantly, early community influence on individual development appears to be independent of the long-term influences of family history and historical conditions documented in life course research. Thus, our study shows the value of incorporating early community contexts into life course theory and research.

In general, the study reaffirmed the findings of previous family research. Consistent with the family stress model (Conger et al. 1994), our findings confirmed the link between family adversity and parent-child relationship, which in turn influences adolescent adjustment and transition. We also found a significant association between experiences of neighborhood adversity and ineffective parental practices. The association between parenting and adolescent adjustment/transition persisted even after controlling for community and neighborhood adversities. Therefore, the influence of parental practices on adolescent development, documented repeatedly in family stress research, is not spurious due to the common influence of ecological context.

Our findings also support the family investment model (Duncan and Magnuson 2003). Compared to lower-SES parents who invest more in immediate family needs, higher-SES parents are able to make significant long-term investments in children. In support of this model, our findings show that family poverty exerts a unique and direct influence on adolescent adjustment and adult depression, independent of parental practices. However, the influence of family SES may partly operate through community adversity due to the self-selection of poor families into poor communities.

In this study, we have integrated theoretical perspectives and research foci of community contexts, life course, and family-developmental processes. Our model placed family-developmental processes within community contexts, combining multiple contexts with a "long view" over the

life course. The results enriched the three theoretical perspectives by revealing long-term developmental pathways, as well as the dynamic interplay between health and developmental outcomes that transmit childhood community influence across the early life course.

Our model also showed that race/ethnicity influences adolescent adjustment/transition and young adult outcomes independent of community and family characteristics. In general, minorities show poorer mental health over the early life course compared to whites. This suggests that the effects of racial/ethnic minority status may not be reduced to the influence of community and family adversities. The independent influence of minority status on mental health may operate through different psychosocial mechanisms, such as systematic and day-to-day discrimination (Carroll 1998) and/or "minority stress" (Meyer 1995). Future research should examine these potential long-term processes beginning from ascribed race/ethnicity status.

The examination of cross-level moderating effects supported the notion of contextual dissipation (Wickrama and Bryant 2003). The protective effects of parental education and marriage were less pronounced under severe adverse community conditions. As argued previously, these communities may be below the threshold of institutional resources and opportunities for the operation of the normative protective role of familial resources. For example, highly educated parents may not be able to promote their children's education in communities where educational resources are extremely scarce.

Although our findings have generally met our expectations of testing an integrated comprehensive model of youth development, there are potential limitations. First, a replication of these findings with samples using improved measures of neighborhood experience would provide compelling evidence for the proposed ecological influences. Our findings are derived from parents' reports of neighborhood context using only five items that may not cover the content adequately. Also this measure may differ from those obtained using more objective measures of neighborhood adversity such as physical degradation, school quality, network density, or other variables. Second, the six-year gap between the W2 (1996) and W3 (2001) assessments in this study is not optimal. Future efforts to elucidate social pathways that link community contexts and young adult outcomes would benefit from assessments over shorter intervals. Third, our path model involved a limited set of age-graded experiences. Future analyses should investigate whether other risks/resources, such as peer groups, mediate the observed associations between community contexts and young adult outcomes. Fourth, replication of these findings using clinical mental health measures and other young adult socioeconomic outcomes, including work and economic status, would strengthen confidence in the results. Finally, we did not examine potential escapes from certain types of community and family adversities, which can be a positive turning point for adolescents and young adults. These turning points may include establishing an effective friendship or a close relationship, exposure to a positive role model, transferring to a better school, joining the military, and moving to a better community (Wheaton and Gotlib 1997). Such escapes may provide opportunities for recovery from heightened symptoms of depression and should be a high priority for future research efforts.

Despite the limitations of this research, these findings have several theoretical and practical implications. This study demonstrates that early social disadvantage has a strong influence on the educational and mental health of young adults, and suggests that negative young adult outcomes may be diminished through programs that aim to reduce the impact of community and family disadvantage, as well as adolescent adjustment problems. However, there are indications that these programs have not been reaching adolescents in extremely poor families, and our findings suggest that such youths face a persistent heightened risk for maladjustment and distress across all early phases of the life course. Thus, our results emphasize the need for programs that develop early core life resources, such as involved parenting among parents and educational aspirations among adolescents living in adverse communities to help combat adolescent adjustment and transition problems. The success of intervention programs illustrates the importance of involving not only disadvantaged families, but also local communities and schools in the initiation and implementation of intervention efforts.

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References

Arneshensal, C. S., & Sucoff, C. A. (1996). The neighborhood context of adolescent mental health. *Journal of Health and Social Behavior, 37*, 293–310. doi:10.2307/2137258.

Avison, W. R., Ali, J., & Walters, D. (2007). Family structure, stress, and psychological distress: A demonstration of the impact of differential exposure. *Journal of Health and Social Behavior, 48*, 301–314.

Baron, M. R., & Kenny, D. (1986). The moderator-Mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and*

Social Psychology, 51, 1173–1182. doi:10.1037/0022-3514.51.6.1173.

Brooks-Gunn, J., Duncan, G. J., & Aber, J. L. (1997). *Neighborhood poverty: Context and consequences for children* (Vol. I). New York, NY: Russell Sage Foundation.

Brooks-Gunn, J., Duncan, G., Lebanov, P., & Sealand, N. (1993). Do neighborhoods influence child and adolescent development? *American Journal of Sociology, 99*, 353–395. doi:10.1086/230268.

Carroll, G. (1998). Mundane extreme environmental stress and African American families: A case for recognizing different realities. *Journal of Comparative Family Studies, 29*, 271–285.

Centers for Disease Control and Prevention. (1996). *Morbidity and Mortality World Report, 45*, 16–19.

Chantala, K., Kalsbeek, W.D., & Andraca, E. (2004). *Non-Response in Wave III of the Add Health Study*. Retrieved MONTH DAY, YEAR, from Carolina Population Center Web site: http://www.cpc.unc.edu/projects/addhealth/pubs/.

Coleman, J. S. (1990). *Foundations of social theory*. Cambridge, MA: Belknap Press of Harvard University Press.

Conger, R. D., & Donnellan, M. B. (2007). An interactionist perspective on the socioeconomic context of human development. *Annual Review of Psychology, 58*, 175–199. doi:10.1146/annurev.psych.58.110405.085551.

Conger, R. D., Ge, X., Elder, G. H., Jr, Lorenz, F. O., & Simons, R. L. (1994). Economic stress, coercive family process, and developmental problems of adolescents. *Child Development, 65*, 541–561. doi:10.2307/1131401.

Duncan, G. J., & Magnuson, K. A. (2003). Off with Hollinghead: Socioeconomic resources, parenting, and child development. In M. H. Bornstein & R. H. Bradeley (Eds.), *Socioeconomic status, parenting, and child development* (pp. 83–106). Mahwah, NJ: Erbaum.

Elder, G. H., Jr. (1998). The life course as developmental theory. *Child Development, 69*, 1–12.

Elder, G. H., Jr, & Liker, J. K. (1982). Hard times in women's lives—historical influences across 40 years. *American Journal of Sociology, 88*, 241–269. doi:10.1086/227670.

Elliot, D. S., Menard, S., Rankin, B., Elliot, A., Wilson, W. M., & Huizinga, D. (2006). *Good kids from bad neighborhoods*. New York: Cambridge University Press.

Elliot, D. S., Williams, J. W., Huizinga, D., Sampson, R. J., Elliot, A., & Rankin, B. (1996). Effects of neighborhood disadvantage on adolescent development. *Journal of Research in Crime and Delinquency, 33*, 389–426. doi:10.1177/0022427896033004002.

Entwisle, B. (2007). Putting people into place. *Demography, 44*, 687–703. doi:10.1353/dem.2007.0045.

Goldscheider, F. K., & Goldscheider, C. (1998). The effects of childhood family structure on leaving and returning home. *Journal of Marriage and the Family, 60*, 745–756. doi:10.2307/353543.

Hayward, M. D., & Gorman, B. K. (2004). The long-arm of childhood: The influence of early-life social conditions on men's mortality. *Demography, 41*, 80–107. doi:10.1353/dem.2004.0005.

House, J. S., Lantz, P. M., & Herd, P. (2005). Continuity and change in the social stratification of aging and health over the life course: Evidence from a nationally representative longitudinal study from 1986 to 2001/2002 (Americans Changing Lives Study). *Journal of Gerontology, 60B*, S15–S26.

Jenks, C., & Mayer, S. E. (1990). The social consequences of growing up in a poor neighborhood. In L. E. Lynn Jr. & M. G. H. McGeary (Eds.), *Inner-city poverty in the United States* (pp. 187–222). Washington, DC: National Academy Press.

Kessler, R. C., Gills-Light, J., Magee, W. J., Kendler, K. S., & Eaves, L. J. (1997). Childhood adversity and adult psychopathology. In I. Gotlib & B. Wheaton (Eds.), *Stress and adversity over the life course: Trajectories and turning points* (pp. 29–49). New York: Cambridge University Press.

King, V., Harris, K. M., & Heard, H. E. (2004). Closeness with parents and perceived consequences of pregnancy among male and female adolescents. *The Sociological Quarterly, 45*, 691–717. doi:10.1111/j.1533-8525.2004.tb02310.x.

Kreiter, M. S. (2003). *Grown up at 21? No way*. Washington, D.C.: United Press International.

Krivo, L. J., & Peterson, R. D. (2000). The structural context of homicide: Accounting for racial differences in process. *American Sociological Review, 65*, 547–559. doi:10.2307/2657382.

Krohn, M. D., Lizotte, A., & Perez, C. M. (1997). The interrelationship between substance use and precocious transitions to adult statuses. *Journal of Health and Social Behavior, 38*, 87–103. doi:10.2307/2955363.

Lorenz, F. O., Wickrama, K. A. S., Conger, R. D., & Elder, G. H., Jr. (2006). The short term and decade long effects of divorce on women's midlife health. *Journal of Health and Social Behavior, 47*, 111–125.

Massey, D. S., & Denton, N. A. (1993). *American apartheid: Segregation and the making of the underclass*. Cambridge, MA: Harvard University Press.

Mathews, T. J., & Hamilton, B. E. (2002). Mean age of mother, 1970–2000. *National Vital Statistics Reports, 51*(1), 1–13.

Maynard, R. A. (1996). *Kids having kids: Economic costs and social consequences of teen pregnancy*. Washington, DC: Urban Institute Press.

Menaghan, E. G. (1991). Work experiences and family interaction processes: The long reach of the job. *Annual Review of Sociology, 17*, 419–444. doi:10.1146/annurev.so.17.080191.002223.

Meyer, I. (1995). Minority stress and mental health in gay men. *Journal of Health and Social Behavior, 36*, 38–56. doi:10.2307/2137286.

Miech, R. A., Caspi, A., Moffitt, T. E., Wright, B. R. E., & Silva, P. A. (1999). Low socioeconomic status and mental disorders: A longitudinal study of selection and causation during young adulthood. *American Journal of Sociology, 104*, 1096–1131. doi:10.1086/210137.

Muthén, L. K., & Muthén, B. O. (2004). *Mplus user's guide*. Los Angeles: Muthén & Muthén.

O'Rand, A. M., & Hamil-Luker, J. (2005). Processes of cumulative adversity: Childhood disadvantage and increased risk of heart attack across the life course. *Journal of Gerontology, 60B*, S117–S124.

Perry, C. L. (2000). Preadolescent and adolescent influences on health. In B. D. Smedley & S. L. Syme (Eds.), *Promoting health: Intervention strategies from social and behavioral research*. Washington, DC: National Academy Press.

Pong, S. L., Hao, L., & Gardner, E. (2005). The roles of parenting styles and social capital in the school performance of immigrant Asian and Hispanic adolescents. *Social Science Quarterly, 89*, 928–950. doi:10.1111/j.0038-4941.2005.00364.x.

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385–401. doi:10.1177/014662167700100306.

Radloff, L. S. (1991). The use of the center for epidemiologic studies depression scale in adolescents and young adults. *Journal of Youth and Adolescence, 20*, 149–166. doi:10.1007/BF01537606.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Rosenberg, M. (1965). *Society and adolescent self-image*. Princeton, NJ: Princeton University Press.

Sampson, J. R. (2001a). How do communities undergird or undermine human development: Relevant context and social mechanisms.

In A. Booth & A. C. Crouter (Eds.), *Does it take a village? Community effects on children, adolescents, and families* (pp. 3–30). Mahwah, NJ: Laurence Erlbaum Associates.

Sampson, J. R. (2001b). How do communities undergird or undermine human development: Relevant context and social mechanisms. In A. Booth & A. C. Crouter (Eds.), *Does it take a village? Community effects on children, adolescents, and families* (pp. 3–30). Mahwah, NJ: Laurence Erlbaum Associates.

Sampson, R. J., Squires, G. D., & Zhou, M. (2001). *How neighborhoods matter: The value of investing at the local level*. Washington, DC: American Sociological Association.

Scaramella, L. V., Conger, R. D., Spoth, R., & Simons, R. L. (2002). Evaluation of a social contextual model of delinquency: A cross-study replication. *Child Development, 73*, 175–195. doi:10.1111/1467-8624.00399.

Schoen, R., Landale, N. S., & Daniels, K. (2007). Family transitions in young adulthood. *Demography, 44*, 807–820. doi:10.1353/dem.2007.0044.

Shaw, C. R., & McKay, H. D. (1942). *Juvenile delinquency and urban areas*. Chicago: University of Chicago Press.

Simons, R. L. (1996). *Understanding the differences between divorced and intact families: Stress, interaction, and child outcome*. Thousand Oaks, CA: Sage.

Simons, R. L., Johnson, C., Beaman, J., Conger, R. D., & Whitebeck, L. B. (1996). Parents and peer group as mediators of the effect of community structure on adolescent problem behaviors. *American Journal of Community Psychology, 24*, 145–171. doi:10.1007/BF02511885.

Spencer, M. B. (2001). Resiliency and fragility factors associated with the contextual experiences of low-resource urban African-American male youth and families. In A. Booth & A. C. Crouter (Eds.), *Does it take a village? Community effects on children, adolescents, and families* (pp. 51–77). Mahwah, NJ: Lawrence Erlbaum Associates.

Sroufe, A. L., Duggal, S., Weinfield, N., & Carlson, E. (2000). Relationships, development, and psychopathology. In A. J. Sameroff, M. Lewis, & S. M. Miller (Eds.), *Handbook of developmental psychopathology* (2nd ed., pp. 75–91). Dordrecht: Kluwer.

Wheaton, B., & Clarke, P. (2003). Space meets time: Integrating temporal and contextual influences on mental health in early adulthood. *American Sociological Review, 68*, 680–706. doi:10.2307/1519758.

Wheaton, B., & Gotlib, I. H. (1997). Trajectories and turning points over the life course: Concepts & themes. In I. Gotlib & B. Wheaton (Eds.), *Stress and adversity over the life course: Trajectories and turning points* (pp. 29–49). New York: Cambridge University Press.

Whitbeck, L. B., Simons, R. L., Conger, R. D., Lorenz, F. O., Huck, S., & Elder, G. H., Jr. (1991). Family economic hardship, parental support, and adolescent self-esteem. *Social Psychology Quarterly, 54*, 353–363. doi:10.2307/2786847.

Wickrama, K. A. S., & Bryant, C. M. (2003). Community contexts of social resources and adolescent mental health. *Journal of Marriage and the Family, 65*, 850–866. doi:10.1111/j.1741-3737.2003.00850.x.

Wickrama, K. A. S., Conger, R. D., & Abraham, W. T. (2005a). Early adversity and later health: The intergenerational transmission of adversity through mental disorder and physical illness. *Journal of Gerontology, 60B*, 125–129.

Wickrama, K. A. S., Conger, R. D., Lorenz, F. O., & Jumg, T. (2008). Antecedents and consequences of trajectories of depression symptoms from adolescence to young adulthood. *Journal of Health and Social Behavior, 4*, 468–483.

Wickrama, K. A. S., Conger, R. D., Wallace, L. E., & Elder, G. H., Jr. (2003). Linking early social risks to impaired physical health during the transition to adulthood. *Journal of Health and Social Behavior, 44*, 61–74. doi:10.2307/1519816.

Wickrama, K. A. S., Merton, M., & Elder, G. H., Jr. (2005b). Community influence on adolescent precocious development: Racial differences and mental health consequences. *Journal of Community Psychology, 33*, 639–653. doi:10.1002/jcop.20076.

Wickrama, K. A. S., Noh, S., & Bryant, C. (2005c). Racial differences in adolescent distress: Differential effects of the family and community for Blacks and Whites. *Journal of Community Psychology, 33*, 261–282. doi:10.1002/jcop.20053.

Wight, R. G., Aneshensel, C. S., Botticello, A. L., & Sepulveda, J. E. (2005). A multilevel analysis of ethnic variation in depressive symptoms among adolescents in the United States. *Social Science and Medicine, 60*, 2073–2084. doi:10.1016/j.socscimed.2004.08.065.

Wilson, W. J. (1987). *The truly disadvantaged: The inner-city the underclass, and public policy*. Chicago: University of Chicago.

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