

SOCIOECONOMIC STATUS AND CHILD DEVELOPMENT

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■ **Abstract** Socioeconomic status (SES) is one of the most widely studied constructs in the social sciences. Several ways of measuring SES have been proposed, but most include some quantification of family income, parental education, and occupational status. Research shows that SES is associated with a wide array of health, cognitive, and socioemotional outcomes in children, with effects beginning prior to birth and continuing into adulthood. A variety of mechanisms linking SES to child well-being have been proposed, with most involving differences in access to material and social resources or reactions to stress-inducing conditions by both the children themselves and their parents. For children, SES impacts well-being at multiple levels, including both family and neighborhood. Its effects are moderated by children's own characteristics, family characteristics, and external support systems.

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INTRODUCTION

Socioeconomic status (SES) remains a topic of great interest to those who study children's development. This interest derives from a belief that high SES families afford their children an array of services, goods, parental actions, and social connections that potentially redound to the benefit of children and a concern that many low SES children lack access to those same resources and experiences, thus putting them at risk for developmental problems (Brooks-Gunn & Duncan 1997). The interest in SES as a global construct persists despite evidence that there is wide variability in what children experience within every SES level, despite evidence that the link between SES and child well-being varies as a function of geography, culture, and recency of immigration, and despite evidence that the relation between SES and child well-being can be disrupted by catastrophes and internal strife (Bradley & Corwyn 1999, Wachs 2000).

In this chapter we review the history of SES and provide an overview of the association between SES and children's well-being for three major domains of development (cognitive, socioemotional, health). Attention is given to models that attempt to explicate the connection between SES and these aspects of development. Finally, we offer a rationale for expanding attention to collective SES as a way of more fully instantiating the concepts of developmental systems theory into research on SES.

HISTORY AND DEFINITION

Social scientists have shown continued interest in SES even though there has never been complete consensus on precisely what it represents (Liberatos et al. 1988, McLoyd 1997). There has been something of a tug-of-war between proponents of SES as representing class (or economic position) and proponents of SES as representing social status (or prestige). The idea of capital (Coleman 1988) perhaps best embodies the current meaning psychologists hold of SES (Entwistle & Astone 1994, Guo & Harris 2000). Capital (resources, assets) has become a favored way of thinking about SES because access to financial capital (material resources), human capital (nonmaterial resources such as education), and social capital (resources achieved through social connections) are readily connectible to processes that directly affect well-being. Capital is linked to historic ideas about SES, such as social and material "deprivation," and it brings into focus the important dimension of social relationships (Krieger et al. 1997).

Most widely used measures of SES only partially map onto the concepts of capital described by Coleman. Financial capital is reasonably well assessed by household income, but is more often indexed by occupational status. However, neither fully captures the notion of wealth as described by economists (Smith 1999); wealth may be a better measure of the financial resources available in that it is often a more accurate barometer of access to opportunities (Oliver & Shapiro 1995, Ostrove et al. 1999, Williams & Collins 1995). Income is considered a rather volatile indicator of financial capital (Hauser 1994), and the best way of ordering occupations in terms of their actual contributions to financial well-being has been

hotly debated for decades (Davies 1952, Entwisle & Astone 1994, Miller 1991, Grusky & Van Rompaey 1992, Nam & Powers 1983). Most social scientists agree that a combination of income and occupational status provides a better approximation to financial capital than either alone. To more fully capture financial capital, Entwisle & Astone (1994) recommend gathering data on what the family pays for rent or housing. Ostrove and his coworkers (1999) simply asked respondents to estimate the total value of their assets.

Entwisle & Astone (1994) also recommend expanding data collections pertaining to social capital (e.g., number of parents in the home, presence of a grandparent in the home), a suggestion that may garner increasing support given that many children live in households with only one parent. Research showing that occupation often partially determines one's social network suggests that occupational status may also provide some indication of social capital. Likewise, research showing a link between the type of employment parents engage in and parenting practices suggests that occupational status may also capture some of human capital (Kohn & Schooler 1982, Parcel & Menaghan 1990, Rodrigo et al. 2001).

Although there is general consensus that income, education, and occupation together represent SES better than any of these alone (White 1982), there is no consensus on (a) how best to composite the set of indicators; (b) whether it works best to examine relations between SES and child outcomes using a composite, a statistical procedure that includes each indicator, or each indicator singly; or (c) how best to measure each component (Krieger et al. 1997). The predictive value of specific composites have been compared with inconsistent results (Gottfried 1985, Liberatos et al. 1988, White 1982). At times the different indicators seem to be tapping into the same underlying phenomenon, as indicated by their inter-correlations and their similar correlations with outcome measures. At other times, they appear to be tapping into different underlying phenomena and seem to be connected to different paths of influence, as indicated by only modest correlations even among different SES composites and links with different mediating variables (Ostrove et al. 1999). Relatedly, there remains some uncertainty as to whether SES has the same underlying meaning in all ethnic and cultural groups (Williams & Collins 1995).

In overview, the choice of how to measure SES remains open. Part will be determined by the question being examined, part by practical considerations concerning the acquisition of data, and part by the population from whom the data are collected. Regarding this last issue, both theory and empirical findings indicate that SES indicators are likely to perform differently across cultural groups (Bradley 1994, Bronfenbrenner 1995).

SES & WELL-BEING

Health

For years, studies of adults have documented a relation between SES and health (Adler et al. 1994). The data on children is somewhat less complete and less

consistent, but evidence points to a substantial relation that begins before birth (US Dep. Health & Human Services 2000b). Children from low-SES families are more likely to experience growth retardation and inadequate neurobehavioral development in utero (DiPietro et al. 1999, Kramer 1987). They are more likely to be born prematurely, at low birth weight, or with asphyxia, a birth defect, a disability, fetal alcohol syndrome, or AIDS (Crooks 1995, Hawley & Disney 1992, US Dep. Health & Human Services 2000b, Cassady et al. 1997, Vrijheid et al. 2000, Wasserman et al. 1998). Early health problems often emanate from poor prenatal care, maternal substance abuse, poor nutrition during pregnancy, maternal lifestyles that increase the likelihood of infections (smoking, drug use), and living in a neighborhood that contains hazards affecting fetal development (toxic waste dumps) (US Dep. Health & Human Services 2000a).

After birth, low-SES infants are more likely to suffer injuries and to die (Overpeck et al. 1998, Scholer et al. 1999). During childhood, SES is implicated in many diseases, including respiratory illnesses (Cohen 1999, Haan et al. 1989, Johnston-Brooks et al. 1998, Klerman 1991, Rosenbaum 1992). Low SES is associated with an increased likelihood of dental caries (US Dep. Health & Human Services 2000b), higher blood lead levels (Brody et al. 1994a, Starfield 1982, Tesman & Hills 1994), iron deficiency (US Dep. Health & Human Services 2000b, Starfield 1989), stunting (Brooks-Gunn & Duncan 1997, Korenman & Miller 1997, Kotch & Shackelford 1989), and sensory impairment (US Dep. Health & Human Services 2000b, Starfield 1989, Wilson 1993). These outcomes likely reflect an array of conditions associated with low SES, including inadequate nutrition, exposure to tobacco smoke, failure to get recommended immunizations, and inadequate access to health care (US Dep. Health & Human Services 2000a,b; Pollitt et al. 1996; Raisler et al. 1999; Sandel & Schrfstein 1999).

On the other hand, SES is not implicated in all illnesses, and the SES/health gradient appears less steep in more egalitarian nations (Adler et al. 1999). Moreover, the relations between particular SES indicators and health factors may be quite complex. For example, the impact of low income appears to depend on how long poverty lasts and the child's age when the family is poor (Bradley & Whiteside-Mansell 1997, Duncan & Brooks-Gunn 1997, Miller & Korenman 1994).

When low-SES children experience health problems, the consequences are often more severe. Low-SES children born preterm are far more likely to suffer health and developmental consequences than their more affluent counterparts (Parker et al. 1988). Children from low-income families are two to three times as likely to suffer complications from appendicitis and bacterial meningitis and to die from injuries and infections at every age (US Dep. Health & Human Services 2000b). The average length of stay for poor children in acute care hospitals is longer than the average for nonpoor children (Bradley & Kelleher 1992). Equally important are findings that early insults to health may have long-term consequences (McLoyd 1998, Bradley et al. 1994). For example, premature children who lived in poverty for the first 3 years of life manifested more problems in growth, health status, intelligence, and behavior (Bradley et al. 1994); children with high lead levels are at increased risk of long-term neurological problems (Needleman et al. 1990);

and low-birthweight children who also had perinatal illnesses experienced more school failure (McGauhey et al. 1991).

Among adolescents, SES is related to health status, but relations are less consistent than for adults (Macintyre & West 1991). Goodman (1999) found that SES was related to depression, obesity, and self-rated overall health (US Dep. Health & Human Services 2000a,b; Call & Nonnemaker 1999). Data from NHANES II indicate that poor teens are more likely to show stunting (Brooks-Gunn & Duncan 1997). However, SES was not associated with asthma and was inconsistently related to suicide attempts and STDs (Goodman 1999).

Biologic impacts during childhood create vulnerabilities that result in adverse health outcomes in adulthood. Power (1991) found that SES measured in middle childhood and adolescence was related to health status at age 23, even controlling for SES at age 23. Hertzman (1999) refers to this as the “biological embedding” of early experience and notes that there is evidence for “latent” effects of early biologic damage (e.g., a higher propensity for adult cardiovascular disease for low-birthweight children). Specifically, he offers the hypothesis that “systemic differences in the quality of early environments, in terms of stimulation and emotional and physical support, will affect the sculpting and neurochemistry of the central nervous system in ways that will adversely affect cognitive, social, and behavioral development” (p. 89). Little research has been completed on this hypothesis, but research shows that anthropometric indicators of undernutrition during infancy predict cognitive performance in middle childhood and adolescence (Pollitt et al. 1996). Also, Treiber and his coworkers (1999) found evidence that low SES was associated with increased systolic blood pressure and increased left ventricular mass among adolescents.

Cognitive and Academic Attainment

For over 70 years findings on the relationship between SES and intellectual/academic competence has accumulated. McCall (1981) presented evidence that the association between SES and cognitive performance begins in infancy. Numerous studies have documented that poverty and low parental education are associated with lower levels of school achievement and IQ later in childhood (Alexander et al. 1993, Bloom 1964, Duncan et al. 1994, Escalona 1982, Hess et al. 1982, Pianta et al. 1990, Walberg & Marjoribanks 1976, Zill et al. 1995). Kennedy and colleagues (1963) reported results from a random sample of first- through sixth-grade African American children selected to represent African Americans living in the southeastern United States. The mean IQ of the highest SES group was 25 points higher than the mean of the lowest SES group.

There has been some debate regarding which aspects of SES most strongly connect to cognitive development. Mercy & Steelman (1982) found that each SES measure used in the Health Examination Survey (family income, maternal education, paternal education) predicted intellectual attainment, with education being the best predictor. Maternal education was a stronger predictor than paternal education. Scarr & Weinberg (1978) found maternal and paternal education to

be equally good predictors. This discrepancy may reflect differences in the ages of the children assessed. Mercy & Steelman studied 6- to 11-year-olds, whereas Scarr & Weinberg (1978) studied 15-year-olds. In his meta-analysis White (1982) found that SES accounted for about 5% of the variance in academic achievement. Among the traditional measures of SES, family income accounted for the greatest amount of variance, but SES measures that combined two or more indicators accounted for more variance than single indicators. In a recent study DeGarmo and colleagues (1999) found that each SES indicator (income, education, occupation) was associated with better parenting, which in turn affected school achievement via skill-building activities and school behavior.

Few researchers have concentrated on the relation between parental occupation and cognitive development. However, Parcel & Menaghan (1990) found that mothers who worked in occupations with a variety of tasks and problem solving opportunities provided more warmth and support and a greater number of stimulating materials. Their children manifested more advanced verbal competence. Such findings are consistent with the classic argument of Kohn & Schooler (1982): what parents experience at work, they incorporate into their style of parenting.

There is evidence that the connection between SES and cognitive performance applies to many societies. Mpofu & Van de Vijver (2000) found that among Zimbabwean children social class predicted the frequency with which children used taxonomic rather than functional classification strategies. In their cross-cultural review Bradley and colleagues (1996) found that SES indicators were strongly related to cognitive development from infancy through middle childhood. Evidence suggests a particularly strong relation between SES and verbal skills (Mercy & Steelman 1982). Hart & Risley (1995) found major differences in the language proficiency of children from high-SES and low-SES families. Hoff-Ginsberg (1991) also found substantial SES differences in language performance for children, beginning early in life.

In his meta-analysis White (1982) found some evidence that the relation between SES and intellectual/academic attainment diminishes with age. However, Smith and colleagues (1997) found that the effects of family income on achievement among 7-year-olds were similar to the effects on intelligence for 3-year-olds. Likewise, Walberg & Marjoribanks (1976) suggested that adolescents may benefit as much as younger children from a stimulating family environment. "Uncorrected regression can underestimate environmental effects when there are substantial errors in measuring the environment" (p. 546). Their results suggest that for intellectual and academic attainment there may be a kind of accumulated value to family environment and SES, but thus far there is little evidence to substantiate this.

The relation between SES and cognitive attainment may be quite complex, with different components of SES contributing to the development of particular cognitive skills in different ways and with some components of SES serving to moderate the effects of other components. DeGarmo and colleagues (1999) examined the paths between maternal education, occupation, and income and found evidence of both similarities and differences in their connections to school achievement among 6- to 9-year-olds. Several analyses have indicated that the relations for

family income and parental education depend on the number of siblings present in the household (Anastasi 1956, Mercy & Steelman 1982, Walberg & Marjoribanks 1976). Others have discussed the importance of unpacking the effects of socioeconomic status owing to the high level of confounding between socioeconomic and family demographic indicators, but few studies have done so (Brooks-Gunn & Duncan 1997, McLoyd 1998).

SES also appears to affect school attendance and number of years of schooling completed (Haverman & Wolf 1995, Brooks-Gunn & Duncan 1997). The impact on years completed appears to be less than the impact on school achievement. Even so, SES remains one of the most consistent predictors of early high school drop-out, with evidence suggesting that it is connected both to low parental expectations and to early initiation of sexual activity (Battin-Pearson et al. 2000).

Socioemotional Development

Although the link between SES and children's social and emotional well-being is not as consistent as the link with cognitive attainment, there is substantial evidence that low-SES children more often manifest symptoms of psychiatric disturbance and maladaptive social functioning than children from more affluent circumstances (Bolger et al. 1995, Brooks-Gunn & Duncan 1997, Lahey et al. 1995, McCoy et al. 1999, McLeod & Shanahan 1993, Moore et al. 1994, Patterson et al. 1989, Sameroff et al. 1987, Starfield 1989, Takeuchi et al. 1991). It is not easy to state the precise relation between SES and socioemotional problems in children. It is often difficult to identify mental illness in young children, owing to the various standards and methods used to assess mental illness. For very young children, there is little evidence of a relation between SES and socioemotional well-being (Earls 1980, Richman et al. 1975). However, the relation emerges in early childhood and becomes reasonably consistent (especially for externalizing problems) in middle childhood (Achenbach et al. 1990, Duncan et al. 1994, McLeod & Shanahan 1993). Among adolescents, low SES is often associated with poor adaptive functioning, an increased likelihood of depression, and delinquent behavior (McLoyd 1997). Conger and colleagues (1997), however, did not find a relation between poverty and adolescent problems. Part of the difference in findings may pertain to who reports on social and emotional well-being. Most often parents and teachers are the reporters, but in the Conger et al. study adolescents reported on their own behavior.

The strength of the relationship between SES and mental disorders varies by type of disorder and race (McLoyd 1997). The relationship is most consistent with schizophrenia and personality disorders, reasonably consistent with mild depression, and inconsistent with neuroses and affective disorders (Ortega & Corzine 1990). Among children 6–17 years old referred to a psychiatric clinic, SES was associated with parent and teacher reports of aggressiveness and delinquency (McCoy et al. 1999).

Higher rates of substance abuse have been reported for low-SES teens, but findings are inconsistent (Wills et al. 1995). The relation is often mediated through

friends' use of substances, academic competence, and parental supportiveness. It is also connected with the experience of negative life events (Wills et al. 1992).

Ortega & Corzine (1990) identified a number of factors that complicate our ability to understand relations between SES and socioemotional adjustment. The two leading theories (social causation and social selection/drift) imply opposite causation. The social causation explanation holds that mental disorder results from poverty and its cofactors; the social selection explanation holds that those with mental disorders gradually drift into lower SES strata. For children, there has been little study of the drift hypothesis because it was generated to explain the gradual decline in status for seriously mentally ill adults. A second complication in interpreting research on SES and mental illness derives from the fact that the poor are more likely to be defined as mentally ill even when they manifest the same level of symptomatology as do more affluent individuals.

In overview, there is substantial evidence linking low SES to less optimal outcomes in nearly every area of functioning. Unfortunately, most studies examined only a single outcome and, even when they examined more than one outcome, little attention was given to whether individual children experienced multiple bad outcomes. According to developmental systems theory, it is very difficult to predict developmental pathways with precision in highly complex, self-constructing organisms like humans (Ford & Lerner 1992, Wachs 2000). The same set of circumstances may potentiate any of a number of outcomes (the principle of equipotentiality) depending on individual strengths and vulnerabilities and other conditions present both concurrent and subsequent to the experience of those circumstances.

For low-SES children, it is quite difficult to predict whether a particular health, cognitive, or emotional problem may eventually emerge. However, it is somewhat easier to predict that low-SES children are likely to experience more developmental problems than affluent children. Results from the Infant Health and Development Program showed that 40% of children born prematurely and who lived in chronic poverty had deficiencies in at least two areas of functioning at age three (Bradley et al. 1994). Likewise, Bradley and his colleagues (2000) found that the quality of the home environment was correlated about 0.40 with the number of developmental problems manifested by adolescents from five different sociocultural groups. Correlations with specific problems varied across groups, but the correlation with the number of problems was virtually identical.

Models of Mediating Processes

The SES literature offers a variety of proposed mechanisms linking SES and child well-being. The MacArthur Network on SES and health placed linking mechanisms in two broad categories: environmental resources/constraints and psychological influences (Adler & Ostrove 1999). Most hypothesized mechanisms have not been adequately explored, especially in terms of applicability to different cultural groups; in effect, most have verisimilitude, not established credibility. Many proposed intervening processes are themselves disconnected from broader

developmental systems models that not only stipulate moderating and mediating processes but mediated moderating and moderated mediating processes as well (Baron & Kenny 1986). In sum, the literature mostly provides bits and pieces of the larger person-process-context-time tableaux described by Bronfenbrenner (1995).

It is not easy to determine with precision the processes through which SES influences child well-being, partly because low SES frequently co-occurs with other conditions that purportedly affect children (e.g., minority and immigrant status, single parenthood, a family member with a disability or serious mental illness, exposure to teratogens and other potentially hazardous environmental conditions)—the classic “third variable” problem. It is difficult to disentangle SES from such cofactors when there is evidence that they may exacerbate the effects of SES (i.e., they function as moderators). Direct biological damage may also contribute to SES differences. To be more specific, brain disorders, such as those connected with mental illness, can also result from trauma or exposure to pathogens, both of which are more common among individuals who are low SES. Low-SES children are more often the victims of child abuse, peer aggression, and community violence (Garbarino 1999).

In overview, for a given child from a low-SES family, the mechanism leading to a poorer developmental outcome could be one connected to family SES, a particular SES cofactor (such as single parenthood or minority status), a combination of the two, or even a third variable connected to both (e.g., family conflict). During the course of childhood, the meaning and significance of particular cofactors can change (Moen et al. 1995). For preschool children, living in a deteriorated neighborhood may mean less access to stimulating resources and recreational facilities. For an adolescent, the same neighborhood may mean increased likelihood of affiliation with deviant peers.

Resources

NUTRITION Among the most oft-cited linkages between SES and well-being is access to resources (Klerman 1991). Klerman’s model includes seven paths linking low income to health, inability to purchase goods and services essential for health and inability to secure appropriate health services. Mortorell (1980) identified inadequate dietary intake as a key pathway to poor health. According to his model, inadequate dietary intake results in defective nutrient absorption, defective nutrient utilization, and poor defenses against infection. Poor nutritional status, in turn, contributes to an array of morbidities and mortality. Pollitt and colleagues (1996) offer a similar formulation. In addition, they present evidence that poor nutritional status affects brain growth both pre- and postnatally.

Overall evidence supporting the “nutrition pathway” is incomplete, but research showing nutritionally mediated SES impacts on (a) growth (Adler et al. 1999, Brooks-Gunn & Duncan 1997, Miller & Korenman 1994), (b) the increased likelihood of neural tube defects owing to inadequate intake of folic acid during pregnancy (Wasserman et al. 1998), (c) the prevalence of iron deficiency owing to

inadequate intake of meats and vegetables rich in iron (US Dep. Health & Human Services 2000a, Oski 1993, Starfield 1989), and (d) poor long-term memory following lengthy episodes of poor nutrition (Korenman & Miller 1997) offer support for such a path. Valenzuela (1997) offers evidence that chronic undernutrition can deplete the energy resources of both parent and child, making the child more lethargic and less able to elicit attention from the parent and the parent less sensitive and supportive of the child. The result is not only compromised growth but increased likelihood of insecure attachment, negative affect, and limited mastery motivation.

ACCESS TO HEALTH CARE It is difficult to determine how much poor nutrition contributes to developmental problems because children who lack access to adequate nutrition also tend to lack access to other resources, such as adequate medical care. It is not easy to determine if a condition connected to poor nutrition actually results from poor nutrition or whether it reflects inadequate prenatal care (Blendon et al. 1989; US Dep. Health & Human Services 2000a,b), inadequate preventive care for the child (e.g., failure to obtain all recommended immunizations) (US Dep. Health & Human Services 2000a, Raisler et al. 1999, Sandel & Schrfstein 1999), failure to obtain necessary medical treatment for acute or chronic medical conditions (US Dep. Health & Human Services 2000b), or increased exposure to infection owing to poor personal hygiene (Rushing & Ortega 1979). For example, prematurity and low birthweight are also associated with delayed or absent prenatal care (Crooks 1995, Frank et al. 1992).

Many poor families cannot purchase needed health care services. Poor children often have no medical insurance and, thus, are more likely to use emergency rooms for medical care and may be in more advanced stages of illness before being treated. The generally inadequate educational backgrounds of many poor adults (and the greater prevalence of ethnic minorities and recent immigrants among the poor) may also reduce the likelihood of their seeking help for symptoms of illness because of beliefs about the causes and cures for symptoms that do not square with modern medical practice. In effect, there may be both a lack of money to purchase service and a lack of fit between the care that is available and the care that is wanted (Bradley & Kelleher 1992).

Research does not make clear how significant a role inadequate medical care plays in the health and developmental problems of low-SES children. Social status differences remain even when there is universal health coverage (Baum et al. 1999). In industrialized countries relative material deprivation, rather than absolute material deprivation, may account for much of the SES differential in well-being. Low social status may limit one's social ties (capital) and lead to feelings of helplessness and lack of control, the first reducing one's protection from potential threats to well-being, the second limiting one's own efforts to deal effectively with those threats (Marmot 1999).

HOUSING Dilapidated, crowded housing has long been cited as one of the factors responsible for the SES gradient in child health (Marmot 1999). Poor

children often live in homes that have cracks in the floor, inadequate heat, pests, open heating appliances, unprotected stairwells, lead paint, and leaky ceilings, and are crowded (Bradley et al. 2001a, Guo & Harris 2000, Mayer 1997). These conditions lead to increased illnesses and injuries (US Dep. Health & Human Services 2000b). Brooks-Gunn and coworkers (1995), Guo & Harris (2000), and Bradley & Caldwell (1980) have also linked the physical quality of the home environment to children's intellectual and social well-being. Evans and colleagues (1999) have, likewise, linked household crowding to cognitive and emotional functioning.

COGNITIVELY STIMULATING MATERIALS AND EXPERIENCES For over 50 years researchers have argued that low-SES children lack access to cognitively stimulating materials and experiences, which not only limits their cognitive growth but reduces their chances of benefiting from school (Bloom 1964, Hunt 1961). Data from the National Longitudinal Survey of Youth and the National Household Education Survey (Bradley et al. 2001a, Corwyn & Bradley 2000) indicate that children from poor families have less access to a wide variety of different recreational and learning materials from infancy through adolescence. They are less likely to go on trips, visit a library or museum, attend a theatrical performance, or be given lessons directed at enhancing their skills. Access to such material and cultural resources mediates the relation between SES (or family income) and children's intellectual and academic achievement from infancy through adolescence (Bradley 1994, Bradley & Corwyn 2001, Brooks-Gunn et al. 1995, Entwisle et al. 1994, Guo & Harris 2000). The impact becomes greater as the number of negative life events (e.g., family dissolution, loss of employment) and risk conditions (e.g., household crowding, presence of a mentally ill parent) increases (Brooks-Gunn et al. 1995, Sameroff et al. 1993).

Bradley & Corwyn (2001) also found that access to stimulating materials and experiences mediated the relation between SES and children's behavior problems. The connection between SES, stimulating experiences, and children's cognitive functioning is well established (Bradley & Corwyn 1999, Brooks-Gunn & Duncan 1997, McLoyd 1998). Such experiences provide both direct and indirect (i.e., mediated through more capable peers and adults) learning opportunities for children as well as serving as a motivational base for continued learning (Saegert & Winkel 1990). However, the connection between SES, access to stimulating experiences, and behavior problems has been less intensively investigated. Part of the connection would appear to be direct. Human beings are self-constructing organisms that thrive on a diversity of experiences; potentially enriching materials and experiences engage cognitive arousal mechanisms (Ford & Lerner 1992). Learning materials and experiences also afford opportunities for social exchanges and, thereby, engage social arousal mechanisms in a generally productive way. Absent such opportunities, children may become bored and frustrated, leading them to engage in behavior that arouses negative responses from parents and peers. These behaviors may contribute to the kind of coercive styles of parenting that have been hypothesized to

increase later behavioral maladjustment (Conger et al. 1997, Dodge et al. 1994, McLoyd 1998).

PARENT EXPECTATIONS AND STYLES Part of the observed connection between SES, cognitively stimulating experiences, and child well-being probably reflects parental attitudes, expectations, and styles of interacting with children. Adams (1998) identified eight major differences in patterns of socialization for children from different social classes: among them, the emphasis given to verbal skills, independence, achievement, and creativity. High-SES parents engage children in more conversations, read to them more, and provide more teaching experiences (Shonkoff & Phillips 2000). Their conversations are richer, contain more contingent responsiveness, and include more efforts to elicit child speech (Hoff-Ginsberg & Tardif 1995, Hart & Risley 1995). Their teaching style includes more scaffolding and complex verbal strategies (Borduin & Henggeler 1981). Bradley & Corwyn (1999), in their review of research on the home observation for measurement of the environment (HOME) inventory, found that these effects applied to children from infancy through adolescence and generally hold for children from diverse ethnic backgrounds. Such differences in parenting practice are strongly implicated in the relation between SES and children's intellectual and academic performance (Hoff-Ginsberg & Tardif 1995, Walberg & Marjoribanks 1976). Even so, the relation between SES and child cognitive and language competence via the stimulation found in the home appears to be a complex one that is associated with both the degree of crowding in the residence and the number of siblings present (Bradley et al. 1994, Evans et al. 1999, Mercy & Steelman 1982, Walberg & Marjoribanks 1976). The distresses and distractions connected with crowding result in fewer and less-rich exchanges between parent and child. Having more siblings results in less allocation of time and attention to each child.

Low-SES parents are less likely to purchase reading and learning materials for their children, less likely to take their children to educational and cultural events, and less likely to regulate the amount of TV their children watch (Bradley et al. 2001a, Hess et al. 1982). As a result, low-SES children more frequently experience school failure (even in the early grades), which moves them on a trajectory of either conduct problems or withdrawal behaviors (Battin-Pearson et al. 2000).

TEACHER ATTITUDES AND EXPECTATIONS Teacher attitudes and expectations may also be part of a complex set of mediators linking low SES to school failure and behavior problems via learning materials and experiences. McLoyd (1998) has argued that teachers tend to perceive low-SES pupils less positively (both in terms of their academic and self-regulatory skills). Teachers provide poor children with less positive attention and less reinforcement for good performance. If children, both prior to school entry and during their school years, have less experience with cognitively stimulating materials and experiences at home, they are more likely to fulfill teachers' negative stereotypes. This increases the likelihood of negative interactions with teachers, a problem that may be exacerbated for minority children

or recently immigrated children without good skills in English. Over time, the frustrations connected with school failure and negative exchanges with teachers are likely to increase acting out behaviors (or depression for some children). It also increases the likelihood that children will affiliate with deviant peers.

Stress Reactions

Researchers have consistently argued that stress accounts for much of the difference in outcomes between low-SES and high-SES children (Adler et al. 1999, Bradley & Whiteside-Mansell 1997, McLoyd 1998, Shonkoff & Phillips 2000). Low-SES families experience more threatening and uncontrollable life events, are disproportionately exposed to environmental hazards and violence, and are at increased risk of experiencing destabilizing events such as family dissolution and household moves (Bradley & Whiteside-Mansell 1997, Gad & Johnson 1980). The chronic strain associated with unstable employment and persistent economic hardship can lead to diminished self-esteem, a diminished sense of control over one's life, anger, and depression (Amato & Zuo 1992, Dohrenwend 1990, Pearlin et al. 1981). It also increases the likelihood of partner and child abuse (Garbarino 1992). Coping with these strains also reduces the likelihood that one can engage in health-promoting activities (National Center for Children in Poverty 1990).

ALLOSTATIC LOAD There are immediate (and more long-term) physiologic responses to stresses associated with low SES and its cofactors (e.g., crowded housing, household and neighborhood violence). Health scientists have proposed the concepts of allostatis and allostatic load to help explain the impact of stress on adaptive functioning (Johnston-Brooks et al. 1998, McEwen & Seeman 1999). Allostatis refers to the body's capacity to adapt and adjust to the demands imposed by environmental stressors via physiological changes. The constant turning on and turning off of stress-related physiologic responses creates allostatic load, including more long-term changes (e.g., persistent elevation in blood pressure). Research done mostly with primates and human adults indicates that allostatic load is connected to a wide array of both biologic and behavioral differences, including growth, the timing of pubertal changes, cognitive functioning, metabolism, and susceptibility to illness.

There has been limited research specifically targeted to children, so the impact of stress mediators during childhood is less clear. There is some evidence for dysregulated hypothalamic-pituitary-adrenal axis activity (leading to increased activity level), dysregulated serotonergic function (which may lead to increased hostility and suicide), and impaired immune system functioning (which leads to increased illness via changes in cardiovascular activity) (Johnston-Brooks et al. 1998, McEwen & Seeman 1999). What seems clearer is that allostatic load (with its myriad mediating processes) can have numerous lifelong negative consequences, some of which are seriously damaging; however, much remains to be determined

about the precise pathways for particular outcomes during each stage of the life course (Francis et al. 1999).

PARENTING Allostatic load appears to affect parenting (Francis et al. 1999, McEwen & Seeman 1999). The stresses, uncertainties, and low social standing connected to low SES bring about a sense of powerlessness, low self-esteem, learned helplessness, and reduced orientation toward mastery and efficacy (Baum et al. 1999, McLoyd 1998). Longitudinal research on health indicates that living in a low-SES environment over a prolonged period of time tends to deplete energy reserve capacity and leads to negative emotional states such as anxiety, depression, and hostility, which in turn, lead to poorer relationships with family members and friends (Gallo & Matthews 1999, Wilkinson 1999). The MacArthur SES and Health Psychosocial Working Group have termed this set of behaviors “reactive responding” (Taylor & Seeman 1999). Reactive responding includes chronic vigilance, acting on the basis of environmental demands rather than self-generated goals, having simple, short-term goals, developing a narrow range of skills, maintaining a present orientation, reacting emotionally, and using few options to deal with environmental demands.

McLoyd (1990) found that the distress among poor parents can lead to the over use of negative control strategies, low warmth and responsiveness, and failure to adequately monitor children. Animal studies suggest that early caregiving responses help determine the infant’s stress reactivity, which then affects risk for disease and, in the longer term, interest in providing care for one’s own offspring (Francis et al. 1999). For older children, such parenting behaviors can result in low self-esteem and poor adaptive functioning. McLoyd has also argued that if a parent reacts by becoming too restrictive, it can lead to bonding with peers rather than parents (see also Elder et al. 1985).

Longitudinal studies provide substantial empirical support for the path linking low SES to lower competence and maladaptive behavior via harsh or neglectful parenting and compromised parent-child relationships (Bradley & Corwyn 2001; Conger et al. 1992, 1997; Elder et al. 1985; Felner et al. 1995; Luster et al. 1995; Lempers et al. 1989; McCoy et al. 1999; McLoyd et al. 1994; Morrison & Eccles 1995). Research shows that it is the absence of positive parenting, not just the presence of negative parenting, that links low SES to child well-being (Bolger et al. 1995, Brody et al. 1999, McCoy et al. 1999). For example, Bolger and colleagues (1995) found that maternal involvement mediated 34% of the variance for externalizing behavior problems, 31% of the variance for self-esteem, and 14% of the variance for popularity. Brody and colleagues (1999) reported that economic hardship reduced the likelihood that mothers would set high developmental goals for their children and engage in competency promoting activities. This resulted in poorer self-regulation and less academic and psychosocial competence on the part of African American children ages 6–9. In an earlier study Brody and colleagues (1994b) found that if parents remained optimistic, despite being poor, it served as a protective factor against negative parenting.

Despite general support for the “stress reactions” path, there have been some exceptions (Felner et al. 1995, McLeod & Shanahan 1993), and there is some evidence that age and ethnicity moderate the relation (Bradley & Corwyn 2001). There has also been less support for the hypothesis that parent’s emotional responsiveness mediates the relation between low SES and child well-being (McLeod & Shanahan 1993).

Health-Relevant Behaviors/Lifestyle

A third class of processes often mentioned as mediators between SES and child well-being is health-relevant (or lifestyle) behaviors (Adler & Ostrove 1999, Klerman 1991, Williams & Collins 1995). Members of the lower social classes use tobacco and alcohol more but tend to diet and exercise less (Baum et al. 1999, Dohrenwend 1990, Harrell et al. 1998). To some extent these behavioral differences are derivative of the attitudes that distinguish higher and lower social classes (Rank 2000), but they may also reflect stress reactions and social affiliations (Paltiel 1988). These factors are associated with poorer physical and mental health, which may make it harder for low SES parents to provide warm, responsive, stimulating care or to monitor their children (Garbarino 1992, Natl. Res. Council. 1993). Such parents also provide a less desirable role model for children, albeit the role-modeling hypothesis has not received strong scientific support for all areas of child functioning (McLoyd 1998).

There has been relatively little study of most lifestyle behaviors as mediators of the SES/child well-being relation, although there is evidence of the intergenerational transmission of substance abuse. Wills and coworkers (1995) found that low parental education increased the likelihood of smoking, which was related to adolescent academic and behavioral competence. This, in turn, increased the likelihood that the adolescent would use drugs and would affiliate with friends who also used drugs.

As children move toward adolescence, their own health-relevant behaviors become conduits for adaptive functioning (Harrell et al. 1998, Natl. Res. Council. 1993). Sedentary lifestyles, poor eating habits, and early engagement in risky behaviors (smoking, substance use, sexual behavior, criminal activities) frequently lead to more serious health and adjustment difficulties. Although the health-relevant behavior path is appealing as a link between SES and child well-being, research findings are inconsistent. These lifestyle behaviors do not appear to account for most of the SES/well-being gradient (Adler et al. 1999, Harrell et al. 1998, O’Malley & Johnston 1999, Wohlfarth & Van den Brink 1998).

In overview, families with more money, higher levels of education, and higher occupational status are likely to purchase an array of goods and services that directly benefit their children. High-SES families may also use their wealth to live in good houses in safe neighborhoods, thereby affording their children protection from harm. The goods and services also become part of more elaborate paths involving chains of mediators (wherein particular goods and services may more

indirectly affect child outcomes) (Brody et al. 1999, Conger et al. 1997, Guo & Harris 2000). However, few such models have been tested on multiple populations and few have been tested on children of different ages.

Perhaps most importantly, many of the proposed models reflect developmentally restricted conceptualizations of life-span processes. Some attention has been given to the timing and duration of poverty in its effects on child well-being, with ample evidence to support the hypothesis that persistent poverty has long-term negative consequences (Bradley & Whiteside-Mansell 1997, Duncan & Brooks-Gunn 1997, McEwen & Seeman 1999). There is less evidence for timing effects. Nonetheless, studies on both animals and humans provide some support for the hypothesis that early deprivation has long-term negative consequences (Duncan & Brooks-Gunn 1997, McEwen & Seeman 1999). There is even some tantalizing evidence that changes in family income, somewhat independent of parental education, have consequences for child development (Garrett et al. 1994).

The principles of parallel, convergent, and reciprocal causation are very important to bear in mind when interpreting results of completed studies or when planning future studies on mediation (Anderson 1999). The principle of parallel causation stipulates that several different processes or factors may be sufficient, but not necessary, to produce a particular developmental outcome. The principle of convergent causation stipulates that a particular process may be necessary but not sufficient to produce a particular outcome; its effect depends on the presence of a second factor. The principle of reciprocal causation stipulates that bidirectional influences among several processes and factors interacting across time are required to produce a particular developmental outcome. Bradley et al. (2001b) examined the relation between three aspects of children's home environments (learning stimulation, maternal responsiveness, and spanking) from infancy through adolescence using hierarchical linear modeling. They found that each contributed, independent of the other, to reading achievement and that learning stimulation and spanking contributed to behavior problems, independent of the others.

One of the main limitations of research on SES is the failure to simultaneously consider correlated mediating processes or factors when studying how one particular process operates to influence a specific developmental outcome. Consider again, for example, the nutrition pathway. The same children who experience inadequate nutrition are also more likely to be exposed to environmental hazards pre- and postnatally and to receive inadequate parenting (Pollitt et al. 1996). Low-SES children are more likely to be exposed to drugs (including alcohol and tobacco) prenatally. These exposures are connected to prematurity, low birthweight, intrauterine growth retardation, and perinatal complications, not to mention longer-term health, growth, and cognitive difficulties (Hawley & Disney 1992, Korenman & Miller 1997, McLoyd 1998). If one is interested in a possible link between SES and cognitive functioning via poor nutrition, it may be critical to include a consideration of one or more of these other processes. Otherwise, one may attribute cognitive problems to poor nutrition when they actually result from poor parenting or a combination of poor nutrition and prenatal exposure to drugs. The practice of

nutrition researchers in controlling for cognitively stimulating materials and experiences when studying the impact of inadequate nutrition on cognitive development is a step in the right direction (Pollitt et al. 1996). A few researchers have used techniques such as structural equation modeling to examine the joint function of multiple mediation processes connecting SES to child functioning (Brody et al. 1999, Dodge et al. 1994). However, model misspecification remains a major impediment to understanding the precise mechanisms that link SES and most child outcomes.

Models of Moderation

Although most research on SES and child outcomes has focused on mediating processes, it is generally acknowledged that these processes are not the same for all children (McLoyd 1998, Wills et al. 1995). For any given mediator model, certain characteristics of children and certain environmental conditions serve as moderators (Wachs 2000). Whereas mediator models are concerned with a process through which SES operates to influence children's development, moderator models are concerned with the conditions in which the process operates. The two models complement one another, with each adding insights into the nature of relations between SES and child outcomes (Baron & Kenny 1986). If researchers obtain weak or inconsistent results when investigating a particular association, it often implicates a moderator effect.

The discovery of a moderator often provides clues regarding a mediating process that underlies the relation between a predictor and outcome variable (Rutter 1990). The connection between mediators and moderators is often tighter (i.e., more fundamental) than may be initially apparent. Although Baron & Kenny (1986) went to great lengths to point out the distinctions between mediators and moderators, they also discussed how each often implicates the other.

The potential value of searching for moderators in regard to SES and child well-being would seem particularly great in light of the two principle classes of mechanisms thought to connect them: access to resources and stress reactions. Taylor & Seeman (1999) compiled a list of possible moderators of the relation between physical and/or psychological health. Belief in personal control, dispositional optimism, social support, self-esteem, coping strategies, and reactive responding were frequently (although not inevitably) observed to be moderators of the SES and health relationship, with social support exhibiting a particularly strong relation to psychological health. Their review emphasized the fact that these same variables may also partially mediate the relation between SES and health. In each case, the characteristic of the individual either increased or decreased resources or increased or decreased harmful stressors. The frequent finding that SES/child development relations differ by race offers another example of a moderator that likely implicates either access to resources or stress exposure as connecting paths. The discrimination and oppression often faced by members of minority groups both reduces the likelihood of accessing resources and increases the likelihood of experiencing stress (Garcia Coll et al. 1996, McLoyd 1990).

Resiliency researchers have identified several factors that may serve as moderators of the relation between SES and child well-being, with emphasis on those that help children cope with the kinds of adversity connected with low SES (Garmezy 1993, Masten & Coatsworth 1998, Rutter 1990). Garmezy (1993) recognizes three broad categories that may function as moderators: (a) personality/dispositional features such as self-esteem, locus of control, self-efficacy, optimism, stress reactivity, humor, active coping strategies, communication skills, cognitive competence, affective responses to others, and predictability; (b) family characteristics, such as cohesion, shared values, patience, conflict, consistency of rules, orderliness, and the presence of supportive adults; and (c) availability of external support systems. Each of these either changes the likelihood of accessing needed goods and services, changes the likelihood of encountering stress, or changes one's reactions to stress-inducing events and conditions. An example from the attachment literature is the finding that infants with difficult temperaments who are in low-resource environments tend to form insecure attachments (Vaughn & Bost 1999). Compas and colleagues (2001) call for research that investigates how social context (e.g., SES) may moderate the relation between individual differences (e.g., temperament) and coping responses to stress.

In contrast to the paucity of research on moderators of the SES child outcome relation, SES is frequently conceptualized as a moderator of relationships effecting children. Examples include the relation between maternal depression and parenting practices (Lovejoy et al. 2000) and the relation between risk factors and adolescent substance abuse (Wills et al. 1995).

COLLECTIVE SES

It is generally acknowledged that SES operates at multiple levels to affect well-being (Adler et al. 1999, Krieger et al. 1997, Leventhal & Brooks-Gunn 2000). Community-level SES measurement can provide information about exposures to violence and hazards as well as access to recreational and institutional resources. For children, it is important to consider community-level SES because there is evidence that neighborhood of residence is associated with health, achievement, and behavioral outcomes even when individual-level income and education are controlled (Baum et al. 1999, Leventhal & Brooks-Gunn 2000, Wasserman et al. 1998). The effects appear to begin prior to birth, with research indicating that living in a lower SES neighborhood increases the likelihood of neural tube defects (Vrijheid et al. 2000, Wasserman et al. 1998). Neighborhood effects on health appear to continue through childhood. Sargent and coworkers (1995) found that living in a densely populated, high poverty community was associated with a ninefold increase in lead burden. Also, adolescent females with a family history of cardiovascular disease showed higher levels of blood pressure and left ventricular mass if they lived in low-SES neighborhoods (Treiber et al. 1999).

Research relating neighborhood SES to health is quite limited and not fully consistent. According to Leventhal & Brooks-Gunn (2000), the most consistent finding is that living in a high-SES neighborhood has positive benefits for school

readiness and school achievement, perhaps more so for European Americans than members of minority groups. There is also evidence that living in a low-SES neighborhood may contribute to development of behavior problems and increase the likelihood of nonmarital childbearing (Crane 1991, Loeber & Wikstrom 1993). Osofsky (1999) argued that children growing up in poor urban environments are frequently exposed to guns, knives, drugs, and acts of random violence. As a result, many children manifest posttraumatic stress disorder symptoms. Exposure to such violence also interrupts a child's ability to think clearly and solve problems (Garbarino 1999).

According to the general ecological hypothesis, as the number of stresses in a neighborhood increases and as the number of supports decreases, distress among those living in the neighborhood rises (Zuvarin 1989). Social disorganization theory posits that neighborhoods characterized by a high percentage of low-SES residents, and cofactors of low SES such as single parenthood and ethnic heterogeneity, decrease the likelihood of social order (Sampson 1992). Wilson (1991) stated that neighborhoods with high rates of joblessness and single-parent families tend to produce a feeling of "social isolation" for adults caring for children. This, over time, undermines family management and results in socialization practices and family lifestyles that are not conducive to adaptive functioning (e.g., active problem solving, household organization, warm and stimulating parenting, a focus on schooling, adequate monitoring). It also results in a loss of self- and group identification that sustains customary behavior and prevents deviant behavior (Harrell & Peterson 1992).

Jencks & Mayer (1990) identified four kinds of theories relating neighborhood poverty to maladaptive social behavior: (a) contagion theories—the idea that peers influence the spread of problem behaviors; (b) collective socialization theories—the idea that role models and monitoring are critical to healthy and adaptive functioning; (c) competition theories—the concept that people compete for scarce resources; and (d) relative deprivation theories—the theory that individuals evaluate their standing relative to the standing of their neighbors. Duncan & Brooks-Gunn (1997) examined aspects of these theories with both very young children and adolescents. The presence of affluent neighbors had a positive effect on IQ, teenage births, and school dropout, suggesting the influence of adult role models and monitoring as mediating variables. Evidence in favor of the "contagion" effect occurred only for adolescents.

Leventhal & Brooks-Gunn (2000) used a somewhat more concise approach in their review of potential mechanisms linking neighborhood poverty to child well-being. They recognized three classes of mediators: (a) institutional resources (e.g., schools, child care facilities, medical facilities, employment opportunities), (b) relationships (the characteristics of parents and support networks available to assist parents), and (c) norms/collective efficacy. Social and health scientists contend that social capital in the form of social affiliation and social cohesion within neighborhoods and communities may help reduce the risk of morbidity and maladaptive functioning (Kawachi 1999). They argue that informal social control, maintenance of healthy norms, and access to various forms of social support can

contribute to both healthier lifestyles and positive well-being. Collective efficacy involves the extent to which there are social connections in the neighborhood and to which residents monitor and supervise the behavior of others in accordance with social standards (Sampson et al. 1997). There is also some support for the collective efficacy hypothesis in the form of the social control of children and affiliation with deviant peers functioning to mediate the relation between neighborhood SES and adolescent behavior, mental health, and achievement (Darling & Steinberg 1997, Elliott et al. 1996, Sampson et al. 1997).

Support for institutional resources as mediators of relations between neighborhood SES and child well-being is quite limited. Few studies have examined the mediating role played by the child care options available, medical resources found in the community, or recreational facilities present. Ennett and coworkers (1997) found that characteristics of schools partially mediated the relation between neighborhood characteristics and rates of cigarette and alcohol use. Entwisle and colleagues (1994) found that mathematics reasoning skills of school-age boys were related to the type of neighborhood the boys lived in. They speculated that this difference may derive from differential opportunities to participate in complex rule-based games with peers.

A companion set of hypotheses relates to how the physical and social quality of neighborhoods affects parenting, Leventhal & Brooks-Gunn's (2000) third class of potential mediators. Parental decisions regarding how far children are allowed to travel from home without supervision depends on the parent's appraisal of potential harm present in the neighborhood (Jacobs & Bennet 1993). Earls and coworkers (1994) reported that parents who live in dangerous neighborhoods admit using more harsh control and verbal aggression with their children. Young & Gately (1988) found that the rates of maltreatment by females was lower when substantial numbers of women with access to material resources were available for support. Garbarino (1999) also demonstrated a relationship between social cohesion and abuse rates. However, few studies have examined the extent to which differences in parenting practices actually mediate the relation between neighborhood SES and child well-being. Klebanov and colleagues (1998) found that the quality of learning experiences in the home mediated the relation between neighborhood and IQ for 3-year-olds. Greenberg and colleagues (1999) also found that the home environment mediated the relation between neighborhood risk and teacher-reported social competence and achievement. Even so, research suggests that most of the variance in parenting is not accounted for by neighborhood of residence (Caspi et al. 2000, Furstenberg et al. 1999).

It is methodologically difficult to establish causal relationships between complex social settings such as neighborhoods and individual behavioral outcomes because results are often consistent with more than one explanation (Duncan & Raudenbush 1999, Natl. Res. Council. 1993). There are a number of potentially confounding factors that make interpretations about neighborhood effects difficult. Most notably, any differences observed in the incidence of negative behaviors or outcome may be due to the characteristics of those people who selected to live

there (a “selection effect” or “omitted variables bias”). Also, major social stressors may have a direct effect on a large proportion of neighborhood residents (an “aggregation effect”). Even so, for certain classes of child outcomes (e.g., congenital anomalies), living in particular low-SES neighborhoods (i.e., near a toxic waste dump) carries a significantly elevated risk of poor development (Vrijheid et al. 2000).

FUTURE DIRECTIONS

The literature reviewed above presents a complex portrait of the relation between SES and child development. Researchers have specified, and at least partially examined, numerous mechanisms linking SES and child well-being. Not yet fully known is how the various components of SES interact synergistically with each other or with other aspects of family, neighborhood, peer, and institutional contexts to affect the course of development (McLoyd 1998). It is also difficult to attribute causality to SES because children’s environments interact with their genetic makeup to impact well-being in many different ways (Huston et al. 1997, Wachs 2000). Children with different genetic attributes will respond differentially to the same environmental circumstances. In the diathesis-stress model of psychopathology, individuals who are genetically predisposed to a particular stress-related problem will be more sensitive to stress-inducing experiences (Paris 1999). On the other side of the equation, environments help determine how genes express themselves (Plomin & Crabbe 2000). Genes could have greater or lesser effects depending on environment. Research in the next decade should help explicate how SES operates through multiple mechanisms simultaneously to affect developmental course, how those paths vary across ethnic and cultural groups, and how different components of SES function conjointly to effect different developmental systems.

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