over stressed kids

EXAMINING THE IMPACT OF ECONOMIC INSECURITY ON CHILDREN AND FAMILIES

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INTRODUCTION

A large body of evidence indicates that socioeconomic status (SES) is a strong predictor of school achievement and child outcomes in general. Better child outcomes are associated with family assets; families with greater income, more years of education and steady professions; and living in neighborhoods rich with services and supportive networks.

Data drawn from the fields of economics, education, psychology, sociology, medicine, epidemiology, neuroscience, and biostatistics organized around an integrated conceptual paradigm of environmental, economic, familial, and psychosocial pathways demonstrate ways SES alters the performance of biological systems, thereby affecting family interaction, stress, school success, and child outcomes. Before introducing our models, it is helpful to emphasize a few points:

In general, there is a strong, two-directional association between socioeconomic status and child outcomes across childhood and adolescence. The initial figure focuses on three central components of SES, outlining the impact on family life and configuration, stress, neighborhood, and, ultimately, child educational and social emotional outcomes. Figure 1 depicts a rough sketch of the pathways through which the impact occurs.

Child development is a dynamic process that unfolds over a child's lifetime. The interacting factors — household assets, social supports provided by neighborhood and community of residence, and responsible caregiving — are perhaps the most salient indicators of optimal child development. Race and ethnicity also become important factors because they are a good proxy for the likelihood of attaining and sustaining these relevant indicators of a healthy environment for children. Among these factors, household assets are one of the most significantly aligned with improved child outcomes. Families with assets have the means to support and protect their children more readily. By definition, families with few, no, or negative assets are frequently placed in a precarious position as they strive to navigate a path toward enhancing their child's social, emotional, cognitive, and physical development.

Social-emotional and cognitive functioning are highly interrelated. Their basic foundation is formed early, even prenatally. The architecture of the brain is intricate; higher-level abilities are built on the layers of neural circuits initially developed. MRIs, biopsychology and cognitive neuroscience demonstrate that adverse circumstances interrupt healthy brain and physical development. Although the early childhood years (birth to 5) are very important, it is still possible for adaptive interventions to take place later in life. But remedial interventions often require greater effort to overcome initial delays — and typically at greater expense.

The association of SES and child outcomes begins at birth and extends throughout life, but the strength and nature of the relationship can vary at different stages. The effects of SES in childhood and through adulthood appear to be cumulative, underscoring the value of examining trajectories of SES along with trajectories of risk.

There are multiple pathways through which SES may affect child outcomes, including access to and quality of education and social supports; health care and health-related behaviors; individual psychosocial processes; and physical and social environments. The initial physical and social environmental determinants, the resulting mediating role of the psychosocial processes, and the balance between resources and demands in each stage of development are shaped by socioeconomic forces. For example, poverty, environmental degradation, and vulnerability are interrelated. Poverty impacts health and education because it defines how many resources poor people have and defines the amount of environmental risks they will be exposed to in their immediate environment.[1]

Socioeconomic status and race/ethnicity interact in their associations with educational outcomes. This interaction is documented in the rich data on disparities and can be augmented by further study of racial differences in SES trajectories, material hardship, experiences of discrimination, and the impact of these differences on family configuration, marriage rates, family stability, housing, asset accumulation, parental education, neighborhood of residence, and indicators of health outcomes.

Household-level variables mediated by social support are a critical element in the mix. Loving and nurturing relationships in a household environment provide the context for a child to learn, grow, and thrive. These are typically initiated at birth and the most sustained interactions that a child has early in life. Multiple transactional theories outline how a parent (or caregiver) and child interact with one another over time. In general, if the parent or child has a difficulty that compromises positive interactions, dysfunctional patterns can emerge. Depression and mental health issues are an underlying concern in more than 25 percent of U.S. households, affecting millions of children and families. Furthermore, households with few socioeconomic resources are frequently situated in disadvantaged neighborhoods with overcrowded and/or questionable educational and child welfare systems and inadequate social safety nets, where negative effects are exacerbated.

Social support is a mediating factor in the lives of families. This is a variable with a wide range of outcomes regardless of SES and is of critical importance, as the research points to the centrality and significance of support in the life of every child with positive outcomes. These children have at least one persistent source of support: a strong family network, mentor, teacher, coach, minister, or neighbor — someone who took an active interest in their development, provided guidance, nurturance, and helped mediate stressful situations. Moreover, the level of social support is also a mitigating factor for adults in their personal

[1] Olden, K. (1998). The complex interaction of poverty, pollution, health status. *The Scientist*, *12*(4). 7.

development and parenting roles. Supported parents can be stronger in their own and their children's lives.

Stress

A central concept in our thesis is the role of stress in the life of the child and family. Jack Shonkoff and his colleagues at the Center for the Developing Child at Harvard University have extensively developed the positive, tolerable, and toxic stress framework. There are several key implications that come from this work. Recent scientific advances in the biological sciences emphasize evolving evidence that illustrates the physiological disruptions caused by excessive adversity early in life — and their long-term manifestations as impairments of learning, behavior, and physical and mental health (Shonkoff, Boyce, & McEwen 2009). Stress is any perceived adverse situation that upsets a child, parent, or household, ranging from a homework assignment to a death in the family. Stress is a condition of the mind and a factor of expression that differs among individuals and reflects not only major life events but also the realities and pressures of daily life that elevate physiological systems. This burden reflects not only the impact of life experiences but also genetic variations; individual life-style habits such as diet, exercise, sleep and substance abuse; and epigenetic modifications in development and throughout life that set lifelong patterns of behavior and physiological reactivity through both biological embedding and cumulative change.[2] We will present a more exhaustive overview of stress later in this report.

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[2] *Checklist measures of major life events*

Major stressful life events instruments ask respondents to report which of a list of events (ranging from 10 to 200) happened to them during a specific time line, usually the last year. The events on the list are supposed to be representative of the population of major stressful life events that occur in people's lives. Examples of events include: death of a loved one, loss of a job, being divorced, moving, and going to court. In general, the idea of life events instruments is that whatever major events do to us (e.g., require adaptation, induce negative affect and cognition), this accumulates as the number of events accumulate; the more events, the greater the stress. Some scales make explicit assumptions about the underlying cause by weighing events on certain dimensions instead of just counting the number of events. Examples of such dimensions include: the amount of adaptation required as determined by objective judges and the negative impact of each event as weighted by the respondent or in some cases by judges. Weighting schemes, no matter what their underlying assumptions may be, have not proven to add substantially to the prediction of either mental or physical health outcomes. Measurement of Stress: Many of the studies of stressful life events and health have used the Schedule of Recent Experiences, an instrument developed in the mid-1950s, or the Social Readjustment Rating Scale, an elaboration of this instrument developed by Holmes and Rahe in the mid-1970s. These instruments are not considered state-of-the-art at this time. A detailed history of the evolution of major stressful life event scales can be found in Cohen, Kessler and Underwood Gordon (1995; Chapter 1) and Turner and Wheaton (1995). There are a range of complex questions involved that cannot be addressed in this paper.

There is no life event instrument that is appropriate for all populations or one that is generally accepted in the field. An instrument often used in large general population surveys is the PERI life events scale (Dohrenwend et al., 1984). Lists of major life events scales designed specifically for various populations, e.g., children, adolescents, adults, and the aged, are provided by Turner and Wheaton (1995). An appropriate scale is supposed to have items that represent the population of events that occur in the population under study. This raises questions about the sensitivity (appropriateness) of any of the standard life events instruments for those studying lower SES, specific ethnic populations and young children.

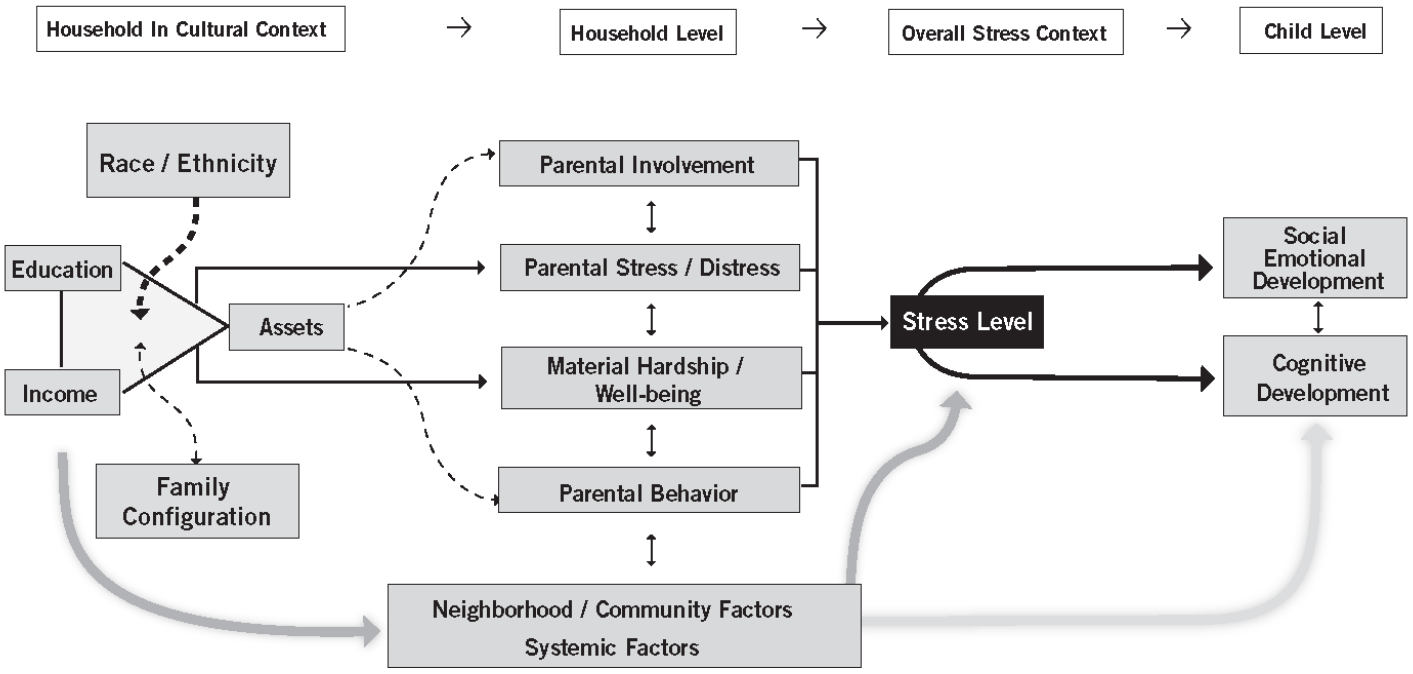
MODEL OVERVIEW

Our purpose in this document is to provide general models that are relevant to all families, incorporating the best empirical literature about the relationships between child outcomes and a household's socioeconomic situation and interactions. The intention is to illustrate how these frequently cited factors are exacerbated and aligned by stress or difficult circumstances that cause long-term difficulties for children in high-risk circumstances. All relationships take place within a larger cultural context, so at times demographic factors such as race and family structure become more salient with an exponential effect on child outcomes. In addition, the quality of public systems and services are frequently related to geographic setting and may have a stronger or weaker influence on the particular risks and opportunities experienced by a child. Finally, we modify the model (figures 2 and 3) to illustrate the dynamic nature of these relationships, highlighting how the developmental trajectory of a child who lives with toxic stress might differ from a comparable child with social supports in a situation of low or tolerable stress.

The models have four main components, which we will introduce here and then describe in more detail in subsequent sections. The first set of relationships is the household's socioeconomic (SES) status and the way that status plays out in a particular cultural context. The second component is household-level interactions mediated by social support, which are influenced by household SES, but also take on their own dynamic based on particular characteristics of the parent or caregiver, family configuration, and the focal child. The third component is what is sometimes called the wider ecological system — characteristics of the residential neighborhood; community resources; systemic influences from schools; child welfare, public health, and other key public systems or institutions; and policy.

All three components contribute to a set of risk and protective factors that result in an overall environmental stress context, the fourth component. When stress is positive or tolerable, all the components work together in predictable ways to influence child developmental outcomes over time. When multiple risk factors exist with few protective relationships, the stressors faced by a child and household can reach toxic levels. High levels of stress are often exacerbated by a range of social and environmental factors in impoverished neighborhoods. When stress is persistently high and sustained at toxic levels, a child's neural circuitry is impacted, which can lead to problems in social-emotional and cognitive development. Again, Figure 1 depicts this basic model.

Figure 1: Generic Overarching Framework



MODEL COMPONENTS

Household Socioeconomic Status in Cultural Context

At the far left of Figure 1 are the core areas of household socioeconomic status. We note income, which is total household income from all sources. We also note education, which summarizes the highest educational attainment of the child's parents or primary caregiver. And finally, we note assets, which are typically measured as net worth — the total value of everything the household owns minus any debt or liabilities owed. However, some studies focus on specific assets, such as home ownership, business ownership or financial wealth (liquid assets that could be easily converted to cash if needed). Research noting the direct relationship between each of these aspects of household SES and relevant household and child outcomes are summarized later, but given the importance of economic security in household interactions and as a potential source of stress, this section will attempt to describe how these various aspects interact.

Dynamic Nature of Income, Education and Assets

Although income, education, and assets can easily be measured separately, in these models they are seen as a dynamic triangle, expanding or declining across a lifetime and generations. Examining SES across the life cycle, there are typically stages of scarcity and abundance. For example, most young adults (or couples) start out with very little. However, if they complete a postsecondary degree and increase their educational attainment, they then have a greater likelihood of earning a higher income over their lifetime. Similarly, if they earn a higher income and/or work for an organization that offers some sort of a matched retirement plan, they will have more resources to invest in building assets or further education. And if they have high net worth and low debt, they have a nest egg to use for further education and training or to fall back on in a time of unemployment or reduced income. The following studies provide empirical evidence for these assertions:

- "In 2009, young adults aged 25-34 with a bachelor's degree earned more than twice as much as young adults without a high school diploma or its equivalent, 50% more than young adult high school completers, and 25% more than young adults with an associate's degree" (Aud, Hussar, Kena, Bianco, Frohlich, Kemp, Tahan, et al., 2011).

- More years of schooling increase the probability of holding financial assets: "asset levels rise significantly with income, age, and education" (Shapiro & Wolff, 2001).

- "Income has a strong, positive association with positive holdings of financial assets" (Shapiro & Wolff, 2001).

- Individuals from a higher-income background are consistently found to have more years of schooling relative to low-income individuals; rates of high school and college matriculation diverge on these grounds as well (Bowen, Kurzweil, Tobin, & Pichler, 2006).

- A family's likelihood of owning assets is significantly influenced by the asset ownership of the parents' parents — by teachings of the value of financial investments. Thus the condition of past generations influences asset accumulation and financial literacy (Chiteji & Stafford, 1999).

Moreover, there are a number of dependent and interacting variables here. If the parents have inherited a home, this may be an asset that the family lives in, or one that could be sold to provide funds for a range of supports that enhance child outcomes, from tutoring and lessons to access to quality health care, private school or college tuition. The dynamic interaction among a range of assets — education, home ownership, business ownership, and retirement savings — provides a supportive environment for the child born into asset-rich circumstances.

Race and Ethnicity

Given the strong influence of household SES on family dynamics and child outcomes, it is crucial to note that economic security is not similarly distributed across racial and ethnic groups. In the U.S. context, a person's race and ethnicity often influence educational and employment opportunity, general health, life expectancy, where one lives, where one worships, and how one is treated by law enforcement and other important institutional systems. It is not possible to neatly summarize the role of race in the United States, so this report will simply highlight recent empirical data showing the correlation between race and ethnicity and household SES.

- Whites are significantly more likely to graduate high school or go on to attain higher education than are blacks and Hispanics. Whites are twice as likely to have earned a bachelor's degree relative to blacks and three times as likely relative to Hispanics (Ryu, 2009).

- Among the major race and ethnic groups, median weekly earnings for black men working at full-time jobs were $673, 79.2 percent of the median for white men ($850). The difference was less among women, as black women's median earnings ($592) were 84 percent of those for white women ($705). Overall, median earnings for Hispanics who worked full-time ($565) were lower than those for blacks ($623), whites ($770), and Asians ($872) (BLS, Department of Labor, 2011a).

- White women earned 81 percent as much as their male counterparts in 2010, while Asian women earned 83 percent as much as their male counterparts. By comparison, Hispanic women had earnings that were 91 percent of those of their male counterparts, while black women earned 94 percent as much as black men (BLS, Department of Labor, 2011b).

- The median income for black and Hispanic households was $32,068 and $37,759, respectively, in 2010, compared with $54,620 for non-Hispanic white and $64,308 for Asian households (U.S. Census Bureau, 2011).

- In 2009, 20 percent of all U.S. children lived in poverty — 12 percent of non-Hispanic white children, 13 percent of Asian and Pacific Islander children, 31 percent of Hispanic children, 35 percent of American Indian children, and 36 percent of black children (The Annie E. Casey Foundation, 2011).

- The most recent poverty statistics indicate that the number of children in poverty increased between 2009 and 2010, rising to 22 percent of all children less than age 18 — and to 39.1 percent of black and 35 percent of Hispanic children (U.S. Census, 2011).

- While 24 percent of Non-Hispanic white children grew up in a single-parent household in 2009, the rate is 40 percent for Hispanic children, 53 percent for Native American children, and 67 percent for black children (The Annie E. Casey Foundation, 2011).

- Blacks and Hispanics are significantly more likely to live in poorer neighborhoods with fewer resources relative to whites; even affluent blacks and Hispanics tend to live in poorer neighborhoods than their white counterparts (Logan, 2011).

There are substantial racial and ethnic disparities in wealth. In 2007, the average white household had 15 times as much total wealth as the average African-American or Latino household. If home equity is excluded from the calculations, the ratios for financial wealth are in the neighborhood of 100:1 (Domhoff, 2011). Moreover, these racial wealth gaps have been increasing: A recent study by the Pew Research Center finds that whites now have 20 times the amount of wealth blacks have and 18 times that of Hispanics. Minority assets have eroded the most since the economic downturn of 2008, with Hispanics hardest hit by the housing market meltdown (Kochlar, Fry, & Taylor, 2011). There are many explanations offered for this reality, including that non-Hispanic white households hold more varied investment portfolios that earn higher returns or that non-white households have a smaller likelihood of receiving an inheritance (Shanks, 2011; Shapiro & Wolff, 2001). There are many good books that provide a detailed historical perspective on how discrimination and biased policy choices impact racial wealth gaps, highlight the intergenerational aspects of this issue, and also provide longitudinal data on the racial wealth gap among various racial and ethnic groups in the United States (Oliver & Shapiro 1997; Lui, Robles, & Leondar-Wright, 2006; Nembhard & Chiteji, 2006).

It is possible to make the case that many of the disparities attributed to race are actually class differences defined primarily by wealth. Using Panel Study of Income Dynamics data to measure the adult outcomes of children, Dalton Conley (1999) analyzes differences in net worth, high school graduation, college graduation, rates of repeating a grade, labor force participation, wages, welfare receipt, and pre-marital childbearing (for daughters). He finds racial differences are either no longer significant or dramatically less so once parental wealth is added to the equation. He argues that to understand the life chances of children, one must take into account accumulated wealth, including property, assets, and net worth. Shapiro (2004) makes a similar case using qualitative interviews to demonstrate how parents use either personal wealth or money inherited from their parents' wealth to create transformative opportunities for their children, particularly through enrollment in better schools. He argues that families and communities use economic resources to create advantages for themselves, often leaving a more disadvantaged public infrastructure for everyone else by default.

Racial and ethnic minorities not only have fewer economic resources themselves, but, because of residential segregation patterns, are also more likely to live and interact in communities that are also income and asset poor. A recent Pew study found that black children are more likely to live in high-poverty neighborhoods throughout childhood and that

living in such neighborhoods increases the chances of downward mobility by 52 percent (Sharkey, 2009). Fewer assets in a community mean less entrepreneurial development, which means fewer businesses providing employment opportunities, which means lower incomes. As Conley (1999) notes: “Because of a dearth of businesses serving ghetto areas, black residents pay higher prices for consumer goods” (p.139).

Family Configuration

Similar to race and ethnicity, family configuration is also closely linked to SES and can have a strong influence on family dynamics and child outcomes. How many adults live together in a household, their relation to one another, and the total number of children are all relevant factors in how young people are provided for and nurtured. As a practical matter, limited resources must stretch further when there are more people to support. In addition, children who reside with both biological parents fare much better on a range of outcomes. One reason suggested for this is that mothers who enter coresidential relationships with biological fathers reported lower levels of parenting stress than those who remain single (Cooper, McLanahan, Meadows, & Brooks-Gunn, 2009). Findings from the Fragile Families study note that in the wake of a non-marital birth, marriage is correlated with an increase in fathers’ earnings and mothers’ income and health; separation reduces both outcomes. Family structure is found to be extremely important for father involvement, while for mothers, family structure and stability are important influences on parenting. Again, it will not be possible for this report to neatly summarize the dynamic nature of family formation in the United States, how economic resources influence family composition, or all the issues being faced (i.e., working moms, stay-at-home moms, teen moms, marriage, separation, divorce, child support, foster care and adoption, grandparents raising grandchildren). It is important to note that all of these circumstances have an implication on family economic security and child outcomes. However, we will summarize recent general empirical data showing some of the relationships between family configuration and household SES.

- In 2007, children living in households headed by single mothers were more than five times as likely as children living in households headed by married parents to be living in poverty — 42.9 percent compared with 8.5 percent (U.S. Census Bureau, 2008).

- “Safe, reliable child care is essential to working parents, but its high cost is especially challenging for low-income families. When low-income working families pay for child care, they purchase less expensive care than higher-income families, but pay a much larger share of their income for it” (McLoyd, 2011).

- Having more children in the household can mean greater material hardship and poorer asset accumulation: “siblings strain material and nonmaterial resources during childhood and decrease adult home ownership, stock ownership, and total assets” (Keister, 2004).

- Single mothers and fathers are economically disadvantaged in terms of wealth accumulation compared to adults without children; single mothers fare worst in household wealth accumulation (Yamokoski & Keister, 2006).

- Single black and Hispanic women have a median wealth of $100 and $120, respectively; the median for single white women is $41,500, a quarter of the median wealth for married or cohabiting white households (Chang, 2010).

- Low levels of personal wealth are associated with relatively later entry into marriage (Schneider, 2011).

HOUSEHOLD-LEVEL INTERACTIONS

In the center of Figure 1 are the core areas of household interaction. We note parental involvement, which has been defined in many ways but is an essential measure of how caregivers relate to their children to personally support their growth and development. We note parental stress, which can come from a range of roles and responsibilities, but, if not properly managed, can lead to distress. We note material hardship/well-being, which is the key area where household SES directly influences family life. We note parental behavior, which includes a range of health and parenting measures and captures many areas where risk factors could emerge. These areas are all interrelated. As with SES, these household interactions can have direct effects and work together to provide an overall positive and reinforcing — or a more difficult and detrimental — environment.

Family Strengths, Parental Involvement and Social Supports

As stated above, family strengths and parental involvement are heavily influenced by socioeconomic status, education, and assets. These elements are determining factors across the range of dynamics that define family strengths.

There are numerous definitions of parental involvement, but the following areas are generally accepted; research literature and public policy provide a range of definitions and measures.

Meeting the Child's Personal Needs: prepare meals; provide clothing, home, clean and healthy environment; meet material needs.

Engage in Meaningful Social Communication: eat meals with parents, talk with parents, parent facilitates activities.

Cultural Communication: discussion of books, films, TV, politics or social issues.

Educational Involvement: help with homework, volunteering or other involvement at school, conferences, communication, etc.

General Investment in Child's Growth and Development: has or buys cognitively stimulating materials; plans and supports active engagement with the child in activities outside the home (church, sports, community service, etc.); engaged in planning and decision making; provides and is attune to the quality of out-of-home care.

Moreover, social, emotional, and cognitive development are strongly influenced by ***parental behavior***. The stability of family life and the capacity to be an involved parent as outlined above are strongly determined by the general warmth and supportiveness of the home environment, parental mental health[3], physical health, substance use or abuse, violence in the home, and/or illegal activity.

Family dynamics are further complicated by the level of ***parental stress***, which is often determined by employment status, household economic security, parents' ability to consistently meet normal obligations, parental marital status and the quality of the marriage or partnership, and the parent's joy and sense of competence in his or her role as parent.

Upon reflection, it is apparent that ***material hardship/well-being*** has a direct impact on parents' ability to provide consistent, ongoing material support (housing, food, utilities, clothing, and supplies needed). Furthermore, material hardship too often results in dislocation, disruption, and mobility, which lead to adverse child outcomes. Such hardship can be defined as a family paying at least half its income for housing; more than two people per bedroom; lack of health insurance; food insecurity; no telephone in the household; receipt of public assistance; or difficulty paying bills.

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[3] Depression affects millions of U.S. adults over their lifetime, many of whom are parents with children. In a given year, an estimated 7.5 million adults with depression have a child under 18 living with them. **It is estimated that at least 15 million children live in households with parents who have major or severe depression (20 percent).** The burden of depression and the barriers to quality of care for depressed adults are increasingly well understood, but the ways in which depression affects parenting, as well as children's health and psychological functioning, are often ignored.
Many factors are associated with depression, including co-occurring medical and psychiatric disorders (such as substance abuse), economic and social disadvantages, and conflicted or unsupportive relationships. These factors typically amplify stress and erode effective coping. For many depressed adults (30-50 percent), depression becomes a chronic or recurrent disorder in a vicious cycle of stress and poor coping that exacts sustained individual, family, and societal costs.
Effective screening tools and treatments for adult depression are available and offer substantial promise for reducing the negative consequences of the disorder. However, not everyone benefits from even the treatments associated with the strongest evidence base, and individual, provider, and system-level barriers decrease access to these treatments. These institutional and sociocultural barriers cause and sustain existing disparities in care for depressed adults. (From: National Research Council and Institute of Medicine. (2009). Depression in Parents, Parenting, and Children Opportunities to Improve Identification, Treatment, and Prevention; Committee on Depression, Parenting Practices, and the Healthy Development of Children, Board on Children, Youth, and Families; Division of Behavioral and Social Sciences and Education, National Academies Press.)
In 2006, there were 73.7 million children under 18 in the United States.

NEIGHBORHOOD, COMMUNITY AND SYSTEMIC FACTORS

At the bottom of Figure 1, we attempt to summarize non-familial environmental factors. In the United States, neighborhoods have great spatial differentiation, with some geographic areas having high concentrations of poverty or affluence as well as a range of public and private resources that contribute to a young person's actual and perceived opportunity structure (Galster & Killen, 1995; Massey, 1996; Casciano & Massey, 2008). Although entire volumes have been published on neighborhood poverty and its potential effect on child outcomes (e.g., Brooks-Gunn, Duncan, & Aber, 2000), this paper will focus on whether community and systemic factors are likely to provide a set of supports and resources that mitigate the stress experienced by a child or, by contrast, add to the risk factors.

The extra-familial environment is important for all households, but it may be a source of support of last resort for households facing multiple disadvantages. Social support refers to the various types of support people receive from others and is generally classified into two (sometimes three) major categories: emotional and instrumental[4] (and, sometimes, informational) support. Emotional support refers to the things people do that make us feel loved and cared for, that bolster our sense of self-worth (e.g., talking over a problem, providing encouragement or positive feedback); such support frequently takes the form of non-tangible types of assistance. By contrast, instrumental support refers to the various types of tangible help others may provide (e.g., help with child care or housekeeping; providing transportation or money). Informational support, which is sometimes included within the instrumental support category, refers to the help others may offer by providing information.

Social support[5] has been found to vary positively with socioeconomic status in studies in the United States, England, and Sweden (Brim et al., 2004; Matthews et al., 1999; Marmot et al., 1997; Östergren, 1991). These patterns are seen for emotional and instrumental support and for men and women, though the differences appear to be somewhat greater for men (Marmot et al., 1997).

[4] A variety of instruments are currently used to assess social support; there is no single, "best" measure. This may partially be because a wide range of different measurement strategies have yielded "scores" that have successfully been related to various child outcomes. Instruments range from single items used to assess whether or not major types of support (emotional, instrumental) are available ("yes/no") (Berkman et al., 2000) to more extensive instruments that include multiple items asking about various types of emotional and instrumental/informational support (Seeman et al., 2002; Cohen, 2004; Schuster et al., 1990). The latter also vary in terms of whether the items are asked regarding specific social relationships (e.g., types of support available from children versus friends; Seeman et al., 1994; Schuster et al., 1990) versus items asking more generally about support available from "others" (Cohen, 2004).

[5] Social support and parental involvement measures suffer from two major limitations. One is the lack of established, gold-standard measures. The various measures currently in use make it difficult to draw conclusions based on comparisons of results across studies. The second limitation relates to the variability of support over time and our inability (to date) to assess these variations and their impact on relationships between social support and/or parental involvement and child outcomes. As a result, we see clear trends that link social support and parental involvement to improved child outcomes; however, with the lack of common measures, there is not sufficient data on consistent variables. But there are strong theoretical reasons for believing such effects exist.

Research also suggests that social stressors that tend to be more prevalent in lower SES environments (e.g., residential crowding, fear of crime, financial strain) are associated with lower perceived support (Lepore et al., 1991), and that these stressors contribute to reductions in reported levels of social support because they tend to foster a distrust of others (Krause, 1994). Although studies have documented cases where high levels of support can be available within ethnic enclaves (e.g., Gans, 1962; Stack, 1975; McLeod & Nonnemaker, 2000), more general population trends indicate that lower-income adults in Western Europe and the United States tend to have smaller social networks and fewer organizational involvements (Cochran, Larner, Riley, Gunnarson, & Henderson, 1990; House, Umberson, and Landis, 1988). They also experience less social support from the community and family members (Atkinson et al., 1986; Conger & Elder, 1994; Evans, 2004; Schoon et al., 2004; Wright et al., 1998).

Social resources also vary by neighborhood socioeconomic status. Residents of disadvantaged neighborhoods have weaker social ties, experience less interpersonal trust, and perceive lower levels of instrumental support and mutual aid (Kawachi, 1999; Leventhal and Brooks-Gunn, 2000; Sampson et al., 1997). Poor neighborhoods have fewer social resources and diminished capacity for informal social controls. Long work hours, severe demands on time, and lack of historical positive interactions with service systems diminishes social interaction. Lower parental education rates widen the gulf between research on child development and daily applications. In many poor neighborhoods, there is no computer in the home, and rural poverty makes access to technology extraordinarily challenging. In summary, social capital is often in short supply in the very communities where it is most needed.

The strongest associations between social support, particularly emotional support, and child outcomes are seen in relation to psychological well-being. A large body of literature documents lower risk of depression and psychological distress more generally for those who enjoy greater social support (see George, 1989, and more recently, Stansfeld et al., 1997).

Social and Environmental Factors

Highly correlated with socioeconomic status is the range of social and environmental factors that have a significant impact on social, emotional, cognitive, and physical child development. There is a strong relationship between living in a chaotic environment and socioeconomic status, as posited in the work of Gary Evans (Evans, 2004; Evans, Eckenrode, & Marcynyszyn, 2010). Some of the most relevant factors are: residential segregation, concentration of poverty, crowding, noise, establishment of routines and rituals, residential relocation and mobility, school relocation, and maternal partner changes.

School's contributions to a child's social environment can be considered less positive for low-SES children relative to their more affluent counterparts; low-SES children are more likely to attend schools that lack resources or rigor (Kishiyama et al., 2009). The negative environmental features faced by low-SES children are not limited to school characteristics:

Poorer neighborhoods have a greater prevalence of social dysfunction than higher-SES ones. Low-SES children are exposed to a relatively greater degree of violence, with U.S. homicide rates highest in the most impoverished areas (Hannon, 2005; Bowen & Bowen, 1999; Jones et al., 2002). In general, children growing up in these environments encounter fewer positive role models. These factors place low-SES children at a higher risk for psychosocial difficulties (McLoyd & Wilson, 1991; McLoyd, 1998; U.S. Department of Housing and Urban Development, 2000).

DIRECT EFFECTS ON CHILD OUTCOMES

Each of the components of socioeconomic status detailed in the model so far has been empirically demonstrated to have a direct effect on child outcomes. These findings are summarized below, organized by domain.

Socioeconomic Status and Wealth

Wealth is a significant determinant of socioeconomic status insofar as a lack of wealth can prohibit individuals from climbing the SES ladder. Households with few or no assets are less likely to have the financial resources — and, often, the social capital and knowledge to navigate these resource systems — necessary to provide their children high-quality early education, college tuition, or inheritances relative to households with accumulated assets (Shanks, 2011; Shapiro, 2004). The effects of wealth on educational attainment are distinct from the effects of income and other socioeconomic background characteristics; Conley (2001) finds, for example, that a doubling of assets is associated with an 8.3 percent increase in the probability of college attendance after high school graduation and a 5.6 percent increase in the likelihood that a college-enrolled individual graduates.

Socioeconomic Status/Income: Social-emotional Outcomes

By whatever index used, poverty is a highly prevalent risk factor for children in the United States. Furthermore, the poverty rate is rising. But the federal poverty line does not fully capture the proportion of families who do not have sufficient resources to meet their basic needs for housing, child care, food, transportation, health care, miscellaneous expenses, and taxes. The Economic Policy Institute estimated that the number of families who do not have sufficient budgets to meet their basic needs independent of outside subsidies is more than 2.5 times that of the number of families with incomes at or below the federal poverty line (Boushey, Brocht, et al., 2001). Families who live in poverty or near poverty continually need to make trade-offs between necessities. For example, 65 percent of families with household incomes between 100 and 200 percent of the federal poverty level experienced at least one serious hardship during the previous year, including food insecurity, lack of health insurance, or lack of adequate child care (Boushey et al., 2001).

Poverty is a risk factor for several disorders and is associated with other developmental challenges. Children in poverty have a greater risk of displaying behavior and emotional problems, such as disobedience, impulsiveness, and difficulty getting along with peers; these children are also less likely to display positive behavior, such as compliance (Dearing, Taylor, & McCartney, 2004; Taylor, Dearing, & McCartney, 2004). Poor social-emotional outcomes among low-SES children beget even more negative outcomes. Family poverty, for example, is associated with a higher risk for teen childbearing, thereby magnifying SES-induced stressors (Bolder et al., 1995; Wadsworth and Compas, 2002; Conger, Conger, and Matthews, 1999; McLeod and Shanahan, 1993; Weinger, 1998). There is some evidence that suggests poverty can have differential social-emotional effects based on its persistence. Moore et al. (2002) note that while long-term poverty is associated with children's inner feelings of anxiety, unhappiness, and dependence, current poverty is associated with behavioral problems such as disobedience and aggression.

Socioeconomic Status/Income: Cognitive Outcomes

The relationship between poverty and poor academic outcomes is well established; low-SES children consistently underachieve educationally relative to their more affluent peers (Brooks-Gunn & Duncan, 1997). Dropout rates, too, are higher among low-SES youth (Moore et al., 2002; Haveman & Wolfe, 1995). While environmental factors such as school quality play a major role, evidence is accumulating that suggests stress factors significantly impede cognitive development as well (Evans, 2009). Additionally, research suggests that poverty's effects on cognitive outcomes may depend heavily on variables such as duration and age of onset of low SES (Guo, 1998; Haveman & Wolfe, 1995).

Socioeconomic Status/Income: Adult Economic Outcomes

The effects of experiencing low SES as a child carry on well into adulthood and can contribute to a cyclical regeneration of poverty. Individuals who experienced poverty as children are much more likely to be poor as adults and will, on average, earn lower wages than those who grew up in more resource-rich circumstances (Corcoran & Chaudry, 1997; Vartanian, 1999; Peters & Mullis, 1997; Hauser, 1997). While upward mobility among the poor is not unheard of, Corcoran and Matsudaira (2005) find that African-Americans who grew up poor are almost five times as likely to remain poor at ages 25-27 as their white counterparts. In a 2008 report, Holzer et al. estimated that the aggregate cost of childhood poverty to the United States is $500 billion, roughly equivalent to 4 percent of GDP (Holzer et al., 2008).

Socioeconomic Status/Income: Health Outcomes

While the connection between poverty and poor health outcomes might be most infamously illustrated through images from regions such as Sub-Saharan Africa, this relationship is very much alive and well in the United States. Food insecurity — more prevalent among low-SES households — can negatively affect children, hitting infants hardest (Klerman, 1991).

Outcomes include poor motor skills, “age-normed growth stunting” (low height-for-age), and “wasting” (low weight-for-age) (Korenman & Miller, 1997; Brooks-Gunn et al., 1999). Poverty is also associated with negative health outcomes on the other extreme of the spectrum; childhood obesity is of great concern, as access to healthy fresh fruits and vegetables and full-service grocery stores is limited in poor communities (Phillips et al., 2006; Wells et al., 2010). Furthermore, poverty has been found to be associated with a wide range of problems in physical health, including low birth weight, asthma, lead poisoning, and accidents (Krieger, Chen, et al., 2005). Poor children are also more likely to experience developmental delays (Brooks-Gunn & Duncan, 1997).

Individuals growing up in low-SES households do not necessarily escape negative health outcomes after childhood. Adolescents in poverty are more likely to suffer from chronic diseases and be physically impaired (Alaimo et al., 2001). Likely influenced by social and cognitive development issues as children, low-SES adolescents also have a greater tendency to become involved in risky behavior such as early sexual activity or smoking (Lowry et al., 1996; Afxentiou & Hawley, 1997; Evans, 2003).

OVERALL STRESS CONTEXT

Given that stress and its ramifications are key mediators in our models and a relatively new concept that is not as well-known, this section will attempt to flesh out the importance of a child’s overall stress context, which is the fourth and final component of our models (noted in the middle of each figure). As stated previously, this concept has been extensively developed by Jack Shonkoff and his colleagues at the Center for the Developing Child at Harvard University (Shonkoff et al., 2004a; Shonkoff et al., 2004b; Shonkoff et al., 2007a; Shonkoff et al., 2007b).[6]

Stress is any perceived adverse situation that upsets children or parents. The situation stresses their interactional system. For children, this could be an immunization, going to school for the first time, preparing for a test, falling off a bike, the death of a pet, or moving to a new home. The stressful indicator is less important than learning how to cope with adversity, which is a vital component of healthy child development. It is important to note that the emphasis here is on the overall stress context as experienced by the child (which may be indicated by the number and intensity of adverse events), not simply a negative emotional or mental state.

Hormones associated with the chronic stress burden protect the body in the short run and promote adaptation, but, in the long run, the burden of chronic stress causes changes in the brain and body that lead to disease and have a deleterious effect on child outcomes. Brain circuits are plastic and remodeled by stress so as to change the balance between anxiety,

[6] http://developingchild.harvard.edu
The impact of early adversity on children's development. (2008). *National Symposium on Early Childhood Science and Policy,* in brief series.
The science of early childhood development. (2008). *National Symposium on Early Childhood Science and Policy,* in brief series.

mood control, memory and decision making. Such changes may have adaptive value in danger, but their persistence and lack of reversibility can be maladaptive. In addition to the developmental influences associated with mother-infant interactions, the most potent of stressors in adult life are those arising from a social environment that can affect brain and body, further exacerbating family disruption. Social ordering in human society is associated with gradients of child outcomes along a scale of decreasing income and education (lower SES is correlated with negative child outcomes). Although the causes of the gradients of child outcomes are very complex, they are likely to reflect, with increasing frequency going down the SES ladder, the cumulative burden of coping with limited resources, toxic environments, negative life events, differences in lifestyle, and resulting chronic activation of physiological systems involved in adaptation. *SES gradients can be seen in pre-disease indicators, such as cortisol patterns.* This may reflect the wear and tear on the body from exposure to stressors and lifestyle factors associated with lower SES. Research indicates that summary scores of these indicators appear to be strong predictors of toxic stress and related negative child outcomes. (Shonkoff et al., 2007a)

All individuals face some stress; this is normal and helps a child mature and build resiliency to deal with life challenges (McEwen, 2008). When we are threatened, our bodies prepare us to respond by increasing our heart rate, blood pressure, and stress hormones, such as cortisol. The definition of overall stress includes the physical, emotional, intellectual, and material deprivations that children experience *directly* as a result of household poverty (e.g., inadequate nutrition, lack of heat, lack of cognitive stimulation) and neighborhood poverty (e.g., environmental hazards, brownfields, violence, inadequate schools and/or social services). These direct stressors experienced by children of any age can have lasting physiological consequences.

When a child's stress response systems are activated within an environment of supportive relationships with adults, these physiological effects are buffered and brought back down to baseline. Tolerable stress represents those factors that are difficult but manageable in the context of a nurturing parental/familial relationship. This type of stress includes events such as a death in the family, a car accident, or severe illness of a family member. Toxic stress, however, is distinct — caused by extreme, prolonged adversity in the absence of a supportive network of adults to help the child adapt*. The stressful experience itself is not the problem, but how the child's body responds*. When it occurs, toxic stress can actually damage the architecture of the developing brain, leading to disrupted circuits and a weakened foundation for future cognitive, social, emotional, and physical development.

These three different types of stress are further outlined below:

Positive stress refers to moderate, short-lived stress responses, such as brief increases in heart rate or mild changes in the body's stress hormone levels. This kind of stress is a normal part of life, and learning to adjust to it is an essential feature of healthy development. Adverse events that provoke positive stress responses tend to be those that a child can learn to control and manage well with the support of caring adults, and which occur against the backdrop of generally safe, warm, and positive relationships. The challenge of meeting new people, dealing with frustration, entering a new child care setting, going to the doctor, and overcoming

a fear of animals all can be positive stressors if a child has the support needed to develop a sense of mastery. This is an important part of the normal developmental process.

Tolerable stress refers to stress responses that could affect brain architecture but generally occur for briefer periods that allow time for the brain to recover and thereby reverse potentially harmful effects. In addition to their relative brevity, one of the critical ingredients that make stressful events tolerable rather than toxic is the presence of supportive adults who create safe environments that help children learn to cope with and recover from major adverse experiences, such as the death or serious illness of a loved one, a frightening accident, or parental separation or divorce. In some circumstances, tolerable stress can even have positive effects. Still, it can become toxic stress in the absence of supportive relationships.

Toxic stress refers to strong, frequent or prolonged activation of the body's stress management system. Stressful events that are chronic, uncontrollable, and/or experienced without the child having access to support from caring adults tend to provoke these types of toxic stress responses. Studies indicate that such stress responses – particularly when they are sustained over time — can have an adverse impact on brain architecture (Lupien et al., 1998; McEwen & Sapolsky, 1995). In the extreme, such as in cases of severe, chronic abuse, toxic stress may result in the development of a smaller brain. Less extreme exposure to toxic stress can change the stress system so that it responds at lower thresholds to events that might not be stressful to others, thereby increasing the risk of stress-related physical and mental illness. Examples include prolonged poverty, homelessness, being raised by a parent with a mental illness, or food insecurity.

The lasting, neurobiological effect on young children (who, along with infants, have particularly malleable neural circuits) who experience toxic stress leads to a far greater likelihood of anti-social behavior, lower achievement in school and at work, and poor physical and mental health — all of which society addresses at great cost (Zhang et al., 2004; Loman & Gunnar, in press; Sapolsky, Romero, & Munck, 2000). Persistent poverty is but one risk factor for toxic stress and its long-term consequences. However, poverty is often the indicator for several aligned stressors including inadequate housing, food insecurity, neighborhood violence, and parental unemployment. Depression in mothers has been demonstrated to exacerbate some of these stressors (Dawson & Ashman, 2000*). The greatest harm comes from the cumulative burden of multiple risk factors, including neglect, abuse, parental substance abuse or mental illness, and exposure to violence* (National Center for Children in Poverty, 1999). *With each additional risk factor, the odds of long-term damage to brain architecture increases* (Shonkoff et al., 2004a; Shonkoff et al., 2004b; Shonkoff et al., 2007a).

In nearly all cases, environmental deprivation exerts a powerful influence on the course of brain development. It must be underscored, however, that the specific effects of deprivation, and the severity of those effects, will vary with the degree, timing, and duration of the deprivation. Individual responses to the deprivation will also vary, and this variation will likely have to do with an individual's genetic makeup and experiential history. There is a visible difference between the effect of an enriched environment and an environment of deprivation on the human brain.

A considerable body of research also suggests that adult disease and risk factors for poor health can be embedded biologically during sensitive periods in which the developing brain is more receptive to a variety of environmental signals, whether positive or negative (Johnson 2005). For example, poor living conditions early in life (e.g., inadequate nutrition, other constraints on fetal and infant growth, and recurring infections) are associated with increased rates of cardiovascular, respiratory, and psychiatric diseases in adulthood (Nomura, et al. 2007). Additionally, early experiences of child maltreatment and poverty have been associated with heightened immune responses in adulthood that are known risk factors for the development of cardiovascular disease, diabetes, asthma, and chronic lung disease (Shonkoff et al., 2010; Shonkoff et al., 2007a; Dong et al., 2004).

In some cases, the cumulative burden of multiple risk factors early in life may limit the effectiveness of later interventions, thereby making it impossible to completely reverse the neurobiological and health consequences of growing up poor and exposed to toxic environments (Kuh & Ben-Shlomo, 2004). Children from lower socioeconomic backgrounds show heightened activation of stress-responsive systems (Lupien et al., 2000), and emerging evidence suggests that differences in parenting related to income and education — as mediated through parent-child interaction, exposure to new vocabulary, and stability of responsiveness — can alter the maturation of selected brain areas, such as the prefrontal cortex (Farah et al., 2006).

A scientific consensus is also emerging that the origins of adult disease are often found in the developmental and biological disruptions that occur in the early years of life. From basic research and policy perspectives, confronting the origins of disparities in physical and mental health in childhood may be more effective than attempting to modify health-related behaviors or improve access to health care in adulthood. Recent findings by Shonkoff, Boyce, and McEwen (2009) support this research and have the potential to help clarify the complicated discourse on health disparities.

COMMON PATHWAYS AND INDIRECT EFFECTS

Some have tried to create theoretical models to show how various SES and household factors interact with one another. The **Family Stress Model** emphasizes that economic hardship (low incomes, high debts/assets ratios, negative financial events) results in “economic pressure” on the family, such as unmet material needs (e.g., food and clothing), inability to pay bills or make ends meet, and the necessity of cutting back on such critical expenses as health insurance or medical care. High economic pressure increases parental risk for emotional distress and behavioral problems through areas such as increased marital conflict and reduced marital warmth; parental involvement and nurturing suffer as a result. Moreover, poor-quality parental involvement translates to poorer cognitive and social-emotional

development of children, reflected in lower-quality social interactions and worsened academic performance (Conger & Conger, 2002; Conger & Donnellan, 2007).

The **Family Investment Model** emphasizes that parents of higher SES have greater access to financial, social, and human capital. Thus higher-SES parents can make significantly greater investments in the development of their children, which may translate into having more learning materials available at home, direct parental support (the quality of which may be enhanced by tutoring or training), a higher standard of living (all needs met), and the ability to live in a safe environment that encourages healthy child development. The existence (or lack) of these investments significantly influences child social and cognitive development in ways that facilitate the well-being of their offspring from childhood into the adult years (Conger & Donnellan, 2007).

More recently, **Interactionist Models** combine aspects of stress and investment in various ways. In these, parental SES influences the tendency and the ability to invest in children. There are often reciprocal relationships between SES and parental behavior. Being stressed about money and financial concerns can lead to reactions that might otherwise be less harsh under better circumstances.

Effects of Family Poverty and Material Hardship

Gershoff, Aber, and Raver (2003) describe three pathways by which poverty affects child brain development. The first is the **parent investment pathway**, where the relationship between poverty and children's cognitive development is mediated by the quality of the home environment, as represented by the amount of cognitively stimulating material in the home, such as books and CDs, and how often parents take their children to stimulating places, such as museums and libraries.

The second is the **parent behavior and stress pathway**, where the parents are considered to be under high levels of stress because of their economic difficulties and because of the occurrence of stressful life events for which they have insufficient resources to cope effectively. This parental stress can lead to increased levels of parental depression and interparental conflict, which, in turn, leads to problems in parenting, including withdrawal from the children, hostility, more frequent use of corporal punishment, and, at extreme levels, maltreatment. Each of these factors has been found to relate to higher levels of internalizing and externalizing problems among children.

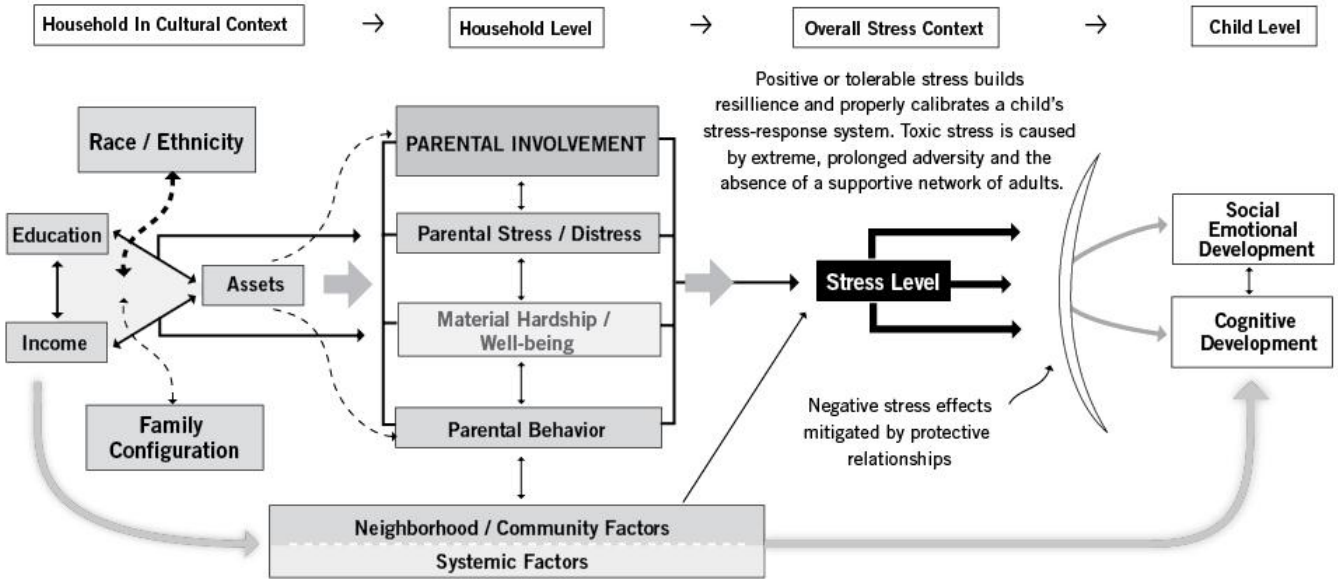
The third pathway involves the **neighborhood and community** in which poor families are more likely to live. Poor neighborhoods and schools are less likely to have the resources that promote healthy child development and are more likely to be settings that expose children to additional risk factors, such as violence and the availability of drugs and alcohol. Gershoff, Aber, and Raver (2003) also describe policy- and program-level interventions that may be

effective in reducing the negative effects of poverty on children. For example, universal Early Head Start focuses on improving child development, family development, and staff and community development.

Research on the income-achievement gap as a formidable societal problem, as well as the neurocognitive and biological mechanisms that might account for income-related deficits in academic achievement, is emerging (Evans 2009). Research shows that childhood poverty is inversely related to working memory in young adults, and that this prospective relationship is mediated by elevated chronic stress during childhood.

Again, these are complex sets of relationships that are difficult to summarize briefly, but there is empirical data that begins to suggest how some of these various components work together. Low-SES households are more likely to have features that impede healthy child development than affluent ones. Material hardship, of course, is much more prevalent among impoverished households (Short, 2005; Danziger et al., 2000). However, other factors play a significant role as well; parental educational attainment, for example, is generally lower in poorer households, which results in a less cognitively stimulating environment for children (Guo & Harris, 2000; McLoyd et al., 1998; Davis-Keane & Sexton, 2009; Davis-Keane, 2005). Different explanations exist for the lower quality of parental involvement in poor households. Whether rooted in stress, economic hardship, or some combination thereof, low-SES parents tend to be less successful at maintaining a high-quality home environment and less able to exert social control over their children (McLeod & Shanahan, 1993; Sampson & Laub, 1994).

Figure 2: Tolerable Stress Household



DYNAMIC MODELS INCORPORATING OVERALL STRESS CONTEXT

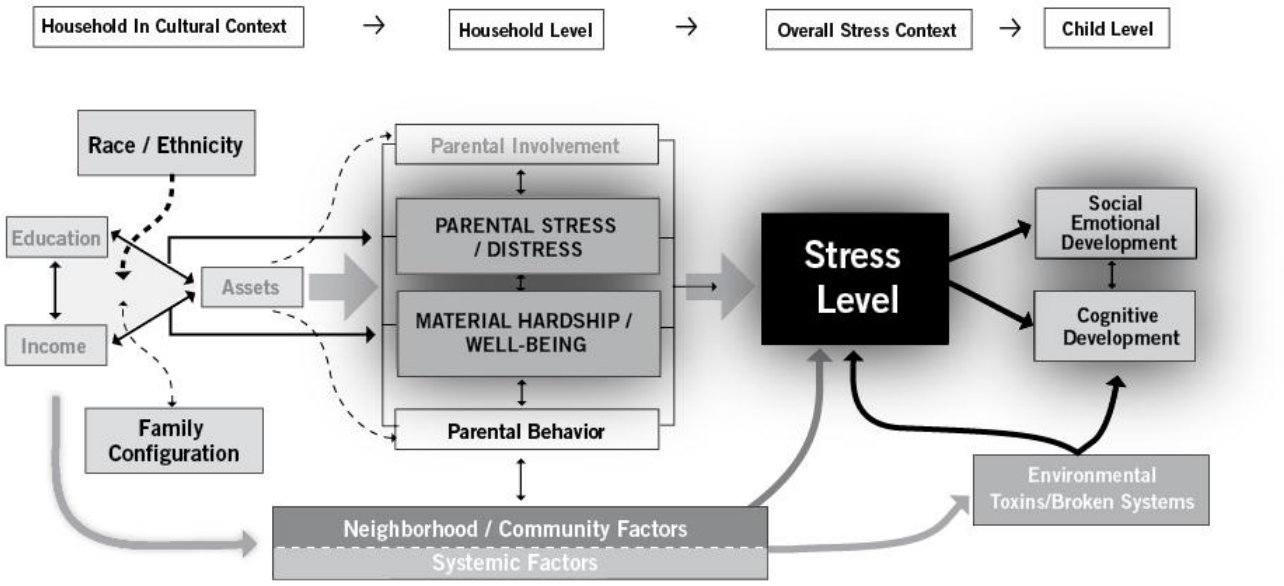
To demonstrate the dynamic nature of our proposed models and illustrate a few key points, we shift Figure 1 to contrast two households, one in a situation of tolerable stress and the other in one of toxic stress. In Figures 2 and 3, we attempt to note the probable distinctions between a tolerable and toxic stress household, which we describe in this section.

In a tolerable stress household (Figure 2), parental education, income, and assets are relatively stronger; this translates to less severe levels of material hardship and an increase in the degree of parental involvement. As a result, the overall stress context is not particularly severe to begin with, and the effects of any existing stressful circumstances on a child are mitigated by protective relationships and resources that are available because of assets or greater overall SES. There is also a strong correlation between positive neighborhoods and systems and assets. Concomitantly, neighborhood, community and systemic factors are generally more supportive and engender positive child development. All of these things combined lead to a situation where a child has the possibility of living up to his or her highest potential and reaching young adulthood with multiple positive options.

In households where children experience toxic stress levels (Figure 3), education, income, and assets are all likely to be at much lower levels. As such, material hardship and parental distress are less manageable; parental involvement is less frequent or of lower quality; and there is a greater occurrence of mental health issues or poor parental behavior such as substance abuse. Neighborhood and local systems are generally more likely to have few beneficial resources and allow exposure to harmful influences, such as violence and negative role models (or, equally bad, the child experiences frequent relocations, including bouts of homelessness). The overall stress context is therefore extremely high, and children, in the absence of protective relationships, face direct neurological consequences. Social-emotional and cognitive development suffer in turn.

The model is a substantial explanation of early developmental gaps between poor and non-poor children, providing a fundamental generic framework that illustrates the salience of income, assets, and education on child outcomes. However, as stated above, the household-level variables are also significant and can have a profound impact on child outcomes as well. For example, the literature on the effects of maternal depression on child outcomes is compelling. Yet, even depression may be exacerbated by lack of economic security.

Figure 3: Toxic Stress Household



MAJOR IMPLICATIONS

Building upon the figures outlined in this report, several implications follow:

Communities need a better way to identify children and households at risk. In addition to screenings and diagnostic tools within local communities, better ways to measure risk factors are required. Our current poverty measures are crude and only based on household income. Rough indicators of assets such as home ownership provide some additional information, but — if not combined with a portfolio of more liquid and other assets as well as debt — does not allow for an accounting of overall net worth. And neither income nor wealth provides a complete picture of overall material hardship/well-being or the relevant neighborhood resources and systemic supports available. Similarly, with better collection of developmental data on children (whether through school or medical records), it will be easier to notice academic, physical, or social-emotional decline as it occurs.

Once at-risk children or households are identified, they need to be offered a variety of options for enrichment and support with several alternate entry points. Supports should reach ALL of the indicated population. The most relevant policy lever is the threat of removing a child from his or her home of origin and the termination of parental rights. This may be necessary in extreme circumstances of abuse and neglect. However, in general, this policy is destructive to the child and the parent. When poverty or mental illness is the primary issue, a less traumatic

option and aligned system of supports and interventions would be beneficial. Although the most immediate need will be to offer better emergency support and preventive interventions for the most marginal in society (low-income, low-wealth households facing multiple barriers), some systems may need to be retooled to assist a wide range of households. With alternate entry points, which could include drop-in options as well as immediate referrals by qualified professionals, children can get required attention when they most need it.

Ideally, options for enrichment can be aligned with interventions that improve economic security by increasing income, assets, and education. In times of crisis, short-term interventions may be necessary, but in the long run, the most valuable strategy for reducing toxic stress is to help households become more economically secure. This way, households will have more resources to provide for themselves. For example, school enrichment activities can be more valuable when aligned with asset-building strategies or other ways to build economic security. A student may not be able to make the most of available activities if he or she needs glasses, individual tutoring, or mental health counseling, or doesn't have a safe and quiet place to do homework. In a time of decreasing resources, it is unrealistic to expect overburdened school and other service systems to meet the needs of all children. When households have regular income, more education, and modest levels of wealth, they are in a much better position to make the appropriate decisions to invest in their child's well-being.

With sustained unemployment and the erosion of work-based benefits, the number of families at risk multiplies. Many workers are facing cuts in health care and pension or retirement benefits, and even more have no dental benefits, vision care, mental health services or disability coverage. As more households lose jobs and benefits, the number of children in need and potentially at risk for toxic stress increases. Creative ways to provide more extra-familial support would be helpful.

Future work in this area could go in several complementary directions:

First, support research to better understand the interconnectedness of systems available to support families. In this regard, all public policies are child development and health policies. Economic, environmental, employment, community-planning, energy-planning, and education policies are intertwined with child outcomes and later adult outcomes. Intentional policy development is mindful of the interaction and interrelated nature of these factors. Whether working at the level of households, neighborhoods, or public systems, a better understanding of how and when children get off track — and the biological consequences — is useful. When major trigger points are identified, it becomes easier to generate a response. For example, the incarceration of a parent, a home foreclosure, a plant layoff, a natural disaster, or a reduction in public benefits might be precipitating events that put a new set of children at risk. In addition to documenting such key triggers, a second step might be to work with professionals within the systems that interact with children to better prepare them to be appropriately responsive. These may include child welfare, education, mental health, health care, economic, and

criminal justice systems (and perhaps even faith- and community-based institutions, if well-coordinated). Training might entail better identifying triggers when they occur and understanding the subsequent processes that often take place within households and neighborhoods, then generating an appropriate plan of action.

Build a toolbox of evidence-based interventions to address particular configurations of need. In this regard, it is important to remember there is no one-size-fits-all solution. With a diagnosis of depression, the entire household will need assistance. But households with no assets that don't qualify for public or private coverage are in a more difficult situation. In a similar vein, all children might need academic support as they prepare to graduate from high school and apply for college or post-secondary training, but children aging out of foster care are in a particularly vulnerable position. According to the model outlined in our figures, all households will do better if they increase their economic security and have more social support. Yet the set of interventions that help them reach these goals may need to differ depending on family circumstances. For example, even with a well-resourced universal safety net that includes progressive subsidies for asset-building, there may still need to be distinct outreach for households facing mental illness, substance abuse, or at risk of family disruption. And the modes of dissemination may differ in rural communities versus urban or suburban communities. Sound research can provide advice on how to deliver similar interventions that might be more effective for specifically identified population needs.

Provide ongoing support to parents and enhance their access to accurate, research-based information, tools, and programs that support healthy development. Particular attention should be paid to cultural, linguistic, racial, economic, and geographic barriers to care and support.

Translate research and develop tools for use by child welfare and protective services, related judicial systems, infant mental health, and early care and education. The systems most likely to interact with low-income households and children at risk of toxic stress should have the best tools available. As effective interventions are proven, the next step is to share the tools and information in ways that can be integrated into our current service delivery system.

Develop specific models and refined theoretical approaches for the five family types with which the Casey Foundation works directly and devise theoretical approaches that achieve distinct outcomes for different population groups:

1. low-income, low-wealth children and families
2. low-income, low-wealth children and families in areas of concentrated poverty
3. low-income, low-wealth children and families with additional barriers
4. disrupted families/children in foster care
5. families at high-risk of disruption

Consider a more intentional look at specific age effects over the course of childhood and adolescence. This would entail a careful look at specific dynamics between assets, income,

and education, as well as household influences in the lives of: infants and toddlers, preschoolers, elementary-age children, middle-school youth, and teens.

There are different dynamics that can be considered at different ages that might be interesting but go beyond the scope of this initial overview of the model.

CONCLUSION

The models presented here are more of a starting point for discussion rather than a final statement. Children and the households in which they live are dynamic and sometimes react to shifting circumstances in ways that are difficult to predict. Our models attempt to synthesize many of the recent and evolving literatures in a way that can lead in productive new directions. The correlation between household socioeconomic status and child outcomes is well-known and has been discussed in multiple disciplines. What these models offer is a lens for not just highlighting persistent and growing inequality in multiple dimensions amongst U.S. households and then documenting subsequent consequences for children, but also providing a way to think about how such inequality is likely to influence what happens within households and the biological circuitry of children throughout their lives.

Exploring commonly discussed direct and mediating influences through the lens of the overall stress context faced by a child allows for several sets of conversations. First, how can the economic security of households be improved in ways that can be demonstrated to strengthen household interactions and reduce biological indicators of toxic stress? Second, if the reality is such that the economic circumstances of a child's household are not likely to change and a situation of sustained toxic stress is apparent, what sorts of immediate interventions can provide a web of support and enrichment to mitigate the worse predicted outcomes for children? And finally, can this only be done on a case-by-case basis, or is it possible to influence mainstream governmental and extra-familial systems in a manner that either prevents situations of toxic stress or reacts quickly and appropriately when they do occur?

Collectively, advances in the field underscore the need for a new era in child and adolescent policy and practice that goes above and beyond the important present focus on enhanced staff development, increased quality improvement, appropriate measures of accountability, and expanded funding to serve more children and families. The streams of evidence from biology and neuroscience need to be better integrated with conversations about policy and promising interventions. Stated simply, current best practice must be viewed as a promising starting point, not a final destination. Grappling with these questions will not lead to easy answers, but might help provide partial solutions that can begin to break the link between household disadvantage and child outcomes.

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