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The Effects of Poverty on the Mental, Emotional, and Behavioral Health of Children and Youth

Implications for Prevention

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This article considers the implications for prevention science of recent advances in research on family poverty and children's mental, emotional, and behavioral health. First, we describe definitions of poverty and the conceptual and empirical challenges to estimating the causal effects of poverty on children's mental, emotional, and behavioral health. Second, we offer a conceptual framework that incorporates selection processes that affect who becomes poor as well as mechanisms through which poverty appears to influence child and youth mental health. Third, we use this conceptual framework to selectively review the growing literatures on the mechanisms through which family poverty influences the mental, emotional, and behavioral health of children. We illustrate how a better understanding of the mechanisms of effect by which poverty impacts children's mental, emotional, and behavioral health is valuable in designing effective preventive interventions for those in poverty. Fourth, we describe strategies to directly reduce poverty and the implications of these strategies for prevention. This article is one of three in a special section (see also Biglan, Flay, Embry, & Sandler, 2012; Muñoz, Beardslee, & Leykin, 2012) representing an elaboration on a theme for prevention science developed by the 2009 report of the National Research Council and Institute of Medicine.

Keywords: prevention, poverty, mental health, child development, adolescence

In the United States, over 20% of children under the age of 18 are officially "poor": This means they live in households with incomes below the federal poverty line. Another 20% of children are "near poor," living in households with incomes between 100% and 200% of the federal poverty line (Aber & Chaudry, 2010; National Center for Children in Poverty, 2009). Poverty is a critical risk factor for many of the mental, emotional, and behavioral (M-E-B) disorders of children and youth (National Research Council & Institute of Medicine [NRC & IOM], 2009). The goals of this article are (1) to assess current scientific understanding of how poverty harms children's M-E-B health and (2) to build on this scientific knowledge base to evaluate past and current efforts to prevent childhood M-E-B disorders and promote child mental health. We focus primarily on the effects of poverty in the

United States; for reviews of the effects of poverty on children's health and mental health globally, and in particular in low- and middle-income nations, see Grantham-McGregor et al. (2007).

The Effects of Poverty on Children's Mental, Emotional, and Behavioral Health

Poverty has been defined by the *American Heritage Dictionary* as "lack of the means of providing material needs

Editor's note. This article is one of three in a special section presented in this issue of the *American Psychologist* (May–June 2012) representing an elaboration on an important theme for prevention science developed by the landmark report of the National Research Council and Institute of Medicine (NRC & IOM, 2009). That report summarized the impressive progress in prevention research that has occurred over the past two decades with children and youth. The report also presented recommendations for the next generation of research and policy initiatives to translate this progress into true improvements in the mental health of America's children and youth. One theme in the report concerns the power of positive aspects of the social environment to promote positive development and to prevent the development of disorder. The current article considers the implications for prevention science of advances in research on poverty as a pervasive risk factor influencing children's mental health. The other articles in this special section elaborate on two other themes in the NRC & IOM report, one of which concerns the preventive impact of early nurturing environments (Biglan, Flay, Embry, & Sandler, 2012) and the other of which concerns the advances made in the prevention of major depression (Muñoz, Beardslee, & Leykin, 2012).

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or comforts.” There is an official definition of poverty used by the U.S. federal government to count the poor and to determine eligibility for means-tested benefits and services: living in a household with a gross income under the official poverty line (about \$22,000 for a family of four in 2009). Multiples of this poverty line serve as the basis for determination of eligibility for particular programs, such as free lunch (below 130% of the poverty line) or reduced-price lunch (below 185% of the poverty line) in the federal school lunch program. Other definitions range from *absolute poverty* (defined as falling below an objective external standard of the cost of meeting the most basic needs) to *relative poverty* (often defined as falling below 50% or 60% of the national median household income), *subjective poverty* (defined as falling below a subjective perception of “the amount of income it takes to barely get by”), and *asset poverty* (wealth minus debt) (Aber, Jones, & Raver, 2007; Haveman, 2009). In addition, poverty has been redefined in the European Community as “social exclusion” (Kamerman & Kahn, 2001; Walker, Tomlinson & Williams, 2010), and the international development community increasingly defines poverty multidimensionally, not only as lack of means but also as the lack of other critical assets for human development, especially health and education (Alkire, 2007).

While each of these specific definitions is linked to this dictionary definition of “lack of means,” they capture different features. Absolute poverty measures are most sensitive to variations in food, shelter, and other basic material needs. Relative poverty is closer to a measure of income inequality at the lower range of income values. Subjective poverty is the most “psychological” measure, capturing subjective perception of need. Poverty definitions matter for the kinds of predictions of processes and out-

comes in different contexts. For instance, researchers have demonstrated that in nations with less than \$5,000 per capita gross domestic product (GDP) per year, absolute poverty most strongly predicts life expectancy; but in communities and nations whose annual per capita GDP exceeds \$5,000, income inequality most strongly predicts life expectancy (Kawachi, Kennedy, & Wilkinson, 1999). Similarly, Gershoff, Aber, Raver, and Lennon (2007) showed that low income is associated with low parent investments of time and money in their children’s learning, but perceived material deprivation more strongly predicts parenting stress and harsh or unresponsive parenting and children’s social/emotional development. U.S. research on poverty primarily uses absolute measures of family income or variants such as proportion of the poverty threshold (often referred to as the income-to-needs ratio).

Cause Versus Epiphenomenon: Challenges to Estimating the Effects of Poverty on Children’s Mental, Emotional, and Behavioral Health

Across many studies, poverty is associated with a range of negative outcomes for children in the realms of physical health, language and cognitive development, academic achievement and educational attainment, as well as the focus of this article, M-E-B health (for earlier systematic reviews, see Aber, Bennett, Li, & Conley, 1997; Duncan & Brooks-Gunn, 1997). But does poverty “cause” those negative outcomes? There are reasons for skepticism about the causal influence of poverty.

First, family poverty is complexly intertwined with a large number of what some researchers refer to as poverty co-factors. These are correlates of poverty, some of which may be determinants in prior generations and some of which may be mediators of the effects of poverty on children. For example, low school attainment and teen parenting both increase adolescents’ chances of raising their children in poverty. Education, achievement, and family structure in one generation can therefore be determinants of family income poverty and then children’s health and development in the next generation. Other correlates of poverty can represent mechanisms through which family poverty affects children—these can include distressed neighborhoods, persistently low-performing schools, less nutritious food supplies, and much more. These exposures to poverty-related risks are sometimes viewed as rival explanations for the association between poverty and children’s health and development. Some have argued that correlates of family income, such as parenting quality, family structure, or parent psychological factors, may be responsible for the observed associations between income and children’s attainment (Mayer, 1997). Finally, a third rival explanation for family poverty effects is the influence of genetic factors, whether one considers these to be genetic factors predisposing to particular parent characteristics or to child outcomes (it may be, however, that genetic influences may differ depending on poverty; Boyce & Ellis, 2005). To establish the causal effect of family income



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poverty on children, it is necessary to account for those *selection factors* that influence who becomes poor and those *mediational processes* that may causally link family income poverty to children's health and development (see Figure 1). Of course, the notion of a causal mediator depends on one's choice of predictor–outcome association. For scholars of neighborhood poverty, family poverty may be a mediator of the effects of neighborhood disadvantage on children.

Second, even if studies include measures of selection factors and mediating processes, the studies must also employ research designs and statistical analyses that permit rigorous causal inference. This is not easy. Susan Mayer (1997) demonstrated the need for and logic of accounting for selection factors in estimating the effect of family income on children's development. By controlling in novel ways for some of the observable characteristics for why some parents become poor or how poor parents differ from nonpoor parents, the strength of the associations between family income and child development outcomes was greatly reduced, though the associations were not eliminated. Studies have addressed these critiques in several ways. Some have used nonexperimental techniques such as sibling fixed-effects models to reduce selection bias (Duncan, Yeung, Brooks-Gunn, & Smith, 1998). Other studies have built on experimental data, both natural and randomized experiments. For example, Morris and colleagues used a technique called instrumental variable analysis to test whether an increase in family income caused by participation in a welfare reform program in turn caused improvement in children's outcomes (Morris & Gennetian, 2003). These two kinds of studies together increase our confidence that family income is causally linked to child M-E-B health.

The vast majority of work on the influence of poverty and related risks on children's health and development has focused on physical health, cognitive development, and academic achievement. The studies examining the influence of poverty on children's mental health are fewer. Nonetheless, the scientific evidence appears to us to be mounting that (a) absolute poverty is a causal influence on the M-E-B health of children, although the magnitude of the association is uncertain, and (b) as such, absolute poverty and poverty-related factors (especially mediating mechanisms) are promising targets for prevention. In the following review, the great majority of the U.S. studies used a definition of poverty as "absolute poverty." In our review, we concentrated on studies that were methodologically sound and that presented important findings about the questions we were addressing.

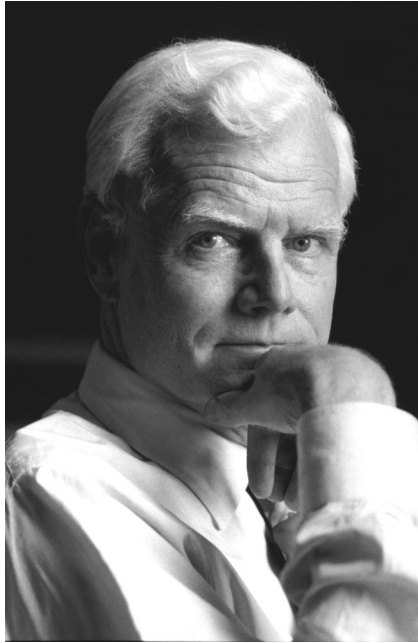
A Conceptual Framework

Our conceptual framework (adapted from Gershoff, Aber, & Raver, 2003) describes (a) parent- and family-level predictors of poverty ("selection" factors); (b) the multidimensional nature of poverty; (c) individual, relational, and institutional mechanisms through which family poverty can affect children; and (d) the multidimensionality of children's outcomes (not only M-E-B outcomes but also physical and cognitive/academic ones). In addition, public policies are conceptualized as potentially targeting any of these sets of factors (selection factors, dimensions of poverty, mediating mechanisms, or child outcomes).

Mechanisms or Mediators of Effects

Poverty has both direct effects on children and mediated effects. Prevention science can build on the evidence base concerning mechanisms of how poverty affects M-E-B health as well as studies on direct effects. When one examines mechanisms through which poverty affects children and their families, factors at three levels need to be considered: *individual*, or child-level, factors, such as quality of nutritional intake; *relational* factors, such as quality of family or peer relationships; and *institutional* factors, which refer to features of parents' and children's broader contexts, such as child care, schools, parental work, and neighborhoods (see Figure 1; Grant et al., 2006).

In addition, dynamic and developmental processes through which poverty operates are important to consider. The effects of poverty are cumulative; consequences at one stage in a child's development can hinder development at a later stage. For example, work by Gilman, Kawachi, Fitzmaurice, and Buka (2003a, 2003b) using prospective longitudinal, national data indicated that subjects from lower socioeconomic status (SES) families had increased lifetime rates of depression, and that together, low parental SES, family disruption, and residential instability were related to depression onset by age 14. To give a specific example, onset of depression was higher among individuals in the sample from lower SES backgrounds (hazard ratio = 1.57; 95% CI [1.08, 2.29], $p < .05$; parents' nonmanual employment at both ages of assessment, rate = 17.2%; parents'



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manual employment or parents not employed at both ages, rate = 26.8%). Other work shows the long-term associations of low SES to adult depression and functioning (Harper et al., 2002; Lorant et al., 2003).

Parent and child stress stemming from economic hardship can link poverty to child M-E-B health through both biological and psychosocial pathways. Parents' poverty-related stress can affect children's biology through chronic activation of biological stress mechanisms or their immune systems (Blair & Raver, 2012; Essex, Klein, Cho, & Kalin, 2002; Lupien, King, Meaney, & McEwen, 2000). In addition, recent advances in developmental epigenetics suggest that particular genetic factors associated with later disease can be activated through experiences of environmental adversity such as chronic poverty (Knudsen, Heckman, Cameron, & Shonkoff, 2006). Children's own awareness of hardship, a psychological mechanism, can also affect their well-being. Dashiff and colleagues (Dashiff, DiMicco, Myers, & Sheppard, 2009) found that effects of poverty on youth quality of life, social adjustment, and suicide risk occurred through youths' perceptions of family economic difficulties.

Family relational processes have been identified as mediators in a large number of studies (Conger et al., 1992; Ge & Conger, 1999; Grant et al., 2006). Poverty is a family experience, as children's access to resources, indeed their social class, is determined by their parents' resources. Economic hardship in several studies was associated with depressed parental mood and marital conflict. These factors were in turn related to higher rates of disorganized attachment in early childhood; to parenting behaviors such as inconsistent discipline in childhood and adolescence; and ultimately to adolescent distress (Conger et al., 1992; Dodge, Pettit, & Bates, 1994; Repetti, Taylor, & Seeman,

2002). In the Dodge et al. (1994) analysis, for example, family SES was correlated with a variety of other factors (harshness of discipline, exposure to violence, life stressors, mothers' aggressive values, etc.). These, in turn, were correlated with externalizing scores.

Among institutional mediators, schooling, parental work, and neighborhood conditions can link family poverty to children's M-E-B health. These occur through parents' function as gatekeepers to their children's care, school, and community settings (Chase-Lansdale & Pittman, 2002), as well as through exosystems such as parental work. For example, school factors such as classroom positive climate and effective instructional practices are less likely to be experienced by children living in poverty (Pianta, LaParo, Payne, Cox, & Bradley, 2002). These characteristics of school environments have been linked to subsequent social adjustment and behavior problems (Pianta & Stuhlman, 2004).

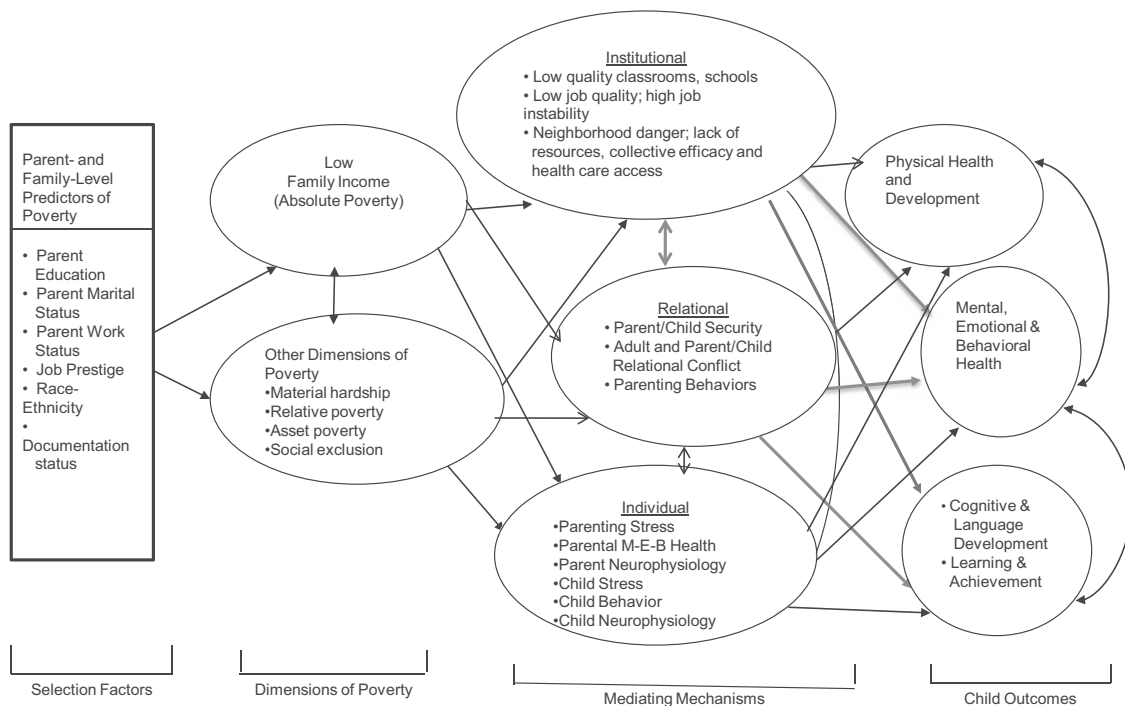
Parents' job quality and dynamics can explain poverty's effects on both relational mediators such as parenting and children's M-E-B health. Lower income parents are at particular risk of low-quality jobs, such as jobs with low levels of self-direction and autonomy, higher physical hazards and tedium, few benefits, and little opportunity for advancement (Perry-Jenkins, Repetti, & Crouter, 2000). Each of these features of parental employment appears to adversely affect children's M-E-B health (e.g., increases in antisocial and withdrawn behaviors; Enchautegui-de-Jesus, Yoshikawa, & McLoyd, 2006).

In addition, parents in low-wage jobs experience higher rates of job instability and job loss than those in higher wage jobs. They are particularly vulnerable to job loss. Job loss adversely affects children's educational attainment through two pathways or mechanisms (Kalil, 2009; McLoyd, 1989). First, underemployment or job loss limits families' economic resources and, hence, their ability to purchase resources and goods, schools, food, housing, and safe environments necessary for development. Second, these economic conditions can reduce parents' psychological resources and parenting quality. Unstable work among lower income parents is associated with higher levels of behavior problems in children through higher parent psychological distress, parenting stress, and reduced ability to provide effective caregiving (Yoshikawa, Weisner, & Lowe, 2006). Job loss also can bring about difficulties in the marital relationship and increases the likelihood of marital breakup, both of which are also associated with M-E-B problems (Kalil, 2009).

Among institutional mechanisms, neighborhood disadvantage can harm child M-E-B health above and beyond the influence of family poverty. Recent experimental as well as nonexperimental studies with strong approaches to causal inference suggest that neighborhood poverty does in fact cause decrements of small magnitude in child and adolescent mental health (Harding, 2003; Sampson, Morenoff, & Gannon-Rowley, 2002). These studies show that this outcome occurs not only through the quality of schooling and the availability of jobs with good conditions, as just reviewed, but also through relational characteristics such as

Figure 1

Conceptual Framework for Effects of Poverty on Child and Youth Mental, Emotional, and Behavioral Health



the neighbors' efficacy to intervene on each others' behalf or the availability of settings that promote positive development, such as structured youth programs (Harding, 2003; Sampson et al., 2002; Small & McDermott, 2006). Effects may be complex and dependent on moderators such as norms in peer networks regarding academics or delinquent behaviors (Kling, Ludwig, & Katz, 2005). Finally, some studies looked at a number of different mediators simultaneously. For example, Eamon (2002), using a sample of youths assessed at enrollment (age 10) and two years later (at age 12) from the National Longitudinal Survey of Youth, found that poverty was significantly related to present symptomatology two years later. He also found that neighborhood problems, outside activities, mothers' depressed mood, and physical punishment partially mediated the relationship between poverty and anxious and depressed symptoms in young adolescents.

Gershoff et al. (2007) empirically tested a model similar to that presented in Figure 1 in a representative national sample of 21,255 kindergarteners from the Early Childhood Longitudinal Study. They first demonstrated an association between both income and material hardship and child cognitive and social-emotional skills. Using mediational analyses, they tested paths from income and material hardship leading to parent investment and positive parenting and then to child outcomes. Two paths were evident. The first showed that as family income increased, parent investment in the child and resources for the child increased, enhancing cognitive and academic skills. The sec-

ond showed that higher family income led to decreased material hardship and stress, which in turn increased positive parenting and reduced child problem behaviors. The final combined model involving both direct and mediated pathways was highly significant. These findings suggest that if the main goal is academic achievement, increasing parent investment is recommended, whereas problem behaviors are prevented by ameliorating material hardship and thereby reducing parent stress. If the goal is to ameliorate both domains of child outcomes, both sets of family processes could be targeted in interventions.

While the vast majority of the literature has examined the effect of absolute income poverty, data are lacking on the influence of other dimensions of poverty. Using a large series of analyses based primarily on countrywide economic and health, educational, and other outcome data, Wilkinson and Pickett (2009) argued that above and beyond the absolute amount of money in a society above a certain minimum, levels of inequality in the distribution of those resources explain variation in average outcomes across nations. They examined health outcomes, education outcomes, mental health outcomes, physical health, life expectancy, and obesity. Those societies that have the largest gaps in income between the richest 20% and the poorest 20% have by far the worst outcomes. Countries with particularly high gaps between the top and bottom are Singapore, the United States, Portugal, and the United Kingdom. In contrast, Japan, Finland, Norway, Denmark, and Sweden have particularly low gaps.

Wilkinson and Pickett also noted that beyond a certain level, increases in absolute income in a society do not lead to better outcomes.

From the point of view of mechanisms, Wilkinson and Pickett (2009) suggested that differences in status, in access, in culture, and in behavior in social hierarchies explain the effect of societal inequality on average outcomes. Although most of the data they described are cross-sectional, they cited the consistency of cross-sectional comparisons as well as some longitudinal data in a limited number of nations, such as Japan. That country became a more egalitarian society across the mid- to late twentieth century, with concomitant improvements in health and other indices. Wilkinson and Pickett also found that social relationships involving social cohesion, trust, involvement in community life, and lower levels of violence are more prevalent in more equal societies. The degree of inequality within a country, as distinct from average poverty rates, may therefore be important to consider. Gaps may occur not only between the richest and the poorest but also between the marginalized or disadvantaged and the more advantaged in terms of their social position, ethnicity, language, or ability status.

Moderators of Effects

In comparison to work on mechanisms or mediators, there has been relatively less research attention paid to moderators of the effects of family poverty on children's M-E-B health or other outcomes. A key moderator is the policy context (see Figure 1). To the extent that a nation provides a stronger safety net for the poor, for example, there may be weakened associations between family poverty and children's outcomes. This has not been tested empirically to our knowledge but is based on theories of welfare states and redistribution of resources (e.g., Arts & Gelissen, 2002; Esping-Andersen, 1990). Another moderator is ethnicity or race. To the extent that marginalized ethnic, racial, or indigenous groups are more likely to be exposed to multiple forms of discrimination beyond the economic, children in such groups may encounter greater risk as a result of their family poverty status due to correlated higher levels of discrimination. Finally, the influence of socioeconomic factors such as family poverty on child outcomes may be moderated by genetic factors. Turkheimer, Haley, Waldron, D'Onofrio, and Gottesman (2003) found that genetic factors explained child IQ among higher SES families, while nonshared environmental factors explained child IQ among lower SES families. This suggests that genetic factors may moderate the influence of family SES on that child outcome. However, this finding needs replication in other data sets and with other child outcomes, such as M-E-B health, in order to be conclusive.

Implications of the Knowledge Base for Prevention Strategies

In this section, we briefly review two types of interventions. The first set of interventions, usually created by experts in child and family development, targets mediating

mechanisms and strives to prevent M-E-B problems among poor children by impacting those mechanisms. This has been the dominant mode by which research has affected prevention strategies for poor children. Because this literature is quite voluminous and relatively well-known by mental health professionals, we illustrate this approach with just a few examples. The second set of interventions actually strives to reduce poverty itself and to assess the effects of reducing poverty on children's health (including M-E-B health) and development. These strategies have been created by experts in economics and welfare policy. Because they are less well-known among psychologists, we review them in more detail.

Strategies That Target Mediating Mechanisms

Many interventions for children in low-income families have been designed, implicitly or explicitly, to target processes thought to link poverty and associated risks with poor child development. In the area of relational mediators, a large set of interventions has targeted features of parenting, including responsiveness (Landry, Smith, Swank, & Guttentag, 2008), cognitive stimulation (Mendelsohn et al., 2007), and attachment processes (Toth, Rogosch, Manly, & Cicchetti, 2006; also see Biglan, Flay, Embry, & Sandler, 2012, this issue). In the domain of parent mental health, a few programs targeting parental depression have shown promising results (Beardslee, Ayoub, Avery, Watts, & O'Carroll, 2010; Muñoz, Beardslee, & Leykin, 2012, this issue). For example, Compas and colleagues (2010), in an intervention focusing on parenting and coping for small groups of families, demonstrated experimental reductions in child and parent anxiety as well as in both symptoms and diagnoses of depression. Sandler and colleagues (2010) showed that an intervention focused on communication and parenting skills reduced short-term depressive symptoms among girls and long-term depressive diagnoses among surviving parents in families that experienced the loss of one parent. Most of these interventions have been indicated prevention programs that have targeted groups of families at broad risk (e.g., low-income families).

At the institutional level, recent meta-analyses of school-based interventions targeting social-emotional learning processes and delivered by teachers in elementary, middle, and high schools clearly document their positive impact on low-income children's social-behavioral problems and psychological distress (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Jones, Brown, & Aber, 2011). The Durlak et al. (2011) meta-analysis analyzed findings from over 200 school-based, universal socioemotional learning (SEL) interventions conducted over a period of 20 years and involving over 270,000 students from kindergarten through high school. Not all of these studies included schools serving children in poverty, but a large number did. The mean effect sizes (ESs) for these SEL interventions were as follows: 0.57 for socioemotional skills, -0.22 for conduct problems, and -0.24 for emotional distress. The interventions also improved academic performance (mean ES = 0.27), which suggests that the

positive impact on M-E-B health did not come at the expense of academics. Importantly, race/ethnicity and urbanicity of the sample (proxies for poverty per se) did not moderate the effects of the interventions on socioemotional skills or on conduct disorder or emotional distress.

There is a growing body of evidence that similar interventions targeted at preschools for low-income children can have the same impact. For example, some interventions have targeted classroom climate and behavior management and have shown successful preventive effects of small to moderate magnitude in reducing behavior problems (Bierman et al., 2008; Raver et al., 2009). Some have targeted multiple mediators—for example, Early Head Start deliberately targeted child development, parenting quality, staff development, and community development processes with some success (Love et al., 2002) and with small short-term effects on children's socioemotional development. These studies have included relatively more universal interventions (i.e., targeting all children in public school classrooms), although the early childhood interventions have generally targeted low-income families. All of these examples (and many more) illustrate the potential value of targeting individual, relational, and/or institutional mediators of the influence of family poverty on children's M-E-B health. For reviews, see Durlak et al. (2011) and the report of the National Research Council and Institute of Medicine (2009).

Programs and Policies That Directly Reduce Poverty

In addition to interventions that target the mechanisms that mediate the relationship between family poverty and children's M-E-B health, poverty reduction per se holds considerable potential for prevention. Programs that directly reduce poverty include those that are contingent on some population characteristic (e.g., having a child under a certain age), a behavior (e.g., work behavior), or an expense (e.g., child care or paying for college or other education) and programs that are unconditional. In rare cases, programs that have not targeted income poverty have nevertheless had some impact on poverty rates (e.g., early childhood programs with long-term effects on earnings, employment, and poverty status). These are mainly conceptualized as policies originating at the distal institutional level in Figure 1. However, more proximal institutions, such as neighborhood organizations, are vital in implementing many of these policies, and some of the programs described have only been implemented by single or small numbers of organizations. Below, we review a half dozen poverty reduction strategies and consider their potential for preventing children's M-E-B problems.

Childhood allowances and tax credits.

Developmentally timed policies have generally targeted the infancy and early childhood periods because of the increased costs incurred at the transition to parenthood; policies have also been sensitive to individual parent decisions regarding the timing of the return to work after childbirth. For example, child allowances provide funds that are flexible so parents can decide whether to spend the money on

infant child care or to replace income lost should they decide to return to work later than the date at which any employer-provided paid leave runs out. The closest policy to a child allowance in the United States is the federal Child Tax Credit, first enacted during the 1990s. It provides for up to \$1,000 in tax relief per child to families. The federal Child and Dependent Care Tax Credit provides a credit of between 20% and 35% of child care expenses claimed, up to a maximum of roughly \$2,000 for a family with two or more children under 13 years old (National Center for Children in Poverty, 2009). However, both of these tax credits are nonrefundable, so families who earn too little income to pay taxes do not qualify. This means that these credits are more likely to help middle-class and near-poor families than poor families. Tax credits later in the developmental course of children's lives include those for parents of students: a variety of college savings plans; IRA benefits for savings for future education; and tax deductions for educational loans. To the extent that these are targeted or provide more resources to lower income families to be able to afford postsecondary education, they may be effective antipoverty policies.

Conditional cash transfer and income supplementation programs. A variety of policies provide extra income contingent on particular behaviors. In the United States, programs have been or are being tested in which income is provided based on work, education, and health behaviors. Work-based income supplementation is a common approach. The most well-known is the Earned Income Tax Credit (EITC), a tax credit for low-income families and individuals contingent on work effort; it represents the country's largest antipoverty policy in terms of spending and also in terms of the benefit for families. This fully refundable credit phases in starting with even \$1 of earnings, builds to a maximum of roughly \$4,000 per year for a family of three, and then phases out, declining from the maximum to zero at about \$40,000 per year of earned household income. The EITC's effects on children's school performance have been evaluated in a study by Dahl and Lochner (2008), who found that with each increase of \$1,000 brought about by income tax credits, children's performance on reading and math standardized tests increased by about 0.06 *SD* (note that the federal EITC provided in 2009 for a maximum that was close to \$6,000 in additional income for a family with three children, which extrapolated would constitute an increase of 0.36 *SD* in such test scores, a change of educational and potentially clinical significance). The effects were somewhat larger for lower income families.

Similar results were found in experimental evaluations of four programs that also rewarded increases in work effort among low-income parents with additional income. Some have been tested in government welfare systems. They function not by reducing welfare benefits dollar for dollar with each dollar of additional earnings but rather by reducing them by a fraction of a dollar. This ultimately results in higher income as parents make transitions from welfare to work. The Minnesota Family Investment Program, a welfare to work program that used such an ap-

proach to “make work pay,” showed positive effects on children’s school achievement and reduced externalizing behavior problems in an experimental design (Gennetian & Miller, 2000). Another program rewarded full-time work with additional cash supplements, child care subsidies, and health insurance subsidies, together with intensive and supportive case management. Implemented in two storefronts by a nonprofit organization, the New Hope Project reduced family poverty rates, increased student school performance, and reduced student externalizing behaviors as measured by teachers (Duncan, Huston, & Weisner, 2007). Externalizing behaviors were reduced by one quarter of a standard deviation in the New Hope Project and by one fifth of a standard deviation in the Minnesota Family Investment Program.

Conditional cash transfers (CCTs) based on educational, health, and other behaviors that help children are currently being tested. The Family Rewards program in New York City (Riccio et al., 2010), one of a larger set of CCT programs being tested, is modeled on international CCT programs such as the Progres/Oportunidades program in Mexico (Aber, 2009; Levy, 2006). It targets very low-income families in high-poverty neighborhoods. In the educational domain, the program rewards school attendance, improvements in primary-grade standardized tests, passing of high school standardized tests, and a variety of other educational behaviors. In the health domain, the program rewards health insurance coverage if all family members are covered and preventive check-ups if all age-appropriate ones are completed. Finally, in the work domain, sustained full-time work and participation in adult education or job training if the parent is also working at least part-time are rewarded. The program is being evaluated using an experimental design. Data from the first year of implementation showed that the average family who qualified for at least one reward (over 90% of the experimental group) received close to \$3,000 (Riccio et al., 2010). In addition, early impact results suggest that the Family Rewards program has reduced hunger and material hardship, reduced the use of check cashers and the use of hospital emergency rooms for routine medical care, and increased family savings and receipt of medical and dental care (Riccio et al., 2010). While the Family Rewards program has not resulted in consistent gains in children’s academic outcomes over the start-up period, the children will continue to be followed over several more years to examine longer term effects.

Adult human capital interventions. A set of interventions related to income supplementation and CCTs are those that aim to increase parental employment and education. For example, many policies implemented in the 1980s and 1990s to reduce the welfare caseload encouraged employment but did not reward increases in employment with additional income. Such programs in general did not reduce family poverty rates (Bloom & Michalopoulos, 2001) in three- to five-year follow-up studies. This is because among the very poor and welfare-receiving families that largely made up the samples in these studies, decreases in welfare accompanied increases in

earnings, with net differences in income being small in size. Interventions to increase adult human capital, through job training or adult education, have also in general not reduced family poverty rates. The programs that have reduced them were ones similar to the New Hope Project or the Minnesota Family Investment Program, which provided job training or adult education but also added income supplementation as a major component of the program.

Natural experiments. One study examined the effects of the opening of a casino, and the ensuing distribution of casino profits to American Indian households, on children residing in one tribal reservation (the Eastern Cherokee reservation). The investigators were able to estimate the short- and long-run impacts of the casino payments on children thanks to a large longitudinal study of both Indian and non-Indian families that had begun long before the opening of the casino. Poverty rates fell in Native American families by 14 percentage points, with no change in non-Native American families (Akee, Copeland, Keeler, Angold, & Costello, 2010; Costello, Compton, Keeler, & Angold, 2003). Overall, children’s symptoms lessened in families that received casino payments, and in the long run, records of minor offenses by age 16 and self-reported drug dealing in adolescence declined and high-school graduation rates increased. Children from households that received casino support were 22% less likely to have been arrested at ages 16–17 than were their unsupported cohorts. Akee et al. (2010) estimated that in this study an increase of \$4,000 per year in family income was associated with an increase of roughly one year of additional educational attainment in adolescence.

Costello and colleagues recently reported a further analysis showing that the children who were youngest and had the longest exposure to the increased family income showed the largest effect. For example, the younger cohort was significantly less likely to have any psychiatric disorder (20.4% vs. 35.6%, odds ratio = 1.4, 95% CI [1.1, 1.9], $p = .015$). The cohort was also significantly less likely to have any psychiatric disorder compared to the Anglo cohort (Costello, Erkanli, Copeland, & Angold, 2010).

Early childhood interventions. Some early childhood interventions that did not directly aim to increase income have nevertheless done so. However, here we caution that few programs have been evaluated for this outcome, and even fewer have achieved poverty reductions. Two outcomes are possible: increases in income among parents in families receiving early childhood services, and increases in income among their children decades later as adults. Few early childhood programs have documented increases in overall parent income, though quite a few have increased parents’ earnings and decreased their welfare use. These include intensive family support programs such as the Nurse-Family Partnership, a nurse home visiting program for low-income first-time mothers that also reduced children’s antisocial behavior at a follow-up at age 15 (Olds et al., 1997). In terms of the magnitude of the effect at the age-15 follow-up, those who received the intervention had an average of 1.3 subsequent births versus 1.6 for the control group ($p = .02$), 65 versus 37 months

between the births of their first and second children ($p = .001$), and 60 months versus 90 months of receiving Aid to Dependent Children ($p = .03$). The study also presented reasonable cost-effectiveness data. The Perry Preschool program, a program combining half-day preschool intervention for four-year olds with weekly visits to homes by preschool teachers, resulted in higher median monthly income at both the age-27 and age-40 follow-ups (e.g., at age 40, \$1,856 in the experimental group vs. \$1,308 in the control group; Schweinhart et al., 2005). As might be expected, the program also increased earnings among program children as adults and reduced their likelihood of receiving welfare. Finally, the program reduced the likelihood of multiple types of juvenile delinquency and adult crime; these effects, in particular, were responsible for the bulk of the economic benefit of the program, estimates of which range from \$6 to \$17 for every dollar invested (Heckman, Moon, Pinto, Savelyev, & Yavitz, 2010; Nores, Belfield, Barnett, & Schweinhart, 2005).

In-kind support policies. A final kind of policy or program that can reduce poverty and improve child outcomes consists of in-kind policies, which do not provide direct increases in income in the form of cash but provide goods, such as nutrition or health care or housing subsidies, that free up household income for other expenditures. The data on the effects of these programs on child mental health are scant. However, several studies showed effects on family and child factors linked to later mental health. Food stamps, for example, reduce food insecurity (Wilde & Nord, 2005); continuous health insurance coverage for children improves a range of pediatric health outcomes and provides access to behavioral treatment and in some cases prevention programs (Center on the Developing Child at Harvard University, 2010). The Women, Infants and Children Program, which provides nutritional supplements, formula, and nutritional counseling to women with infants and young children, improves birth outcomes as well as infant health in the first year (Bitler & Currie, 2005), both of which are related to later behavioral outcomes as well as learning.

Finally, an experimentally evaluated residential mobility program—Moving to Opportunity—offered vouchers to public housing residents to move to low-poverty neighborhoods. Section 8 rental vouchers were given under two conditions: (a) usable only in neighborhoods with less than 10% family income poverty and (b) unrestricted. A control group was not given either of these vouchers. Although take-up in the low-poverty voucher condition was less than 50%, there were reductions in both adults' psychological distress (one tenth of a standard deviation) and female youths' psychological distress (one quarter of a standard deviation) as a result of the voucher offer in that condition. However, for male youths, small increases in risky behaviors were observed (e.g., a 0.15 increase in the number of lifetime property arrests and a 0.07-*SD* increase in psychological distress; Kling, Liebman, & Katz, 2007).

Summary, subgroup effects, and mechanisms of effects. Effects of direct poverty reduction programs differ in some cases by developmental period and

degree of poverty-related risk. One study, synthesizing impacts across the variety of welfare-to-work demonstrations conducted in the 1990s and 2000s, found that the effects were positive (though still small) when experienced by children in early childhood but not when experienced later in childhood or in adolescence (Morris, Duncan, & Clark-Kauffman, 2005). In the tribal casino study mentioned earlier, positive effects on children of family income increases were larger in poorer families (Costello et al., 2003); this was true of the EITC effects on student achievement as well (Dahl & Lochner, 2008). Two studies have suggested that the benefits for children of income supplements contingent on parental work, within low-income families, are concentrated among those at moderate economic risk rather than those at very low or very high risk (Alderson, Gennetian, Dowsett, Imes, & Huston, 2008; Yoshikawa, Magnuson, Bos, & Hsueh, 2003). And finally, one recent study suggests that the quality of implementation of poverty reduction policies—specifically, the quality of caseworker–client interactions in welfare offices—matters both for parent economic effects and child behavioral effects (Godfrey & Yoshikawa, 2012).

Do these direct poverty reduction programs exert their effects on children through the hypothesized relational, individual, and institutional mediators in the heuristic model? The available evidence suggests that similar mechanisms are responsible for these effects. The Nurse-Family Partnership has reduced rates of child abuse and neglect, a particularly harmful form of family conflict, and also improved some parenting behaviors in some of the trials (Olds, 2006). Work-based income supplementation appears to exert its positive effect on children through increases in income rather than employment (Gennetian, Magnuson, & Morris, 2008). Increases in wage growth brought about by one of these programs (New Hope) appear to improve children's behavior through pathways of lower parental stress, as well as through more warm and less harsh parenting (Yoshikawa et al., 2006). The New Hope program also increased rates of marriage among those never-married at baseline; for this group, marriage in turn was related to lower levels of behavior problems in children (Gassman-Pines & Yoshikawa, 2006b).

Conclusion

On the basis of this selective review of key studies, we come to several major conclusions. First, the causal effect of family poverty, and to a lesser extent, neighborhood poverty, on worse child and youth M-E-B health is well established (Akee et al., 2010; Gennetian & Miller, 2000; Harding, 2003; Huston et al., 2003; Kling et al., 2007; Sampson et al., 2002). This causal effect provides a strong rationale for prevention based on poverty as a risk factor. The effect of poverty is independent of associated factors such as levels of parental education or race/ethnicity; there is little evidence that the harmful impact of poverty on child or youth M-E-B health differs by race/ethnicity (Gennetian & Miller, 2000; Kling et al., 2007; Yoshikawa, Gassman-Pines, Morris, Gennetian, & Godfrey, 2010).

Second, if interventions targeted at mediating mechanisms have positive impacts on those factors, they can have a positive impact on children's M-E-B health. This approach to targeting mediating mechanisms is a commonly utilized prevention strategy, one firmly supported by our current knowledge base (Biglan et al., 2012; Muñoz et al., 2012). However, there is relatively little evidence supporting effects of these interventions on family poverty itself.

Third, if a direct poverty reduction strategy effectively increases income and/or reduces poverty, it too can have a positive impact on children's M-E-B health. This antipoverty approach, while also firmly supported by research, is underutilized in prevention science per se but holds great promise. Approaches to poverty reduction such as tax-policy-based earning supplements have shown some promising evidence of success in affecting certain domains of M-E-B health, such as reduced antisocial behavior. The ones that have been tested have largely been selected interventions (e.g., the EITC targets low-income working families; the Moving to Opportunity program targets public-housing residents; the New Hope and Minnesota income-supplement programs target low-income neighborhoods or parents on welfare). Nonexperimental studies of poverty's effects on children also find stronger income effects among the poor than among the middle class or the wealthy (Duncan, Ziol-Guest, & Kalil, 2010).

Fourth, both timing and intensity or magnitude of the intervention matter. Interventions early in childhood and strategies that substantially increase the economic resources available to low-income families appear to have stronger impacts on children's M-E-B health. For example, studies of income-supplement programs suggest that increasing families' incomes, based on work effort, by \$5,000 per year for two or three years would result in decreases in externalizing behavior of roughly 0.5 to 0.6 *SD* (Gennetian & Miller, 2000; Huston et al., 2003). Interventions that the participants know are long term and stable may be more likely to have a more powerful effect, as illustrated by the Great Smoky Mountains Study. That study and others raise another central question in terms of efforts to significantly lessen the effects of poverty on children's development. That is, what magnitude of intervention delivered over what period of time is sufficient to change outcomes in youngsters? More attention should be focused in the future (a) on testing interventions of different magnitudes and durations in terms of both income variables and parenting support variables and (b) on being bold in considering interventions of large magnitude in attempting to effectively diminish the negative effects of poverty on children's M-E-B health and development.

Fifth, many of the interventions described herein were primarily designed to affect one poverty-related risk factor and therefore may require more intensive intervention in that area—or the addition of efforts targeting other poverty-related risks—to bring about greater and more sustained change. In the IOM study, there was considerable support for delivering several different kinds of interventions simultaneously (parenting interventions, classroom interventions, and peer-based interventions), so combining inter-

ventions that affect poverty with other strategies is likely to be successful in the long run (NRC & IOM, 2009). Effective coordination and strategic integration of approaches are likely to be of substantial benefit to families, but only if approaches are not watered down or of low quality.

Given the strong associations between poverty and poor outcomes in many families, the increasing numbers of families in poverty, and the fact that no one strategy has proved successful in breaking the cycle of poverty, it is likely that interventions that are intensive and delivered over several years are most likely to be successful (e.g., the income-supplement programs with effects on externalizing behaviors were of two or three years' duration). Our review also suggests that in the future, desired outcomes and dimensions to be assessed in antipoverty efforts should include a focus on assessing parent well-being and child M-E-B health.

Finally, while considerable research progress has been made in improving our understanding of poverty's effects on children's mental health and/or effective prevention strategies, there are still major gaps in our knowledge base. First, the magnitude of the causal effect of family income poverty on children's M-E-B health is uncertain. On balance, the association does appear to be causal, but its strength is unknown; the studies showing strong causal inference on this issue are still relatively few. How the magnitude of the association varies across different populations and contexts is also understudied. This makes it difficult to calculate the magnitude of poverty reduction through programs and policy that will be necessary to affect M-E-B health. Poverty reduction also has effects on a variety of other domains of child development in addition to M-E-B health, most centrally cognitive skills, school achievement, and physical health. This broader range of effects need to be taken into account in choices about investment of public or private resources in poverty reduction.

Second, with a few notable exceptions, little is known about the cost-effectiveness of these various prevention strategies. Economic analyses of mental health prevention and promotion strategies for children are urgently needed to inform action. Again, it is important to consider savings to society from effects on multiple domains of child and family functioning, including not just M-E-B health but educational attainment, school achievement, and earnings, to name a few with economic implications.

Third, many studies have posited and examined cumulative effects of poverty and poverty-related risk factors (Gassman-Pines & Yoshikawa, 2006a). These studies clearly argue against a "magic bullet" approach involving one single intervention to address one single risk factor or causal mechanism. But how to strategically target multiple interventions on multiple risk factors and mediating mechanisms and how to effectively coordinate these multiple strategies for optimal effect at different stages of the family life cycle are largely unknown.

Fourth, low-income families and their children are enormously diverse. The reality of poverty varies in important ways by geography (urban, suburban, rural), race/

ethnicity, and linguistic community. Although there is no evidence that the magnitude of the effects of poverty on children's M-E-B health differs, for example, by race or ethnicity, levels and degree of variation in poverty do vary by a myriad of demographic factors. And take-up rates, and therefore effects of antipoverty and preventive interventions, can depend on the fit of the interventions with the perceived needs and goals of particular families (Berg, Morris, & Aber, 2011) and communities (Yoshikawa et al., 2010). Antipoverty and preventive intervention strategies are best conceived and implemented in ways that acknowledge and account for variation in such needs, goals, and preferences.

In short, robust research agendas on cost-effectiveness, strategy coordination, and cultural challenges should be mounted and drawn upon to inform the next generation of strategies to promote the mental, emotional and behavioral health of children and youth. In the meantime, a solid evidence base already exists to support adding poverty reduction to prevention and promotion efforts focused on mental, emotional, and behavioral health.

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