

Early-Starting Conduct Problems: Intersection of Conduct Problems and Poverty

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Abstract

The current article reviews extant literature on the intersection between poverty and the development of conduct problems (CP) in early childhood. Associations between exposure to poverty and disruptive behavior are reviewed through the framework of models emphasizing how the stressors associated with poverty indirectly influence child CP by compromising parent psychological resources, investments in children's welfare, and/or caregiving quality. We expand on the best-studied model, the family stress model, by emphasizing the mediating contribution of parent psychological resources on children's risk for early CP, in addition to the mediating effects of parenting. Specifically, we focus on the contribution of maternal depression, in terms of both compromising parenting quality and exposing children to higher levels of stressful events and contexts. Implications of the adapted family stress model are then discussed in terms of its implications for the prevention and treatment of young children's emerging CP.

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INTRODUCTION

The current review addresses the intersection between the development and maintenance of conduct problems (CP) in early childhood (i.e., 0 to 5 years) and poverty. The reasons for focusing on early-starting CP are described in more detail below, but the focus on early childhood also has clear implications for how poverty has been conceptualized to influence emerging CP. Researchers have typically theorized and found poverty to have more independent effects on children's CP following early childhood when they spend more time outside of the home and direct parental care (Ingoldsby & Shaw 2002, Leventhal & Brooks-Gunn 2000); however, recent research suggests that chronic exposure to poverty during early childhood may be more detrimental to later

childhood outcomes than exposure to poverty during the school-age period (Votruba-Drzal 2006). The focus on early childhood in the current article allows us to review the independent effects of poverty on emerging child CP during developmental periods when many of children's daily interactions are presumably physically and psychologically mediated by parental care. In the current review the term "conduct problems" refers to disruptive behaviors such as physical aggression and oppositional behavior (rather than symptoms of ADHD in isolation) that often involve challenging adult authority and/or using physical force in interacting with parents, siblings, peers, pets, or objects. However, many children showing high rates of CP also demonstrate high levels of ADHD, particularly impulsive/hyperactive behavior.

PUBLIC HEALTH IMPORTANCE OF EARLY-STARTING CONDUCT PROBLEMS

There has been growing interest in identifying very young children at risk for early and persistent trajectories of CP (Shaw 2013). This interest was initially motivated by findings from several studies on early- versus late-starting antisocial youth (Moffitt 1993, Patterson et al. 1991). Several researchers have documented that compared with late starters, who begin delinquent activity in middle to late adolescence, early starters show a more persistent and chronic trajectory of antisocial behavior extending from middle childhood to adulthood (Moffitt 1993, Moffitt & Caspi 2001). Early-starting CP that begin in childhood and persist throughout adolescence and adulthood, in the form of antisocial behavior, result in a substantial amount of harm to individual victims and to society. In addition to the serious consequences such behavior has on others, people who commit antisocial acts are often significantly impaired in psychological, social, and occupational domains (Bongers et al. 2004). In fact, although approximately 1% of females and 3% of males in the population meet criteria for the clinical diagnosis of Antisocial Personality Disorder, the prevalence of this disorder in clinical settings has been shown to be as high as 30%, with estimates even higher in substance-abusing and forensic populations (Am. Psychiatr. Assoc. 2000). Early starters represent approximately 6–7% of the population, yet they are responsible for almost half of adolescent crime and three-fourths of violent crimes (Offord et al. 1991). Although so-called early starters were previously not viewed as beginning to engage in serious forms of antisocial behavior prior to age 10, because of researchers' efforts to initiate studies of CP beginning during early childhood (Hill et al. 2006, Moffitt & Caspi 2001, Shaw et al. 2003), it has now been repeatedly documented that a subset of early-starting youth can be identified during early childhood beginning around age 3 (Campbell et al. 1994, 1996; Moffitt 1993; Richman et al. 1982; Shaw et al. 2012).

The impetus for identifying young children and pregnant women whose children are at risk for early-starting CP (Olds 2002) has been further reinforced on the basis of findings from two interrelated areas: onset patterns for early disruptive behavior and preventive intervention research (Shaw 2013). First, children who do not demonstrate high levels of physical aggression and oppositional behavior during the toddler period are unlikely to begin showing clinically elevated levels of disruptive behavior in later childhood or adolescence, with few children initially demonstrating high rates of physically aggressive behavior after age 5 (Shaw et al. 2000a). An example comes from the Pitt Mother & Child Project (PMCP), a study of 310 ethnically diverse, low-income boys followed from infancy to adolescence. Among boys in the PMCP identified at or above the 90th percentile on broad factors of externalizing symptoms at age 2, 63% remained above the 90th percentile at age 5, and 97% remained above the median (Shaw et al. 2000a). At age 6, 62% remained at or above the 90th percentile and 100% (all 18) remained above the median. In terms of the percentages of children who began showing high rates of externalizing symptoms at school entry, rates were low. Only 13% and 16% of boys below the 50th percentile

on the Child Behavior Checklist (CBCL) externalizing factor at age 2 moved into the clinical range at ages 5 and 6, respectively. Interestingly, these data are comparable with those reported by Patterson (1982) for older children and adolescents. Of those identified in the top 5% of externalizing symptoms during school age, 38.5% stayed at or above the 95th percentile, and 100% stayed above the sample mean 10 years later. Similar to the data on school-age children, the stability of CP from early to middle childhood suggests that relatively few “late-starting children” begin to show clinically elevated rates of disruptive behavior after age 2 to 3.

In addition, child CP and parenting practices associated with their persistence appear to be more malleable during early versus later childhood (Reid et al. 2004). Specifically, prevention and intervention studies initiated prior to school entry have shown greater efficacy for treating children with clinically elevated rates of CP than for older children (Dishion et al. 2008, Olds 2002, Reid et al. 2004). The more positive outlook for intervening earlier is likely attributable to several factors, including the shorter duration of the child’s problem behavior (i.e., increased malleability), the decreased likelihood of incurring serious damage to parents’ optimism for change, and the greater probability of children “growing out” of problem behavior in early versus later childhood.

POVERTY AND ITS RELATION TO MALADAPTIVE CHILD OUTCOMES

The America Heritage Dictionary defines poverty as a “lack of the means of providing material needs or comforts,” and in the United States, it is based on gross income for individual households. For example, in 2009, this rate was \$22,000 for a family of four (Yoshikawa et al. 2012). Other criteria for poverty are used to establish eligibility for specific programs, including the free lunch program (below 130% of the poverty line), the reduced-price lunch program (below 185% of the poverty line), or the Women, Infants, and Children Nutritional Supplement program (below 185% of the poverty line). For purposes of the current study, we focus primarily on studies that define poverty on the basis of income. However, poverty is closely intertwined with a number of cofactors (e.g., parental educational and/or occupational attainment, dangerous neighborhood, poor child care and preschools, exposure to toxins), some of which have been considered mechanisms by which poverty is conceived to influence child problem behavior, including CP.

Poverty has been consistently linked to a plethora of maladaptive child outcomes because of how pervasive it is in children’s lives. Young children living in poverty are exposed to a continuous stream of adverse life conditions, including poor housing quality; neighborhood danger; and toxic air, lead, and/or pesticides that cumulatively compromise many health outcomes (Evans 2004, McLoyd 2011). Relative to middle-class children, children living in impoverished families are subjected to higher frequencies of stress-invoking experiences, which can take the form of witnessing or experiencing violence at home, in the neighborhood, or at school; being exposed to family members with mental and physical health concerns; and, relatedly, experiencing higher levels of more harsh and less supportive parenting (Makosky 1982, McLoyd 2011).

Whereas overall rates of poverty are on the rise in the United States, they also continue to be higher for young children than adolescents (21% versus 15%) (Douglas-Hall et al. 2006). Young children are more often in poverty because parents of younger children tend to be younger and, as such, do not earn as much, have less work experience, and typically have higher costs for child care than parents of older children and adolescents (Magnuson & Votruba-Drzal 2009, McLoyd, 1998). Poverty rates are also higher for racial and ethnic minority children: 33% for African Americans, 28% for Hispanics, and 15% for Asians, versus 12% for whites (Fass & Cauten 2008). African American children are also more likely to experience chronic poverty than white children: 5.5 years versus less than 1 year, respectively (Magnuson & Votruba-Drzal 2009). Compared with more

acute instances, early chronic poverty is also linked to greater risk of multiple negative child outcomes (Goosby 2007).

One of the most notable adverse outcomes associated with poverty is poorer academic achievement, which is evident at formal school entry and continues to decline during the school-age period (Magnuson & Votruba-Drzal 2009). Similar associations have been found between poverty and educational attainment (Campbell et al. 2000, Duncan et al. 2008), with findings indicating that low parental income during early childhood and adolescence are particular points of vulnerability linked to lower educational attainment. Another set of outcomes associated with poverty are those related to health, ranging from worse overall health during childhood (Currie & Lin 2007), higher rates and earlier onsets of chronic conditions (asthma, diabetes, hearing, vision, and speech problems) (Magnuson & Votruba-Drzal 2009), and higher rates of mortality during adulthood (van den Berg et al. 2005). A recently developed theoretical model (Miller & Chen 2013) has suggested that poverty gets “under children’s skin” at the cellular and tissue level by long-term exposure to the stressors described above: By placing the body on chronic conditions of alert (e.g., inflammatory response), poverty compromises immune functioning and leads to life-threatening diseases in adulthood, including heart disease, stroke, autoimmune disorders, and some cancers.

POVERTY AND EARLY-STARTING CONDUCT PROBLEMS

Among mental health outcomes, child CP are consistently found to be associated with poverty (Magnuson & Votruba-Drzal 2009, Yoshikawa et al. 2012). Whereas data from passive longitudinal studies on associations between indices of poverty and children’s CP are consistent in the literature, from the perspective of public policy and prevention science it is also critical to know whether these links are causal (E.C. Shelleby, E. Votruba-Drzal, D.S. Shaw, T.J. Dishion, & M.N. Wilson, manuscript under review). A growing literature using experimental and quasi-experimental designs suggests that relations between income and child behavior problems may be causal. For example, using longitudinal data from the National Longitudinal Survey of Youth and econometric modeling techniques, several studies have uncovered small, but significant, links between family income and child CP (D’Onofrio et al. 2009, Votruba-Drzal 2006). Dearing et al. (2006) have replicated these findings using longitudinal data from the NICHD Study of Early Child Care and Youth Development. Results from one of the few studies that has relied on data from a “natural experiment” (provided by the opening of a casino on an American Indian reservation) further support this assertion (Costello et al. 2003).

In addition, some of the strongest support for a causal relation between family economic circumstances and children’s CP comes from studies using experimental data from an evaluation of the Minnesota Family Investment Program. Evaluation of this program involved random assignment of welfare recipients with young children into either a treatment group receiving employment training and financial supplements that would insure that increases in maternal employment would be accompanied by greater family income or a control group receiving Aid for Families with Dependent Children. Children of families in the treatment group showed moderate reductions in CP relative to those in the control condition (Gennetian & Miller 2002, Morris & Gennetian 2003). A limitation of this study, however, was that it was not able to tease apart the effects of income improvements from benefits of maternal employment. Taken together, findings from this body of work suggest that the association between poverty and CP is not simply a spurious link between risk factors associated with low income that may also influence CP, but that low income serves as a risk factor for increased CP.

GENETIC, SOCIALIZATION, AND COMMUNITY FACTORS ASSOCIATED WITH EARLY-STARTING CONDUCT PROBLEMS

Perhaps the one consensus in the field is that genetic, socialization, and community factors all make independent and important contributions to the emerging development of early-starting CP (Campbell et al. 2000, Shaw 2013). Consistent with the literature on risk factors associated with antisocial behavior during middle childhood and adolescence, several risk factors across child (presumably, primarily genetic in early childhood), family, and community domains have been linked to early-childhood CP. In addition to direct measurements of child aggressive and oppositional behavior (Tremblay et al. 2004), other child factors reliably associated with CP include negative emotionality (Bates et al. 1985); fearlessness (Shaw et al. 2003); and problems with verbal, spatial, and language skills (Moffitt 1990). As with more direct measures of disruptive behavior, continuity appears to increase when initial assessments of child attributes are carried out when children are at least 2 to 3 years old (Shaw et al. 2000b) and when children show CP in early childhood across contexts and informants (Campbell et al. 2000). Although relatively few genetically informed studies have been conducted in early childhood that would permit researchers to unpack the genetic/biological versus environmental etiology of these early variations in child attributes linked to early-emerging CP (Leve et al. 2009), on the basis of twin and adoption studies it is reasonable to assume that individual differences in such attributes as negative emotionality, fearlessness, and verbal skills are at least moderately linked to genetic influence (Goldsmith et al. 1997) and moderated by perinatal risk and postnatal environmental risk and support.

Given young children's physical and psychological dependence on parents as well as the rapid rate of physical and social maturation infants and toddlers undergo, it should not be surprising that both parent attributes and dimensions of caregiving have been more reliably linked with the development of CP than actual child behavior prior to age 2 (Shaw 2013). From social learning theory, parenting management practices that model and reinforce disruptive behavior are hypothesized to be associated with increasingly frequent and severe CP that begin during the "terrible twos" and escalate in intensity (or at least fail to decrease as they would for most children) during the preschool and school-age years (Shaw et al. 2003). With respect to attachment theory, parenting characterized by insensitivity and low responsiveness would lead to distrustful internal working models and, owing to a history of unresponsive care, children who develop little motivation to comply with parental requests for prosocial behavior (Erickson et al. 1985, Lyons-Ruth et al. 1993, Shaw & Bell 1993). Thus, studies of harsh, rejecting, and overcontrolling parenting (Campbell et al. 1996, 2000; Shaw et al. 1998) and assessments of insecure and disorganized infant attachments have documented longitudinal associations with CP and more serious forms of antisocial behavior in adolescence (Shaw et al. 2012). In addition, family factors that may compromise parenting quality (e.g., parenting hassles, quality of social support, marital quality) and, in some cases, model and/or condone antisocial behavior (e.g., parent antisociality, parent depression, parental conflict) have also been linked to early-starting CP (Jouriles et al. 1991; Shaw et al. 2000a,b, 2012).

HOW THE EFFECTS OF POVERTY HAVE BEEN THEORIZED TO INFLUENCE CHILD PROBLEM BEHAVIOR

Various theoretical models have been proposed to explain how poverty influences child problem behavior. Most of these models emphasize indirect links between poverty and child functioning that are mediated by parenting or other common risk factors of low-income ecologies (e.g., exposure to toxins, quality of institutions) on the basis of the notion that young children have few opportunities or requirements to spend money themselves (Gershoff et al. 2007, Yoshikawa

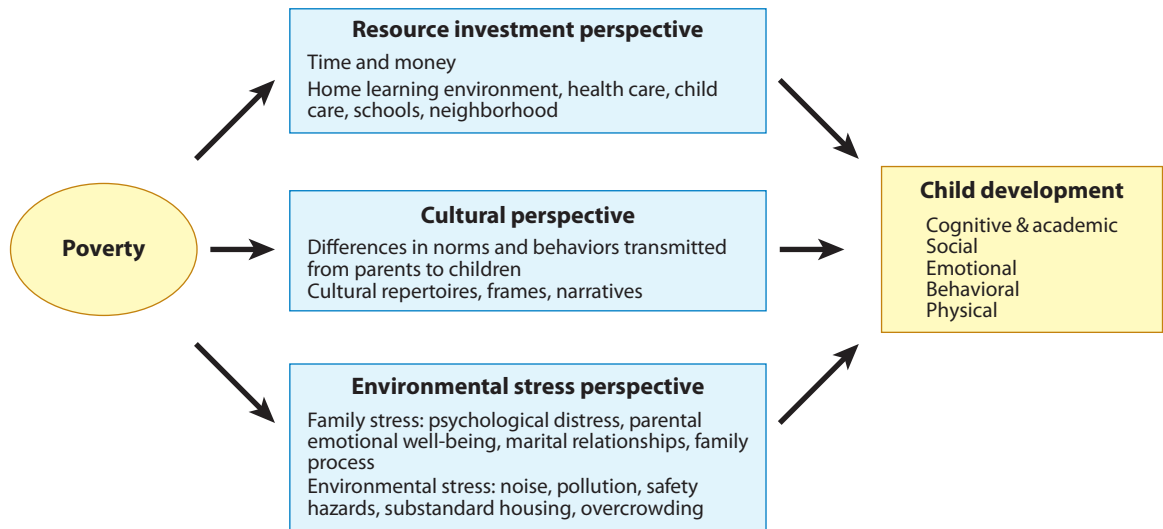


Figure 1

Models and mechanisms by which poverty influences child development (adapted from Magnuson & Votruba-Drzal 2009).

et al. 2012). Other models focus on genetic factors that may predispose parents or children to demonstrate patterns of maladaptive behavior that lead to child CP, including selection factors that may lead some parents to become or remain poor. When such parental selection factors have been accounted for, associations between poverty and child maladaptive outcomes continue to be evident, albeit reduced in magnitude (Mayer 1997); thus, our review focuses predominantly on factors that are developmentally salient for young children and, hence, would be mediated by parents and the quality of the child's home environment. The two most prominent of these frameworks are the family stress perspective (e.g., Elder 1974) and the investment perspective (e.g., Becker 1991, Mayer 1997). An additional perspective that focuses on cultural norms (e.g., Lareau 2011, Lewis 1969) is also reviewed briefly because poverty researchers have expressed interest in this framework as an additional pathway through which poverty may influence child behavior (see Magnuson & Votruba-Drzal 2009). **Figure 1** provides an overview of each model, suggesting that the effects of poverty on different domains of child functioning should be mediated by parenting, parenting attitudes, parental investments, or other environmental stresses associated with being poor.

The family stress model of economic hardship has been described as one of the most widely examined explanations for the association between economic disadvantage and child mental health outcomes (McLoyd 2011). This framework was originated by Elder (1974) in studying the influence of income loss and unemployment on families during the Great Depression. Elder found that, rather than having direct effects on child outcomes, economic strain indirectly influenced children's mental health through the effects that such hardship placed on the family context. This theoretical perspective was expanded by Conger and colleagues in studying the patterning of effects of the Iowa farm crisis on family functioning and child mental health and behavior (e.g., Conger & Elder 1994, Conger et al. 1994), and it has since been applied to low-income minority families and urban populations (e.g., McLoyd et al. 1994, Mistry et al. 2002). Applying the family stress model to CP shows that children are affected by socioeconomic disadvantage through the increased level of stress such hardship places on families as they struggle to make ends meet (see **Figure 2**). The

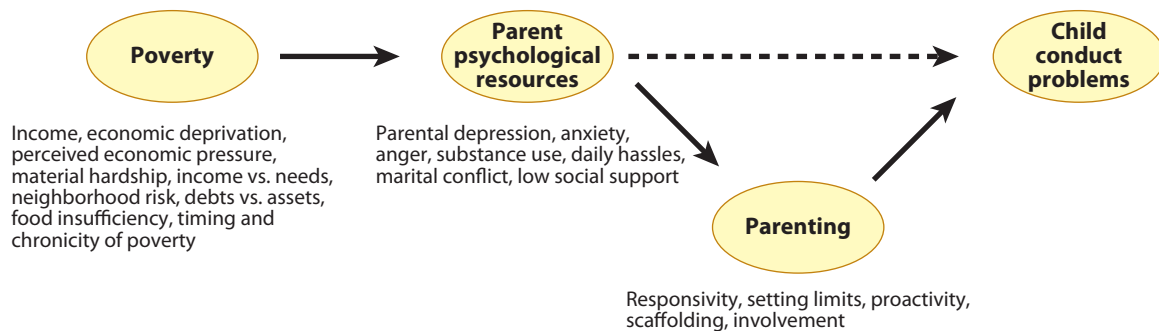


Figure 2

The family stress model applied to early-starting conduct problems.

cumulative effect of chronic stressors associated with poverty such as single parenthood, life stress, financial worries, and ever-present challenges to make ends meet are hypothesized to compromise parental psychological functioning (Mistry et al. 2002), leading to higher levels of distress such as anxiety, anger, depressive symptoms, and substance use in disadvantaged parents (Conger & Donnellan 2007). Compromised psychological functioning in turn negatively affects parenting behavior, leading to increased parental conflict; greater harsh, physical, and inconsistent discipline; less responsiveness to children's needs; and less supportive and involved parenting (e.g., Brody et al. 2002, McLeod & Shanahan, 1993). These family stressors and negative aspects of parenting then compromise child behavioral and mental health outcomes as well as academic functioning.

The investment perspective is another theoretical framework to explain the process through which economic disadvantage affects child outcomes. Originally postulated by economists writing about household production, this theory suggests that higher income allows families to invest more resources in the human capital of their children; such investments in turn are proposed to afford children with greater chances for positive outcomes across development, including higher achievement outcomes and well-being in childhood and higher wages and better life circumstances in the long term (e.g., Haveman & Wolfe 1995, Mayer 1997). Accordingly, families with lower incomes are less able to invest in assets that would enrich children's learning, such as educational tools, cognitively stimulating toys and services, enrollment at high-quality schools, and time spent on teaching children. Poorer families are also less able to invest in other types of materials and services that foster overall child well-being, such as high-quality child care, adequate health care, and safe home and neighborhood environments (Conger & Donnellan 2007, Magnuson & Votruba-Drzal 2009, Yeung et al. 2002). Empirical research has supported this theoretical framework linking income and investments. For example, the work of Mayer (1997) has shown that, compared with higher-income counterparts, lower-income families are more likely to live in houses with more defects, live in neighborhoods with more crime, and spend less money on food and stimulating toys and outings, all of which may compromise child developmental outcomes.

Finally, although less often applied in psychological research examining the effects of income on child behavior, cultural theories rooted in the field of sociology may explain how income influences parenting and child behavior. Lewis (1969) proposed that economically disadvantaged individuals are influenced through a "culture of poverty," such that living in persistent poverty engenders specific cultural norms, values, beliefs, and practices that become long-standing in poor families and communities. As researchers have noted, many scholars moved away from this framework because it was seen as a form of blaming those who experience poverty for perpetuating disadvantage and negative outcomes (Small et al. 2010). For example, Lewis (1969) hypothesized

that, although structural factors outside of one's control may initially give rise to differing values, beliefs, and behaviors associated with poverty, over time these values, beliefs, and behaviors may be perpetuated in families and communities and can serve as a cause for continued poverty across generations (Magnuson & Votruba-Drzal 2009). However, more recent applications have attempted to consider how cultural influences are associated with disadvantage without necessarily suggesting that the perpetuation of these cultural norms gives rise to continued poverty or that poverty can be attributed to the values and the beliefs of those who are poor (e.g., Magnuson & Votruba-Drzal 2009, Small et al. 2010). Applied to studies of early child development, this perspective suggests that socioeconomic disadvantage influences cultural norms and expectations about parenting and child behavior that, in turn, influence the ways in which parents from disadvantaged backgrounds raise their children and, consequently, how children behave (e.g., Lareau 2011). For example, Lareau (2011) has suggested that, compared with more advantaged parents who view their parenting role as actively promoting the well-being and development of their children, economically disadvantaged parents view their children's development as "unfolding naturally" and therefore requiring little promotion outside the provision of resources to meet basic needs (see also Magnuson & Votruba-Drzal 2009). Lareau (2011) describes this distinction as the "concerted cultivation" viewpoint of middle-class parents versus the "natural growth" perspective of lower-income parents. In ethnographic work, Lareau provides specific examples of differences in beliefs and norms that may be related to socioeconomic differences, such as how parents from a working-class family may encourage their child to fight back if other children become aggressive at school, and how this may put them at odds with school personnel. Therefore, differences in parental beliefs and the messages that children are given regarding acceptable behavior that may vary systematically by socioeconomic status (SES) may also have an important influence on the behaviors children demonstrate.

APPLYING EXTANT MODELS OF POVERTY TO EARLY-STARTING CONDUCT PROBLEMS

The Family Stress Model

As a result of young children's physical and psychological dependence on parents as well as the influential contributions that parenting and factors that compromise parenting quality have on the development of CP during early childhood (Shaw et al. 2000b), it follows that all three of the aforementioned models would be relevant to young children's emerging CP. First and foremost is the application of the family stress model to early-starting CP. Consistent with Belsky's (1984) seminal work on the determinants of parenting and, more specifically, Patterson's (1982) model of family stress and parent-child coercive processes in early-starting CP, an abundance of literature suggests that factors that compromise parenting quality, including low income and the stressors associated with poverty (e.g., neighborhood risk, parental social support, parental well-being), foster the development of CP. Low levels of parental sensitivity and responsivity to infant cues (Martin 1981; Shaw et al. 1994, 1998) affecting the parent-child relationship and attachment quality in the first year (Erickson et al. 1985, Lyons-Ruth et al. 1993) as well as use of harsh and overcontrolling parenting during the "terrible twos" (Campbell et al. 1996, Martin 1981, Shaw et al. 1998, Smith et al. 2013) have consistently been linked to CP in early childhood; in some cases, they have also been associated with more serious forms of antisocial behavior through adolescence (Shaw et al. 2012). In terms of assessing the validity of the family stress model more formally by testing whether the effects of poverty on CP are mediated by parenting quality, several, but not

all, studies have found that links between sociodemographic risks and CP are mediated through compromised parenting (e.g., Dodge et al. 1994, Linver et al. 2002).

Although many early studies applying the family stress framework focused on majority racial/ethnic groups, rural populations, two-parent families, and older children and adolescents, more recent studies have begun to focus on racially/ethnically diverse samples, families living in both rural and urban settings, single-parent households, and children of younger ages (e.g., Barnett 2008). For example, in a cross-sectional study extending the family stress model to ethnically diverse children ages 5–12 from an urban area and who were part of the New Hope Project, Mistry et al. (2002) found that economic hardship and pressure were indirectly linked to higher child CP and poorer social competence through the impact on parental psychological distress and compromised parenting. Additional studies focusing on children in middle childhood have found similar results supporting the family stress model in explaining the association between economic disadvantage and CP within this age group (e.g., Brody & Flor 1998, McLeod & Shanahan 1993).

Although research focusing on early childhood is more limited, existing studies have supported the validity of the family stress framework for early-starting CP. Focusing on a sample of urban single mothers and their preschool children ages 3–5 in a cross-sectional study, Jackson and colleagues (2000) found that financial strain was associated with higher maternal depressive symptoms, which were associated with compromised parenting and linked to higher child behavior problems (combined CP and emotional problems). Furthermore, there was a direct association between depressive symptoms and child problem behavior. Similarly, a recent longitudinal study by Rijlaarsdam and colleagues (2013) assessing 2,139 children from the prenatal period to age 3 found that maternal depressive symptoms, parenting stress, and harsh discipline mediated the effects of economic disadvantage on early CP. Findings from a longitudinal study by Linver et al. (2002) applying the family stress model to a preschool sample of children across ages 3–5 demonstrated that the influence of economic disadvantage on child behavior problems (including both emotional problems and CP) operated through maternal emotional distress and parenting. The authors also found that the magnitude of associations in their models for young children was higher than associations reported in adolescent samples (e.g., Barnett 2008, Linver et al. 2002). Even among studies that have not formally tested the family stress model, associations between insecure or disorganized infant attachments and emerging CP have been more consistently found in samples of low-income parents versus those with higher SES (Erickson et al. 1985, Lyons-Ruth et al. 1993; versus Fagot & Kavanagh 1990), suggesting that the effects of insecure or disorganized attachments on child CP are exacerbated in low-income contexts.

The Investment and Resources Model

The investment framework has most frequently been applied to explain the association between poverty and cognitive/achievement outcomes because of the more direct theoretical path linking the provision of more cognitively stimulating toys and services, the enrollment of children in higher-quality schools and day-care settings, and the ability to spend more time teaching children to cognitive achievement rather than to problematic social behavior. In fact, some researchers suggest that the important mediating mechanisms explaining the influence of poverty on child outcomes depend on the specific outcome being assessed (e.g., achievement versus CP). For example, one study directly comparing mediating mechanisms to explain income's association with child achievement and child behavior problems (including both CP and emotional problems) in 3- to 5-year-old children found that investment in stimulating materials and activities mediated the association between income and achievement and that parental emotional distress and parenting

practices mediated the association between income and child CP (Yeung et al. 2002). However, to the degree that more stimulating cognitive resources and environments also foster prosocial socioemotional development (Hart & Risley 1995), the investment perspective could also apply to the development of early-starting CP.

Other research has demonstrated that investment in resources is also significantly associated with behavioral outcomes such as CP. For example, Linver and colleagues (2002) examined investment in stimulating experiences, maternal emotional distress, and parenting as mediators of the link between income and both child cognitive ability and child CP in a sample of children followed from infancy to age 5. Although only investment in stimulating experiences mediated the relation between income and children's cognitive outcomes, Linver et al. (2002) also found that maternal emotional distress, parenting, and investment in stimulating experiences in the home served as mediators of the link between income and child behavior problems. Similarly, in a longitudinal study of children 9 to 36 months old that explored both investment and family stress mechanisms, Kiernan & Huerta (2008) found that the association between economic deprivation and child CP was mediated through maternal depression and parenting and, to a lesser extent, through investments (e.g., reading time with children). This study also found the investment perspective to be a more fitting explanatory mechanism for differences in children's academic outcomes.

In both basic and experimental research, scholars have found significant links between functioning across domains, such that there can be positive associations between maladjustment (or positive change) in one domain and maladjustment (or positive change) in another domain. Research suggests that approximately 10% to 50% of school-age children who exhibit CP also demonstrate poor academic achievement (Brennan et al. 2012, Hinshaw 1992). This association between CP and poorer achievement is especially important given the host of negative outcomes that can stem from greater levels of CP in combination with low achievement, such as affiliation with defiant peers, engagement in delinquent behavior, and school dropout (e.g., Brennan et al. 2012, Moilanen & Shaw 2010). With regard to intervention studies, consistent with the research of Hart & Risley (1995), positive collateral effects of interventions intended to impact one domain (e.g., cognitive outcomes) can often impact other domains (problem behavior). Examples of such collateral effects from parenting-based interventions designed to reduce child CP are evident: For example, the Family Check-Up not only showed intervention effects on parenting and CP two to five years after the intervention was initiated with low-income 2-year-olds (Dishion et al. 2008, 2013; Shaw et al. 2006) but also found collateral effects on emotional problems (Shaw et al. 2009), language and inhibitory control (Lunkenheimer et al. 2008), and academic achievement (Brennan et al. 2013). Thus, although the investment model may seem more directly applicable to children's cognitive outcomes from a theoretical perspective, parental investment in stimulating experiences and environments for children appears to be another meaningful pathway through which income may influence the development of early-starting CP.

Culture of Poverty Perspective

Although the culture of poverty perspective has only recently been resuscitated, the contribution of parental values to parenting and subsequent child problem behavior has a long tradition in child development dating back to Baumrind's (1971) typologies of parenting styles, which were heavily influenced by sociological models of socialization (i.e., Parsons & Bales 1955). Accordingly, each of Baumrind's original three parental typologies were heavily informed by philosophical and attitudinal values regarding the appropriate balance of parental authority (authoritarian versus authoritative parenting) and children's autonomy to govern socialization (i.e., permissive

parenting). Relatively few studies have applied the cultural perspective to the development of CP in early childhood, but some relevant research has been conducted.

For example, Dodge et al. (1994) examined eight variables tapping aspects of socialization as mediational mechanisms to explain the link between low SES and higher child CP. Using the “culture questionnaire” scale, they explored mothers’ values toward aggression as one mediating mechanism: Mothers reported on their values toward using aggression to solve problems, answering questions such as whether they would encourage children to defend themselves by hitting another child after being teased. The authors found a significant association between SES and mothers’ aggressive values, such that lower-SES mothers endorsed greater aggressive values for child behavior. Higher endorsement of aggressive values, in turn, was linked to higher CP in children. Unfortunately, the authors did not isolate each of the eight socialization predictors in the mediational models, but overall, their work indicates that the eight socialization predictors account for some of the effect of low SES on higher child CP.

REVISITING THE FAMILY STRESS MODEL: DIRECT INFLUENCES OF PARENTAL PSYCHOLOGICAL DISTRESS ON CHILD CONDUCT PROBLEMS AND OF PARENTING ON PARENT PSYCHOLOGICAL DISTRESS

As noted above, as a result of children’s psychological and physical dependence on parents, the family stress model posits that the effects of poverty on children’s CP should be mediated by its effects first on parental psychological distress, then on parenting quality, before affecting children’s behavior. In fact, this model should be especially valid during early childhood versus later developmental periods because of children’s increasing physical and psychological autonomy. Accordingly, parenting is expected to have a relatively greater magnitude of association with child CP and more serious forms of antisocial behavior during early childhood than during adolescence. For example, consider results from the Pitt Mother & Child Project and the Pitt Early Steps Project. First, on the basis of data from the urban, predominantly low-income Pitt Mother & Child Project, parent supervision and limit setting in adolescence has been associated with lower levels of subsequent adolescent antisocial behavior. However, the benefits of these parenting practices were moderated by neighborhood quality, such that the association between parenting and youth antisocial behavior was nonsignificant for those youth living in project neighborhoods (Shaw et al. 2004).

Second, although conducted in the same urban, low-income neighborhoods, the Pitt Early Steps Project used an independent sample of children recruited on the basis of child, family, and socioeconomic risks to examine the moderating role of parental involvement in relation to associations between neighborhood risk and child CP during early childhood. This project found that high levels of involved parenting serve as a protective factor in relation to early-starting CP across levels of neighborhood risk (Supplee et al. 2007). In contrast to the abundance of research consistent with such a “double-mediation” perspective conducted during early childhood (Dodge et al. 1994, Linver et al. 2002, Rijlaarsdam et al. 2013), there are also clear examples of direct associations between parental psychological distress and child CP that are not mediated by parenting.

In addition to the studies by Linver and colleagues (2002) and Rijlaarsdam et al. (2013), other nonexperimental and experimental studies also suggest that pathways from poverty to parental psychological distress and then to child problem behavior, including CP, are not entirely mediated by compromises in parenting. For example, past studies have linked economic hardship to depressed parental mood and marital conflict, which in turn have been associated with higher rates of disorganized attachment in early childhood, a reliable indicator of CP (Repetti et al. 2002). Unstable work among low-income parents also has been linked to CP as a result not

only of compromises in caregiving quality but also of high levels of parenting stress and parent psychological distress (Yoshikawa et al. 2006).

In a longitudinal study of 310 boys from low-income families, maternal depression ($d = 0.73$) and low satisfaction with social support ($d = 0.80$) were assessed when children were 18 to 24 months old. In later teacher reports of child aggression at age 8, these factors had higher effect sizes than did parenting ($d = 0.5$), which was also assessed at age 2 (Shaw et al. 2000a). In an experimental study in which 731 low-income families were randomly assigned to the Family Check-Up as an intervention designed to address parent management issues during the “terrible twos,” the effects of the intervention on the slope of children’s CP from ages 2 to 4 were accounted for not only by improvements in positive behavior support but also by maternal depressive symptoms (Dishion et al. 2008, Shaw et al. 2009). Importantly, both parenting and maternal depression accounted for the independent mediational effects. In an effort to unpack the processes by which parenting and maternal depression influence the course of emerging child CP, a recent follow-up study of the same sample suggests that high levels of maternal depressive symptoms at age 2 lead to lower rates of parent-child positive engagement and higher levels of parent-child coercion at age 5 (Reuben et al. 2013). When path models were computed from age-2 maternal depression to age-5 observed parenting to teacher reports of different types of adaptive child behavior at school, associations between early maternal depression and later child behavior were sometimes (i.e., for child inhibitory control) but not always (not for child social skills and peer acceptance) mediated by the two parenting factors.

To increase the complexity of the interrelationship between parenting and maternal depression, using the same sample Shaw et al. (2009) found that the Family Check-Up, with its focus on improving parenting skills, was associated with improvements in maternal depressive symptoms at child ages 3 and 5 (Reuben & Shaw 2013). Why should interventions directed at improving parenting also affect maternal well-being? Parents spend disproportionately more time with younger children relative to school-age children and adolescents. Thus, during early childhood, parental well-being is likely heavily influenced by the stresses associated with parenting and the overarching quality of the parent-child relationship. In addition, parental well-being is expected to be disproportionately affected by parenting issues during the toddler period, when parenting satisfaction decreases relative to the first year because of the challenges of dealing with a physically mobile but cognitively limited toddler (Fagot & Kavanagh 1993, Shaw & Bell 1993). Low-income parents may be particularly vulnerable to frustrations associated with parenting toddlers because of the greater probability of being single parents and not having the resources to afford high-quality out-of-home child care. Hence, good caregiving skills and adequate financial resources were provided to address parenting skills at a point of developmental transition that routinely challenges parents. As a result, parental well-being also improved for this sample of low-income mothers.

REVISITING THE FAMILY STRESS MODEL FOR CONDUCT PROBLEMS FOR YOUNG CHILDREN LIVING IN POVERTY

Based on the pattern of findings reviewed above, we suggest that with respect to early-starting CP for children living in poverty, it would behoove researchers to formally revise the family stress model so that it more accurately reflects the direct effects of compromised parental psychological resources on children’s emerging disruptive behavior. From an empirical basis, most research on parent psychological resources has come from work on the effects of maternal depressive symptoms among samples of low-income families (Shaw et al. 2009, 2012). Whereas other models have also recently conceptualized dimensions of parent psychological resources to exert independent effects on a variety of child mental, emotional, and health outcomes after accounting for the contribution

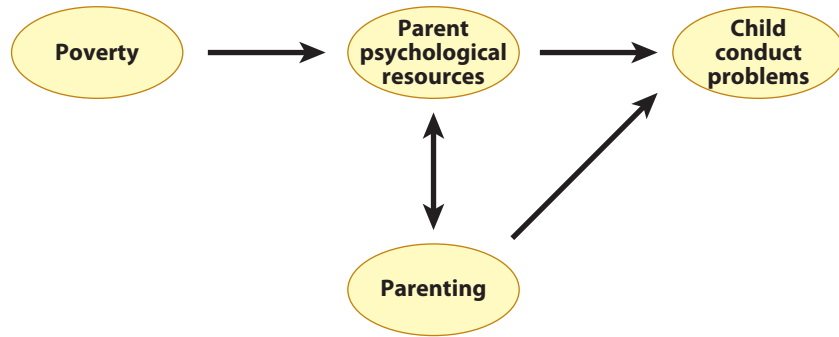


Figure 3

Family stress model applied to early conduct problems: revised to show bidirectional associations.

of parenting with both young and school-age children and adolescents (Yoshikawa et al. 2012), we believe that the direct contribution of maternal psychological distress (most consistently measured as maternal depressive symptoms), in particular, merits special attention in relation to young children's emerging CP. As shown in **Figure 3**, we also posit that bidirectional associations are evident between parenting and maternal depression and other forms of parental distress, particularly during the "terrible twos" when frustrations associated with rearing a physically mobile but cognitively unsophisticated toddler have been linked to decreases in parental satisfaction relative to the infancy period (Fagot & Kavanagh, 1993, Shaw & Bell, 1993). Consistent with this notion, even within the context of poverty, symptom levels of maternal depression have been found to decrease in early childhood in low-income samples after peaking at age 2 (Reuben & Shaw 2013, Shaw et al. 2000b). Findings from both developmental and experimental intervention studies also suggest a similar bidirectional association between parenting and maternal depression (Conger et al. 1994, Shaw et al. 2009). Although it is relatively commonplace for models of parenting and maternal depression to posit bidirectional influences between parenting and parental well-being (Belsky 1984, Goodman & Gotlib 1999, Goodman et al. 2011), perhaps for the sake of simplicity proponents of the family stress model have often suggested a one-way path from maternal depression and other forms of psychological distress (e.g., parenting stress, low social support, marital dissatisfaction) to suboptimal parenting. However, ample evidence from both passive longitudinal studies and experimental intervention trials suggests both parenting effects on maternal well-being and maternal depression effects on parenting (Shaw et al. 2000b, 2003, 2009).

Mechanisms Underlying Lack of Mediation by Parenting on Associations Between Maternal Depression and Early Child Conduct Problems

We now focus on revisiting and revising the family stress model specifically in relation to young children's emerging CP for families living in poverty. Although the family stress model is awaiting further empirical validation and theoretical development, more research has been done with this model than with either the parental investment and resources model or, especially, the culture of poverty perspective. Thus, we have focused our attention on revising it rather than the other two. In addition, from a theoretical perspective, the logic linking parenting and parental psychological resources to child CP stands on firmer ground than does the investment and resources model, which focuses more directly on how poverty compromises opportunities parents have providing enriching resources for learning in and outside the home and associations with children's cognitive outcomes, including academic achievement at school.

Addressing the links between poverty and CP in very young children ages 0–5, current work may beg the question, How could the effects of parental psychological distress not be mediated through parenting? Indeed, there are substantive reasons for why theorists of the family stress model have been hesitant to posit direct associations between maternal depression and other types of psychological resources and child CP (and other child outcomes) that are not mediated by parenting. Consistent with children's greater levels of psychological and physical dependence on parents during early childhood relative to later developmental periods, it follows that parenting behavior shown by the caregiver should be the primary vehicle through which the pervasive stressors of poverty are communicated to young children. In fact, depending on the content of parenting factors assessed and their quality of measurement (e.g., based only on self-reports, covering narrow dimensions of parenting that have been not consistently related to CP), parenting should account for some of the direct effects found between parental psychological resources and child CP. Nonetheless, given the consistency of findings across variations in the quality of measurement, the scope of parenting factors assessed, and research designs (e.g., cross sectional versus longitudinal versus longitudinal and experimental), variations in parent psychological resources likely contribute independent variance to the development of early-starting CP beyond their indirect influence on CP through parenting.

To increase the focus of this discussion, we here highlight maternal depression rather than other measures of parental psychological resources because of the substantial body of research linking lower income to higher levels of parental depression, specifically maternal depression (Goodman & Gotlib 1999, Shaw et al. 2009). Individuals of lower SES backgrounds experience depression at significantly higher rates than those of higher SES backgrounds (Lorant et al. 2003). Furthermore, whereas an estimated 17% of mothers of young children demonstrate elevated depressive symptoms (Horwitz et al. 2007), this percentage increases to nearly 50% in the context of low SES (Hall et al. 1985). In addition, depression has been measured more than any other individual parental factor in relation to both parenting and child CP (Goodman et al. 2011, Shaw et al. 2009). Even though we agree that an examination of associations between maternal depression and emerging child CP (e.g., hostile, rejecting, and inconsistent caregiving; modeling of these behaviors; higher rates of acrimonious, coercive interaction) may account for many facets of parenting previously linked to maternal depression, models from developmental psychopathology also suggest alternative paths by which the effects of maternal depression may be transmitted intergenerationally during early childhood.

First, genetic factors have been implicated in the intergenerational transmission of depression and other forms of psychopathology related to emotion dysregulation, including child CP (Kovacs & Devlin 1998): Genetic associations increase in relation to the severity of adult depression and earlier timing of onset (Goodman & Gotlib 1999). Genetic factors may also indirectly increase the risk of CP by increasing the heritability of specific traits linked to CP, such as expression of negative emotion (Plomin et al. 1993) and irritability (Goldsmith et al. 1997), which in turn place young children at greater risk to react to stressful life events in a disruptive manner. Note that the genesis of individual differences in negative emotionality and irritability may be genetically mediated or, if the mother is depressed during the pregnancy, mediated through prenatal exposure to neuroendocrine alterations associated with depression, such as constricted blood flow to the fetus (Kagan 1994). Both of these genetic and prenatal mediated pathways likely increase the stress of parenting for depressed mothers relative to nondepressed caregivers, thereby exacerbating parenting stress and subsequent levels of maternal depression. Consistent with this perspective, using the intervention literature Patterson and colleagues (2004) found that improvements in parenting were related to decreases in child CP, which in turn were

related to decreases in maternal depression. However, changes in maternal depression were not immediately evident until improvements in child behavior were apparent.

Second, another reason that the effects of maternal depression on child CP have not been found to be mediated through parenting involve the measurement of parenting. Maternal depression is often characterized by the omission of caregiving behaviors that are routinely carried out by nondepressed parents. Such omissions may not be captured readily in many parenting coding systems. For example, depressed mothers demonstrate high rates of passivity and withdrawal when interacting with their young children (Gelfand & Teti 1990). Some of this inactivity would be evident from coding contingent reactive responsivity to infant cues during infancy and the toddler period. However, as this style of inactivity also likely includes opportunities to be proactively responsive by anticipating young children's developmental needs (e.g., anticipating trigger events that elicit frustration or anxiety; bringing toys to entertain on long car rides, at the grocery store, or when waiting at the doctor's office), such inactivity would less likely be captured in traditional assessments of parenting (Dishion et al. 2008, Gardner et al. 2003). Thus, parenting may be a stronger mediator of the associations between maternal depression and child CP than previously found because of inadequacies in measuring idiosyncratic caregiving dimensions commonly shown by depressed parents.

Third, the consistent covariation in the adult literature between stress and depression may explain why parenting may not account for the association between maternal depression and early-starting CP. Perhaps most relevant for children living in poverty, who are already exposed to high levels of stressful events in their daily lives, Hammen (1991) has suggested that many of the negative life events experienced by depressed adults, including parents, may represent a consequence rather than a cause of their depression (Goodman & Gotlib 1999). Evidence for this mechanism of transmission comes from multiple sources. For example, compared with mothers who were medically ill or physically well, depressed mothers reported higher levels of stress in the domains of marital and social relationships, finances, and employment (Hammen 1991). Among these domains, perhaps the most consistent stressor for which children of depressed mothers are exposed is marital conflict, which has been identified as another consistent predictor of child problem behavior, including CP (Gotlib et al. 1998). At a broader level, maternal depression has also been linked to underclass neighborhood mobility. Using a low-income, urban sample from the Pitt Mother & Child Project and after accounting for such factors as race, parental criminality, family income, and educational and occupational attainment, Winslow et al. (1999) found that maternal depression independently predicted downward mobility among residents of nonunderclass neighborhoods (i.e., to project neighborhoods) and remaining versus leaving underclass (i.e., project) neighborhoods. In addition, living in project neighborhoods was related to a more persistent and high versus high desistant course of child CP from ages 2 to 6 (Winslow & Shaw 2007). This mechanism of greater exposure to stressors complements and expands the perspective of Evans (2004), who characterized the daily environmental stressors experienced by low-income children and noted their greater exposure to structural deficits in the quality of their housing (e.g., leaky roofs, rodent infestation, poor heating), higher levels of air pollution, and neighborhood levels of crime including shootings (Evans, 2001, 2004). Exposure to these stressors may be amplified for low-income children living with a depressed parent, who would likely place young children in more vulnerable contexts than nondepressed mothers living in poverty.

IMPLICATIONS FOR A HYBRID MODEL FOR BASIC RESEARCH, PREVENTION, AND INTERVENTION

Despite our focus on revisiting and revising the family stress model specifically in relation to young children's emerging CP for families living in poverty, we encourage future longitudinal

and experimental research to test the validity of both the investment and resources model and the culture of poverty perspective in relation to young children's CP. As demonstrated by Hart & Risley (1995) and others (Brotman et al. 2012, Lunkenheimer et al. 2008), positive collateral effects on interventions intended to impact one domain, such as CP, are commonly found to have an impact on others, including interventions that seek to improve cognitive abilities on child problem behavior. Although research driven by the culture of poverty perspective is limited in relation to CP (Dodge et al. 1994), particularly in early childhood, it may be helpful to explore how cultural differences in the appropriate use of aggression emerge from a developmental perspective. For example, when are such differences first communicated to children in early childhood (e.g., infancy, toddler period, preschool), and beginning in the late toddler or preschool period, when do young children first become aware about the appropriate use of aggression in the context of peer and sibling interactions? Furthermore, at what age would it be possible for children to be directly assessed about their use of aggression using puppets, vignettes, or other visual mediums?

POTENTIAL MODERATING EFFECTS OF POVERTY ON EFFECTIVENESS AND IMPLICATIONS FOR THE DESIGN OF PREVENTIVE INTERVENTIONS

Effecting lasting change in young children's CP living in poverty presents a challenging undertaking. The association between different dimensions of poverty and early-starting CP, including direct effects through exposure to toxins, pollutants, and living in high-risk neighborhoods (Evans 2004, Ingoldsby & Shaw 2002) as well as effects mediated by aspects of the home environment discussed above (Conger et al. 1994, Patterson 1982), has a long-established pattern. Such moderating effects of poverty have been consistently found when assessed by comparing the effect sizes of two of the most well-known evidence-based practices: Old's (2002) Nurse Family Partnership and Webster-Stratton's (1990) Incredible Years Program. Although both cases present positive intervention outcomes within samples of predominantly low-income families, the effect sizes have been substantially smaller for their outcomes in relation to young children's emerging CP within less pervasively socioeconomically disadvantaged samples (Baydar et al. 2003, Olds 2002).

Consistent with the tenets of the family stress model and other models emphasizing the etiological role of parent management strategies (and their malleability) in treating early-starting CP (Patterson 1982), most intervention programs specifically targeting CP in early childhood have focused on modifying parenting practices and, implicitly, on improving the quality of parent-child relationships. However, given the evidence cited above indicating pathways between poverty and parental psychological resources leading to child CP that are not mediated by parenting, prevention scientists should consider expanding their target domains to include factors that both compromise parenting quality and appear to be independently associated with child CP and are commonly found for parents living in poverty (e.g., maternal depression, parental distress, parental conflict, parental social support). Anecdotally, this premise is supported by current work by Shaw (2013) supervising the cases of two urban, low-income cohorts of toddlers with presenting CP. In this study, only a minority of families followed the classic profile characterized and driven by coercive parent-child interaction. One pattern included parents with reasonably strong parenting skills (i.e., as demonstrated when given the opportunity to work with their child one on one during in-home assessments) but who were challenged by their own mental health concerns (e.g., depression) and/or the stressors associated with raising multiple young children alone with few economic or child-care resources. Other parents struggled with past traumas and/or current substance abuse issues, which impeded their ability not only to be actively engaged with their child

but also to manage their child's disruptive behavior (Shaw 2013). These observations also are consistent with the logic of the Family Check-Up model (Dishion & Stormshak 2007), in which an ecological assessment of family strengths and challenges is used to tailor the intervention to fit the risk profile of the individual family. Also in accord with our revised version of the family stress model, programs targeting the prevention of CP for children living in poverty may wish to dedicate more time to the initial assessment of family and community issues that may directly or indirectly influence the child's current problem behavior.

In addition to modifying the content of intervention programs designed to reduce the risk of emerging CP in early childhood, another relevant issue for families living in poverty with a disruptive child is accessibility. Even for parents who recognize their young child's level of disruptive behavior as being markedly high, without resources for transportation and child care of siblings, a family's ability to engage initially and then maintain engagement in intervention services is often limited. A related factor is location—in what settings is it possible to identify low-income families who are struggling to manage their young child's behavior and engage them in services in a nonthreatening way? To reduce levels of early-starting CP at the population level, identifying new platforms and methods to reach and engage low-income families with toddlers and preschool children presents monumental challenges (Shaw 2013). Fortunately, there are existing examples of “outreach” programs, including research in Head Start centers by Webster-Stratton et al. (2001), work with younger siblings of adjudicated youth by Brotman et al. (2005), and work at WIC centers by Dishion et al. (2013) and Shaw et al. (2006). Following in the steps of Olds's (2002) intervention program in engaging at-risk pregnant women in the Nurse-Family Partnership, Dodge et al. (2014) recently initiated a home-visiting program in very early childhood, recruiting parents in hospitals following the birth of their child. Carried out by nurses, random assignment of all children born in Durham, North Carolina, during one year resulted in fewer emergency room and overnight hospital visits (Dodge et al. 2013), more community connections, more positive parenting, use of higher-quality out of home care, and reduced rates of maternal anxiety when infants were 6 months old (Dodge et al. 2014). Although not yet formally linked to reduced rates of child CP because of the duration of the follow-up, the program shows promise for preventing rates of early-starting CP, demonstrating established linkages between early parenting, social support, and parental psychopathology with child CP (and consistent with an early-starting cascade model of problem behavior).

In addition to the use of Head Start, WIC, and hospitals as platforms to provide intervention services, other promising alternatives include Early Head Start centers and primary care centers serving predominantly low-income families (Shaw 2013). Head Start centers are particularly appealing because of research suggesting greater predictive validity associated with children demonstrating CP in multiple contexts (Campbell et al. 2000). The ability to engage parents in response to the child's level of disruptive behavior at the Head Start center would provide an opportunity to assess similarities in child behavior across contexts and caregiving strategies that appear to be effective or ineffective at home and at preschool (Webster-Stratton et al. 2001). By enlisting the cooperation of both parents and teachers, an intervention package could be formulated that emphasized consistent ways of managing the child's behavior across contexts: Input from both parents and teachers could be used to identify the most pressing concerns and optimize ways of addressing these issues in a consistent manner. Primary care centers are also attractive because of the trust parents typically bring to the pediatrician's office, adding credibility to the intervention program. However, pediatricians are typically overburdened with the number of patients they are required to see each day and thus may lack the requisite time to deal with young children's oppositional and aggressive behavior. They also often have modest levels of expertise in behavioral health methods.

Revisiting **Figure 1** as well as the investment and resources model and the culture of poverty perspective yields some potential targets for the design of preventive interventions aimed at reducing early-starting CP. Short of increasing income for families, which we address in more detail below, the investment and resources model suggests that providing greater time for parents to spend with their children and improving the quality of care in children's homes and extrafamilial environments, as well as health care, should lead to improvements in child functioning, including reductions in problem behaviors. One innovative intervention consistent with both the family stress and the investment and resources models has found strong effects on infants' and toddlers' cognitive development in low-income, ethnically diverse families: Mendelsohn et al. (2005) have capitalized on the popularity and credibility of the Reach Out and Read Program to initiate video feedback intervention with low-income parents of infants. The intervention emphasizes teaching parents to be more contingently responsive and sensitive to the infant's needs while parents read and play with their child. Each session is videotaped, and select excerpts are shown to parents at the next meeting. Importantly for fostering cognitive development, parents are provided direct feedback in ways for them to facilitate learning. To maximize parents' limited time, intervention sessions are conducted while parents are waiting for well-baby visits at primary care centers.

To our knowledge, interventions specifically designed to address the culture of poverty perspective have not been formally developed, as this perspective suggests that parents' philosophies and values about the appropriate use of aggression would lead parents (*a*) to be less active in prohibiting children's use of aggression to resolve problems and/or (*b*) to actively encourage children to use aggression to resolve problems with peers, siblings, and possibly older children and adults. As low-income parents living in high-risk communities may see their child's use of aggression as being adaptive to their child's context, it may be quite challenging to convince parents that teaching their child to "hit back" or initiate aggression in the face of interpersonal conflict is maladaptive. However, using motivational interviewing techniques (Miller & Rollnick 1991) within the context of the Family Check-Up intervention (Dishion & Stormshak 2007), we have found that low-income parents holding such perspectives about the use of aggression are often open to revisiting their philosophies and management strategies with respect to young children's use of aggression after reflecting on the benefits and adverse consequences of their child's use of aggression at home with siblings and in preschool with peers and teachers. Such parents are often (but not always) willing to changing their own rather aggressive caregiving practices, which can unwittingly encourage children to show this behavior outside of the home through modeling. Parents can then teach children to choose when to be aggressive rather than have aggression be their reflexive and only strategy for resolving conflicts.

INCOME AS AN INCENTIVE FOR IMPROVING CHILD PROBLEM BEHAVIOR: BEHAVIORAL ECONOMICS

As depicted in **Figure 1**, according to all three models postulating indirect effects of poverty on child outcomes, including CP, an obvious target for intervention is family income, or at least placing parents in a better position to earn more through job training. As discussed above, after randomly assigning welfare recipients with young children into either a treatment group that received employment training and financial supplements or a control group, the Minnesota Family Investment Program resulted in moderate intervention effects on CP (Morris & Gennetian 2003). Similarly, taking advantage of a "natural experiment" when a casino opened in the middle of a prospective study of psychopathology among a representative rural sample of 1,420 children (one-quarter of whom were American Indian) ages 9 to 13, symptoms of conduct and oppositional

disorders (but not anxiety or depression) among previously poor children decreased to levels of never-poor children, whereas levels for persistently poor remained high (Costello et al. 2003). Although the precise mechanisms underlying associations between increases in income and/or employment skills in relation to decreases in CP are not clear, findings from both studies suggest the potential of increasing income to achieve reductions in child CP and other child outcomes (e.g., school readiness outcomes), likely through decreasing parental stress and improving family resources.

Recently, researchers in the area of behavioral economics have been taking advantage of potential increases in motivation resulting from increases in income to design and test incentive-based strategies for improving conditions for low-income families and children (Aber & Chaudry 2010, Thaler & Sunstein 2008). The question is whether the offer of cash incentives may serve as a paternalistic “nudge” for low-income parents to do “the right thing” for their children by adhering to health and medical care that promotes prosocial child outcomes. Although much of this research has been directed at improving children’s educational performance (Slavin 2009) or more broadly defined outcomes (e.g., children’s human capital development) in Latin America, South Asia, and Africa (Aber & Chaudry 2010), the pattern of collateral intervention effects documented previously for programs focusing on either educational achievement or problem behavior seem to indicate that by using behavioral economic approaches similar gains could be generalizable in reducing child CP.

INCREASING ROLE OF PEERS AND NEIGHBORHOOD CONTEXT DURING MIDDLE CHILDHOOD AND ADOLESCENCE

The current review focuses on the intersection between poverty and child CP during early childhood, focusing primarily on within-family factors that mediate associations between poverty and child CP. Whereas the contribution of parenting and parent psychological resources remain important as children move into middle childhood and adolescence, the contribution of peers clearly increases as children spend more time out of the home environment. As noted above, based on interactions observed at school, peer effects have now been established on CP for children as young as age 5 (Snyder et al. 2005). Similarly, we know that the contribution of neighborhood adversity on risk for child CP increases as children progress to the school-age period, also likely a function of children’s increasing levels of contact with same-age and older peers as well as other adults in the neighborhood (Duncan et al. 1994, Kellam et al. 1998). Future research examining the validity of family stress, investment, and/or cultural perspectives needs to incorporate the increasing contributions of peers and neighborhood factors linking poverty to child CP and more serious forms of youth antisocial behavior.

CONCLUSIONS

The current paper seeks to review extant literature on the intersection between poverty and the development of early-childhood CP. Consistent with previously developed models linking the effects of poverty to young children’s problems through mediating factors in children’s family environments, we have sought to expand on the family stress model by emphasizing the direct contribution of parent psychological resources on children’s risk for early CP. The indirect effects on parenting have also been discussed. In particular, we have focused on the contribution of maternal depression, both in terms of compromising parenting quality and exposing children to higher levels of stressful events and contexts. We believe the model proposed in the current paper

is highly testable and falsifiable, and if continued to be proven valid, it has important implications for both the prevention and treatment of young children's emerging CP.

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