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**SOCIAL INFORMATION PROCESSING FACTORS AND ECONOMIC STRESS IN  
DISADVANTAGED RURAL FATHERS: INFORMING CHILD MALTREATMENT  
PREVENTION WITH AN UNDERSTUDIED PARENT POPULATION**

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## ABSTRACT

Child maltreatment is a critical concern in rural communities, where children are nearly twice as likely as their urban peers to experience maltreatment. Fathers perpetrate a substantial proportion of maltreatment cases and are overrepresented as perpetrators of severe physical abuse and fatalities. Despite this heightened risk, little research has examined parenting risk among fathers in rural areas. The current study examined the contributions of social information processing (SIP) factors, economic stress, and work stress to multiple indicators of parenting risk in a sample of 61 disadvantaged rural fathers of 2-6 year-old children. Findings highlight the importance of fathers' cognition and economic stress in children's risk for neglect and unintentional injuries. Results for the SIP model of parenting risk provide some support for the extension of this model to fathers. Unrealistic expectations for children and poorer executive functioning (EF) were associated with more maladaptive injury prevention beliefs, which were associated with children's medically attended injuries. Fathers with self-reported histories of Child Protective Services (CPS) involvement exhibited significantly poorer EF and problem-solving than comparison fathers, but did not differ in expectations or attributions for children's behavior. With regard to economic stress, fewer economic resources were associated with greater child abuse potential, more inconsistent parenting, and poorer quality home environments, while less economic security was associated with greater child abuse potential. CPS-involved fathers had less economic resources than comparisons, but did not differ in economic security. Greater work demands were significantly associated with greater child abuse potential and more positive punitive discipline beliefs, although effects were small. Exploratory analyses found evidence for independent additive effects of SIP and economic stress and no evidence of indirect or interaction effects. Implications for preventing child maltreatment are discussed.

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## Introduction

Child maltreatment is a critical concern in rural communities (Gamm, Hutchinson, Dabney, & Dorsey, 2003). The most recent National Incidence Study found that children in rural counties were approximately 1.5 times as likely to experience physical abuse and 2.5 times as likely to experience neglect than children in urban counties (Sedlak et al., 2010). Although official child protection services (CPS) data on maltreatment in the United States have yet to be disaggregated by rural and urban status, at the state level, a study in Missouri found the rate of CPS substantiated maltreatment to be significantly higher in rural counties than urban counties (Schnitzer, Slusher, & Van Tuinen, 2004). Evidence suggests that rural areas also have higher recidivism rates (English, Marshall, Brummel, & Orme, 1999) and more maltreatment fatalities (Berson, Yampolskaya, Kershaw, Zandbergen, & Lemrow, 2006). Yet, little research has specifically examined parenting risk within this population. There is a pronounced need to examine factors that increase risk for perpetrating maltreatment in low-income, rural parents.

Understanding risk in rural families requires attention to fathers' risk, as children in rural areas are more likely than their urban peers to have a father or father figure present in the household (i.e., a resident father) (O'Hare, Manning, Porter, & Lyons, 2009). Women in rural areas are more likely to report ever being married, spend a greater proportion of time married or cohabitating, and remarry more quickly following divorce than women in urban areas (Snyder, 2011); similarly, cohabitation rates for women with children have increased more quickly in rural areas than urban areas (O'Hare et al., 2009). In total, approximately three-quarters of children in rural areas live in married or cohabiting families (O'Hare et al., 2009). Fathers can be both resources and risks to the children in their household (Scourfield, 2014). In 2015, biological and social fathers were perpetrators in more than 45% of substantiated maltreatment cases (U.S.

DHHS, 2017); nonbiological father figures in particular are associated with greater risk for CPS involvement (Berger, Paxson, & Waldfogel, 2009; Radhakrishna, Bou-Saada, Hunter, Catellier, & Kotch, 2001; Sedlak et al., 2010). Although research into fathers' parenting risk has increased, the majority of this research has focused on urban populations and biological fathers (Hofferth, 2007). As biological or social fathers are present in the majority of rural households, reducing risk for rural children requires a better understanding of factors that increase rural fathers' risk for perpetrating physical abuse and neglect.

Much of the research on parenting risk has utilized ecological models of risk, focusing on sociodemographic and economic characteristics associated with greater parenting risk (e.g., poverty, young age, low education, unemployment; Black, Heyman, & Smith Slep, 2001; Guterman & Lee, 2005; Lee, Bellamy, & Guterman, 2009; Slack, Holl, McDaniel, Yoo, & Bolger, 2004). This research has helped to identify populations at greater risk, such as low-income families. However, economic risk factors alone do not sufficiently explain the etiology of maltreatment, as most parents, even in high-risk populations, do not maltreat their children (Drake & Jonson-Reid, 2014; Slack et al., 2004). Theory-driven studies of individual-level risk factors are needed to identify parents most at-risk within contextually high-risk populations.

This study tested both an intrapersonal and a contextual model of fathers' parenting risk, focused on social information processing (SIP) factors and economic and work stress, respectively. These specific models were selected because of their evidence base and because they are hypothesized to be especially relevant to men. SIP factors are implicated in the etiology of male aggression, and economic and work stress may be especially salient for men given the societal construction of fathers as economic providers. Furthermore, this study considered SIP

factors in conjunction with economic stress in an effort to integrate individual and contextual risks to better inform our understanding of fathers' parenting risk.

### **Fathers' Parenting Risk**

#### **Fathers' Discipline Behavior and Risk for Perpetrating Physical Abuse**

Of the little research on fathers' parenting risk that exists, most has focused on physical abuse. The most recent National Incidence Study found that biological and social fathers were responsible for more than half (53%) of the physical abuse perpetrated by parental figures (Sedlak et al., 2010). Biological and social fathers are also overrepresented, relative to their involvement in caregiving, as perpetrators of severe physical abuse and maltreatment-related fatalities (Guterman & Lee, 2005; Sinal et al., 2000; Starling, Holden, & Jenny, 1995; Stiffman, Schnitzer, Adam, Kruse, & Ewigman, 2002). One way to better understand fathers' physical abuse risk is to examine discipline behaviors. Corporal punishment, which peaks during the preschool years (Straus & Stewart, 1999), and harsh discipline are strongly associated with increased risk for physical abuse (Black et al., 2001; Straus, 2000; Zolotor, Theodore, Chang, Berkoff, & Runyan, 2008). Evidence suggests that physical abuse most often occurs in response to aversive child behavior (Herrenkohl, Herrenkohl, & Egolf, 1983), and some work has found that physical abuse incidents commonly begin as discipline attempts (Durrant, Trocmé, Fallon, Milne, & Black, 2009).

Positive beliefs about corporal punishment are linked to greater use of physical discipline (Cappa & Khan, 2011), greater escalation from nonphysical to physical discipline in response to noncompliance (Russa & Rodriguez, 2010), greater parent-to-child aggression (Slep & O'Leary, 2007), and greater risk for physical child abuse (Black et al., 2001; Rodriguez, Gracia, & Lila, 2016). Fathers are more likely than mothers to approve of corporal punishment (Straus &

Mathur, 1996) and some researchers have argued that fathers may use corporal punishment at higher rates than mothers (Straus & Stewart, 1999). Findings that mothers report more frequent use of corporal punishment than fathers are thought to be largely due to differences in time spent caregiving, as little research has adjusted for time at risk (i.e., time caregiving) (Dietz, 2000; Lee, Altschul, & Gershoff, 2015; Mahoney, Donnelly, Lewis, & Maynard, 2000; Wolfner & Gelles, 1993). Other research has found fathers use equivalent or greater levels of harsh, severe physical discipline than mothers (Dietz, 2000; McKee et al., 2007; Wolfner & Gelles, 1993), behaviors that increase risk for physical abuse perpetration (Black et al., 2001; Zolotor et al., 2008).

### **Fathers' Supervision Behavior and Risk for Perpetrating Neglect**

Although very little research has examined the role of fathers in neglect specifically (Guterman & Lee, 2005), existing evidence indicates that considering fathers adds to our understanding of neglect. In at-risk families, shorter duration of father involvement, less father involvement in household tasks, and fathers' lower sense of competence have been associated with a greater likelihood of probable neglect, as indicated by CPS involvement and/or multiple observed indicators (e.g., unsafe home environment, poor child hygiene, low-quality parent-child interactions) (Dubowitz, Black, Kerr, Starr, & Harrington, 2000). Cross-sectional associations between fathers' involvement in caregiving and neglect are mixed. Mother-reported father involvement in caregiving has been associated with lower maternal maltreatment risk (Guterman, Lee, Lee, Waldfogel, & Rathouz, 2009), but also with a greater likelihood of neglect in the family (Dubowitz et al., 2000). The latter finding may reflect fathers becoming more involved in childcare when mothers are unavailable or neglectful (Dubowitz et al., 2000).

Examining supervision is one way to better understand risk for neglect (Peterson & Brown, 1994). Inadequate supervision is key to the etiology of child neglect, the most common

type of maltreatment (75%; U.S. DHHS, 2017), as well as the etiology of unintentional injuries, experienced by approximately 10% of children aged 2-6 every year (CDC, 2017). Inadequate supervision is frequently cited as a primary concern in neglect cases, especially for young children (Coohey, 2003; Nelson, Saunders, & Landsman, 1993; Pears, Kim, & Fisher, 2008; Ruiz-Casares, Trocmé, & Fallon, 2012) and is a factor in almost half of child injury deaths (43%; Landen, Bauer, & Kohn, 2003). Children in low-income families are at elevated risk for both neglect and unintentional injuries (Birken, Parkin, To, & Macarthur, 2006; Faelker, Pickett, & Brison, 2000; Slack et al., 2004). Parents' supervision is especially crucial to injury prevention during the toddler and preschool years, when children are mobile, spend considerable time exploring their environment and engaging in physical play, and are most often injured at home (MacDonald & Parke, 1986; Morrongiello, Midgett, & Shields, 2001; Shanon, Bashaw, Lewis, & Feldman, 1992).

Little research has specifically examined fathers' supervision of children and risk for supervisory neglect (Coohey & Zhang, 2006; Schwebel & Brezausek, 2004). On average, fathers have been shown to spend more of their time with children in play and to engage in more vigorous and physically arousing play than mothers (Fletcher, StGeorge, & Freeman, 2013; MacDonald & Parke, 1986) and their encouragement of young children's autonomy and risk-taking behaviors during play has been linked to more risky child behaviors (e.g., climbing on furniture, playing with sharp objects) (StGeorge, Fletcher, Freeman, Paquette, & Dumont, 2015). In addition, although mothers and fathers report similar beliefs and behaviors regarding supervision (Morrongiello, Walpole, & McArthur, 2009), fathers have been shown to hold stronger beliefs in the developmental benefits of injuries (i.e., that children learn from and are toughened by injuries) than mothers (Guilfoyle, 2009; Lewis, DiLillo, & Peterson, 2004) and

view ‘overprotection’ as a hindrance to child development (Brussoni & Olsen, 2013). These beliefs may increase children’s injury risk.

### **Social Information Processing and Parenting Risk**

Social cognitive theories argue that cognitive processes play an intervening role in the relation between environmental input and individuals’ behavioral responses (Baldwin, 1992; Fiske & Taylor, 2013; Huesman, 1998). SIP models have been widely used to explain the etiology of aggression, particularly childhood aggression and males’ perpetration of intimate partner violence (IPV), in both community and at-risk samples (Calvete & Orue, 2011; Crick & Dodge, 1996; Holtzworth-Munroe & Hutchinson, 1993; Lansford et al., 2006; Makin-Byrd & Azar, 2011; Marshall, Robinson, & Azar, 2011; Murphy, 2013). Longitudinal research with youth has found that boys are more likely than girls to exhibit SIP problems and that SIP problems predict later externalizing problems (Calvete & Orue, 2011; Lansford et al., 2006). SIP factors are also associated with IPV during adolescence and adulthood in both cross-sectional and longitudinal research (Capaldi, Knoble, Shortt, & Kim, 2012; Fite et al., 2008; Holtzworth-Munroe & Hutchinson, 1993; Makin-Byrd & Azar, 2011; Murphy, 2013). SIP factors are hypothesized to be a mechanism through which contextual factors (e.g., harsh parenting, modeling of aggression) increase risk for later aggression (Fite et al., 2008; Pettit, Lansford, Malone, Dodge, & Bates, 2010), suggesting that SIP deficits may be more common and most relevant to risk within disadvantaged populations.

Framing the current study is a SIP model of parenting risk developed by Azar and colleagues that posits that cognitive deficits, biases, and distortions increase parents’ risk for maltreating children by changing the ways in which they perceive, interpret, and act on social information (Azar, McGuier, Miller, Hernandez-Mekonnen, & Johnson, 2017; Azar, Reitz, &

Goslin, 2008; Azar & Twentyman, 1986; Crittenden, 1993; Milner, 2003; Seng & Prinz, 2008). Competent parenting requires specific cognitive capacities, including complex and appropriate schemas regarding children and parenting and good executive functioning (EF) and problem-solving abilities. Deficits in these capacities are likely to result in biased appraisals and a limited behavioral repertoire of parenting responses, increasing risk for the perpetration of child abuse and neglect (Azar, 1986; Azar, Stevenson, & Johnson, 2012; Larrance & Twentyman, 1983; Milner, 2003; Seng & Prinz, 2008).

The SIP model of parenting risk has been well supported by previous research with mothers, in both community and disadvantaged samples. SIP factors have been linked to less warmth and flexibility and greater intrusiveness and disengagement in mother-child interactions (Azar et al., 2012), more harsh, over-reactive, and lax discipline (Del Vecchio & O'Leary, 2008; Lorber, O'Leary, & Kendziora, 2003; Nix et al., 1999), and more maladaptive injury prevention beliefs (Azar, Miller, Stevenson, & Johnson, 2016). Mothers with histories of perpetrating physical abuse and neglect exhibit greater SIP deficits than mothers without such histories (Azar et al., 2017; Azar, Robinson, Hekimian, & Twentyman, 1984; Azar & Rohrbeck, 1986; Azar et al., 2012; Bugental & Happaney, 2004; Haskett, Scott, Willoughby, Ahern, & Nears, 2006; Haskett, Smith Scott, Grant, Ward, & Robinson, 2003; Milner, 1993, 2003) and there is some evidence that SIP factors are associated with the frequency, duration, and severity of physical abuse perpetration (Azar, Miller, McGuier et al., 2016). These findings persist even after considering the effect of general intellectual functioning (Azar et al., 2017, 2012), supporting the importance of SIP factors as specific risk factors for the perpetration of maltreatment.

Taken together, evidence for the role of SIP in the etiology of male aggression and research supporting the SIP model of parenting risk in mothers suggest the SIP model is a useful

starting point for understanding parenting risk in males. Indeed, although the SIP model that frames this study's design has not been tested with fathers specifically, one study of high-risk adolescent males who were not yet parents found that SIP factors were linked to greater endorsement of child punishment, supporting the validity of this model in males (Azar, Okado, Stevenson, & Robinson, 2013). Research examining SIP in males has focused on interpersonal aggression; however, research with mothers has found that SIP factors are associated not only with abuse, but also with neglect (Azar et al., 2017). Lastly, SIP capacities have been associated with mothers' parenting risk within contextually at-risk samples (Azar, Miller, Johnson, & Hernandez-Mekonnen, 2014; Azar et al., 2012), suggesting that this SIP model is especially relevant and appropriate for examining risk within disadvantaged populations. The next sections provide more in-depth discussion of three key elements of the SIP model – schema, EF and problem-solving, and hostile attributions.

### **Parenting Schema**

Schemas are internal cognitive structures based on previous knowledge and experiences that allow individuals to process information efficiently (e.g., interpret complex patterns, make inferences from limited input) (Baldwin, 1992; Fiske & Taylor, 2013; Markus, 1977). They guide the encoding and representation of incoming information by filtering what information is attended to, fitting information into existing knowledge structures, determining the importance of information, and using information to guide behavior (Markus, 1977). Information that fits with an existing schema is likely to be attended to, while schema-inconsistent information may be ignored or processed more slowly (Crocker, Fiske, & Taylor, 1984; W. A. Johnston & Dark, 1986). Individuals with more complex and well-developed schemas have been shown to be more flexible in their organization of information and have more capacity to process schema-



inconsistent information (Crocker et al., 1984). In contrast, schemas that are overly simplistic and rigid hinder the ability to interpret cues accurately, consider and weigh situational information appropriately, and generate appropriate behavioral responses (Azar, Nix, & Makin-Byrd, 2005; Azar & Weinzierl, 2005).

Parents' schemas of children should be complex and differentiated, taking into account developmental differences in both physical and mental capacities (e.g., mobility, reach, perspective taking), changes over time, and individual differences (e.g., temperament, risk-taking behavior) (Azar et al., 2005; Azar & Weinzierl, 2005). There is evidence that mothers' abilities to consider the mental states and needs of both infants and older children are associated with more warm, responsive, and sensitive parenting (Laranjo, Bernier, & Meins, 2008; Meins et al., 2003; Rodríguez, Rodrigo, Janssens, & Triana, 2011), perhaps because these more complex schemas promote more accurate interpretation of child cues, leading to more adaptive attributions and behavioral responses (Barrett & Fleming, 2011; Laranjo et al., 2008). Simplistic schemas of children may not sufficiently differentiate children's capacities from those of adults, reflected in unrealistic expectations of children (e.g., children are seen as "little adults" who should be able to take care of themselves).

When parents hold unrealistic expectations, child behaviors, even when developmentally appropriate, are likely to be schema-inconsistent and interpreted as problematic, intentional, or non-compliant (Azar et al., 2005; Seng & Prinz, 2008), increasing risk for maltreatment. Indeed, unrealistic expectations for children have been shown to be associated with greater use of harsh physical punishment and greater child abuse potential (Haskett et al., 2006; Okado & Azar, 2011). Even when assessed prenatally, rigid, simplistic, and unrealistic expectations of children (e.g., as able to comfort parents) have been associated with more hostile and controlling

parenting of infants (Dayton, Levendosky, Davidson, & Bogat, 2010). Similarly, mothers with histories of perpetrating maltreatment have been shown to have more unrealistic expectations than mothers with no such history (Azar et al., 2012; Dunst & Leet, 1987; Twentyman & Plotkin, 1982; Van Horn, Bellis, & Snyder, 2001; for an exception, see Haskett et al., 2006).

Unrealistic expectations may increase risk for inadequate supervision and neglect, as they have been associated with lower quality parent-child interactions (e.g., lower warmth, greater intrusiveness) and less stimulating and hygienic home environments (Azar et al., 2012). Parents who view children as “little adults” are likely to overestimate their abilities and knowledge and place children in risky situations (e.g., home alone) more often (Morrongiello et al., 2001; Peterson, Mori, & Scissors, 1986; Schwebel & Bounds, 2003). In addition, these schemas may contribute to a lack of preventative actions and increased injury risk, although this hypothesis has not yet been directly tested (Lewis et al., 2004; Morrongiello, Ondejko, & Littlejohn, 2004). As males are differentially socialized and typically have fewer caregiving experiences than females, fathers are likely to have less knowledge of child development and more unrealistic expectations for children than mothers (de Lissovoy, 1973; Weinstein & Rosen, 1994). Indeed, within a sample of maltreating parents, fathers were found to hold more rigid beliefs about appropriate child behavior and parenting practices than mothers, suggesting that rigid and unrealistic schemas are especially relevant for understanding risk in fathers (Pittman & Buckley, 2006).

Parents’ self-schemas are also relevant to their interactions with children and must be sufficiently differentiated to promote adaptive responses to changing environmental demands and stressors (Azar et al., 2005). Linville’s (1985) theory of self-complexity posits that self-complexity is a function of the number of individual self-aspects and the degree of differentiation between self-aspects. Stress is hypothesized to affect individuals with more simplistic self-

schemas more strongly (Linville, 1985, 1987) and self-complexity has been shown to act as a buffer against negative outcomes (e.g., depression, illness) after stressful events (Koch & Shepperd, 2004; Linville, 1987). This work suggests that fathers with less differentiated schemas of fatherhood are likely to be at greater risk for perpetrating maltreatment when under stress. For example, men who are high in work centrality and differentiate less between the roles of worker and father should be more affected by work stress than men who view fathers as having multiple roles (e.g., provider, caretaker, nurturer). For the former group, work stress should affect not only their sense of self as a worker, but also spill over into their role as a father (e.g., I am a terrible father because I cannot provide for my child). In contrast, greater differentiation in the latter group should allow these men to maintain positive feelings about other self-aspects (e.g., I am a good father because I spend time with my child), buffering the effect of the stressor. However, very little research has examined these questions (Christiansen & Palkovitz, 2001; Palkovitz, 1984) and more research is needed to examine how fathers' schemas about work affect their parenting risk.

### **Executive Functioning and Problem-Solving**

Executive functioning (EF) supports flexible switching between activated schemas, the integration of new or mitigating information when schemas are violated or in novel situations, and the formation of new and increasingly differentiated schema (Azar et al., 2012; Shallice, Burgess, & Robertson, 1996). EF is a collection of top-down, effortful cognitive processes (Chan, Shum, Touloupoulou, & Chen, 2008; Diamond, 2013; Zelazo & Müller, 2011). Diamond (2013) describes three core executive functions – inhibition, working memory, and cognitive flexibility. Inhibitory control permits more effortful responses to be made in place of automatic responses (e.g., impulses, conditioned responses), allowing individuals to make behavioral

choices, change pre-existing patterns of behavior, delay gratification, and work toward long-term goals (Baumeister, 1998; Diamond, 2013). Similarly, it allows individuals to stay on task and sustain attention in the face of competing stimuli. Working memory is the ability to mentally hold and manipulate information and is crucial to directing and maintaining attention to prioritized information and reducing distraction (Diamond, 2013; Fockert, Rees, Frith, & Lavie, 2001), as well as identifying patterns, reasoning, and problem-solving (Diamond, 2013; Zelazo & Müller, 2011). Lastly, cognitive flexibility is the capacity to change perspectives, set aside prior information, generate new responses, and adjust performance in response to changing demands and rules. Together, these core executive functions contribute to higher-order cognitive skills such as planning, organization, reasoning, self-monitoring, and problem-solving that are crucial to conscious planning, execution, and evaluation of purposeful activities (Diamond, 2013; Zelazo & Müller, 2011).

Subtle neuropsychological deficits have long been posited to contribute to the perpetration of violence, including child maltreatment (Elliott, 1988; C. J. Golden, Jackson, Peterson-Rohne, & Gontkovsky, 1996; Milner & McCanne, 1991; Moffitt, 1993; Spellacy, 1978), and aspects of problem-solving have been linked to other types of aggression in males (e.g., childhood peer aggression, IPV) (Boyle & Vivian, 1996; Gouze, 1987; Richard & Dodge, 1982). However, the role of executive functioning in parenting has begun to be examined only recently (Azar et al., 2008, 2012; Azar & Weinzierl, 2005; Deater-Deckard, Wang, Chen, & Bell, 2012) and has not yet been examined in relation to fathers' parenting risk. Caregiving requires parents to sustain attention to children in the face of distractions, plan activities and structure environments, inhibit automatic negative reactions to misbehavior, and respond to changing situations and demands (Barrett & Fleming, 2011; C. Johnston, Mash, Miller, & Ninowski,

2012). These capacities may be especially important in the toddler and preschool years, when children are rapidly developing new abilities and beginning to challenge parents' authority.

EF capacities are reflected in parents' ability to problem-solve (i.e., identify problems, generate and prioritize solutions, enact responses, evaluate outcomes) and to respond to changing environmental cues and child behaviors as children grow and develop (Azar et al., 2012; Azar & Weinzierl, 2005; Barrett & Fleming, 2011). Parents with poor EF and problem-solving abilities may fail to identify problems, consider less mitigating information, generate fewer appropriate parenting responses, have difficulty implementing and evaluating solutions, and fail to switch strategies when a response is ineffective (Azar et al., 2012; C. Johnston et al., 2012; Milner, 2003). Parents with EF deficits are also likely to have difficulty planning and organizing activities, monitoring children and the environment, and adjusting their responses (e.g., vigilance level) accordingly, leading to inadequate supervision and greater injury risk (Azar & Weinzierl, 2005; C. Johnston et al., 2012). For example, poor inhibition may contribute to difficulty maintaining attention to child cues in the face of competing, more rewarding stimuli (e.g., leaving an enjoyable TV show to follow a child into another room) (C. Johnston et al., 2012).

Compromised prefrontal functioning (e.g., problems with sustaining attention, difficulty shifting set, impulsivity) is associated with lower maternal responsiveness and disrupted maternal behavior in animal models (Lovic & Fleming, 2015; Lovic, Palombo, & Fleming, 2011) and for humans, low maternal EF is associated with less sensitive and contingent responding to infants (Chico, Gonzalez, Ali, Steiner, & Fleming, 2014; Gonzalez, Jenkins, Steiner, & Fleming, 2012) and more harsh and intrusive caregiving behaviors with toddlers and preschoolers (Azar et al., 2012; Cuevas et al., 2014; Deater-Deckard, Sewell, Petrill, & Thompson, 2010). Although parental executive functioning has been less commonly examined in

relation to supervision and child injury, in recent work, mothers' EF has been associated with maladaptive beliefs about injuries (e.g., that injuries are caused by fate) (Azar, Miller, Stevenson et al., 2016). In addition, EF in older children has been linked to their attention to safety cues and behavior in a potential risky situation (i.e., road crossing) (Barton & Morrongiello, 2011). These results support the hypothesis that parents' EF may contribute to their ability to attend to relevant environmental cues and provide appropriate supervision.

Additional evidence for the importance of EF in parenting comes from studies of parents with ADHD, as individuals with ADHD commonly exhibit deficits in EF. While this literature is largely reliant on self-report measures of both ADHD symptoms and parenting and rarely examines gender differences (C. Johnston et al., 2012), parents with ADHD symptoms have been shown to provide less involved and supportive parenting, more harsh and inconsistent discipline, less monitoring, fewer routines, and a more chaotic home environment (Chen & Johnston, 2007; Chronis-Tuscano et al., 2008; Lowry, Schatz, & Fabiano, 2015; Mokrova, O'Brien, Calkins, & Keane, 2010; Murray & Johnston, 2006). Research examining fathers specifically has found some evidence that ADHD symptoms may be more strongly associated with parenting difficulties for fathers than mothers (Harvey, Danforth, McKee, Ulaszek, & Friedman, 2003; Mokrova et al., 2010).

Previous studies of parents who have perpetrated maltreatment found that they exhibit poorer problem-solving than comparison parents (Azar et al., 1984, 2012; Cantos, Neale, O'Leary, & Gaines, 1997; Hansen, Pallotta, Tishelman, Conaway, & MacMillan, 1989), and in one study, poor problem-solving was associated with greater parenting risk in adolescent males who were not yet parents. Research has also linked aspects of problem-solving to other types of aggression in males (e.g., childhood peer aggression, IPV) (Boyle & Vivian, 1996; Gouze, 1987;

Richard & Dodge, 1982). More recently, studies of executive functioning have found that parents who have perpetrated abuse or neglect exhibit poorer cognitive flexibility (e.g., difficulty shifting set, responding to feedback) than comparison mothers (Azar et al., 2012; Fontaine & Nolin, 2012; Nayak & Milner, 1998), and that these factors continue to predict parenting behavior even after considering general intellectual functioning (Azar et al., 2012; Fontaine & Nolin, 2012). This research clearly establishes an important role for EF and problem-solving capacities in parenting and risk for perpetrating maltreatment, although these questions have yet to be examined in fathers specifically.

### **Hostile Attributions**

The final element of the SIP model are attributions, which are products resulting from cognitive activity (e.g., activation of schemas, EF) and most proximal to parenting behaviors; attributions are the element of cognition most commonly studied in relation to parenting risk (Azar, 1986; Azar et al., 2008; Bugental, Johnston, New, & Silvester, 1998; Milner, 2003; Seng & Prinz, 2008). Simplistic, unrealistic schemas are likely to be violated and poor EF limits parents' ability to generate more benign or adaptive appraisals. Thus, parents who have simplistic, unrealistic schemas and poor EF are likely to make more hostile, global, and stable attributions for children's misbehavior. Indeed, unrealistic expectations for children and poor EF and problem-solving have been associated with more hostile attributions for children's behavior (Azar et al., 2012; Haskett et al., 2006).

Considerable research with mothers has found that hostile attributional biases (e.g., viewing children's behavior as more defiant/intentional) are associated with more negative emotions (e.g., frustration, anger), more harsh, coercive, and controlling parental behaviors, and greater child abuse risk (Bugental & Happaney, 2004; Bugental & Johnston, 2000; Dix, 1993;

Dopke & Milner, 2000; Haskett et al., 2006; Larrance & Twentyman, 1983; Lorber et al., 2003; Rodriguez & Price, 2004; Seng & Prinz, 2008; Slep & O’Leary, 1998). Hostile attributions are predictive of child maltreatment even when assessed prenatally (Berlin, Dodge, & Reznick, 2013) and parents at high risk for perpetrating maltreatment or with a history of doing so have been shown to appraise children’s negative behaviors as more intentional, stable, internal, and global than comparisons (Azar et al., 1984, 2012; Caselles & Milner, 2000; Crouch, Skowronski, Milner, & Harris, 2008; Dopke, Lundahl, Dunsterville, & Lovejoy, 2003; Farc, Crouch, Skowronski, & Milner, 2008; Haskett et al., 2006, 2003; Larrance & Twentyman, 1983; McCarthy et al., 2013; Paz Montes, de Paúl, & Milner, 2001; Seng & Prinz, 2008).

Although less research has examined attributions and parenting risk in fathers, hostile attributions have been shown to play an important role in other types of male aggression, including childhood aggression (Crick & Dodge, 1996; Orobio de Castro, Merk, Koops, Veerman, & Bosch, 2005) and IPV (Makin-Byrd & Azar, 2011; Marshall, Jones, & Feinberg, 2011). Fathers with a history of perpetrating physical abuse have been shown to appraise children’s emotional expressions as more negative than comparison fathers, providing some support for the role of hostile attribution biases in fathers’ parenting risk (Francis & Wolfe, 2008). In one study using a community sample, fathers’ attributions of children as responsible for misbehavior were associated with greater father-to-child aggression (Slep & O’Leary, 2007). In another, hostile attributions were associated with greater child abuse potential in a sample of men with histories of perpetrating intimate partner violence, with stronger effects for men with positive attitudes toward physical punishment (Rodriguez et al., 2016).

Hostile attributions may also be relevant to fathers’ risk for perpetration of neglect. Hostile attributions have been associated with more lax discipline (Leung & Slep, 2006) and



have been shown to be greater in mothers with a history of perpetrating child neglect than comparison mothers (Azar et al., 2012). Attributions are relevant to parents' risk of providing inadequate supervision, as parents who attribute injuries to factors outside of their control (e.g., luck, fate) are less likely to take action (e.g., teaching, providing consequences, changing the environment) following an injury (Peterson, Bartelstone, Kern, & Gillies, 1995; Peterson & Brown, 1994), increasing children's risk for future injuries.

In summary, there is substantial evidence that unrealistic expectations of children, poor EF and problem-solving, and hostile attributions toward children are linked to lower quality parenting and increased parenting risk. Though much of this evidence comes from studies of mothers, research examining other types of aggression has established the importance of SIP factors in the etiology of male aggression, indicating that the SIP model of parenting is a useful starting point for understanding parenting risk in males. Extending the SIP model to fathers, whose risk for perpetrating maltreatment has received relatively little attention, is an important next step in improving our understanding of parenting risk.

### **Economic Stress and Parenting Risk**

Economic stress is strongly implicated in child maltreatment and particularly relevant in rural areas, where poverty rates consistently exceed those of urban areas. In 2015, 24% of children in rural areas lived in poverty (compared to 20% of children in urban areas; USDA Economic Research Service, 2017b). Although married and cohabiting families are less likely to live in poverty than single-parent families (Kreider, 2010; Snyder & McLaughlin, 2006), a significant proportion of two-parent rural families still live in poverty or are classified as low-income (Manning, Lyons, & Porter, 2007; O'Hare et al., 2009). Rural families may also be reluctant to seek financial help because of stigma regarding receiving assistance, especially cash

assistance, resulting in greater economic stress (Struthers & Bokemeier, 2000). Because societal expectations of fathers highlight provision of financial support as key to fathers' role and fathers themselves often report providing financially as the most important part of being a father (Christiansen & Palkovitz, 2001; Johnson, 1995, 2001; Roy, 2004), economic stress may be especially important for understanding fathers' parenting risk (Guterman & Lee, 2005).

Poverty and economic stress are consistently linked to increased risk for child physical abuse and neglect (Carter & Myers, 2007; see Drake & Jonson-Reid, 2014; Molnar, Buka, Brennan, Holton, & Earls, 2003), with evidence for a causal role in maltreatment (Berger, Font, Slack, & Waldfogel, 2016; Cancian, Slack, & Yang, 2010; Doidge et al., 2017). At a macro level, more restrictive welfare policies and economic changes (e.g., increasing unemployment rates, greater economic uncertainty) have been associated with increases in child maltreatment rates (Fein & Lee, 2003; Frioux et al., 2014; Paxson & Waldfogel, 2003; Schneider, Waldfogel, & Brooks-Gunn, 2017), while state expansions of the Earned Income Tax Credit and increases in states' minimum wage have been linked to declines in maltreatment reports, particularly for neglect (Berger et al., 2016; Raissian & Bullinger, 2017). Examining gender specifically, Lindo and colleagues (2013) found that while overall measures of economic conditions were not significantly related to child abuse rates, layoffs of male employees were associated with a substantial increase in child abuse reports, while layoffs of female employees were associated with a decrease in abuse reports. As fathers are responsible for more than half of parent-perpetrated physical abuse (Sedlak et al., 2010) and are overrepresented as perpetrators of severe physical abuse (Guterman & Lee, 2005), these findings may reflect the impact of economic stress on fathers.

At the family level, lower family income has been associated with greater maltreatment risk in both community and CPS-involved samples (Berger, 2004; Carter & Myers, 2007; Sedlak et al., 2010). In economically disadvantaged families (e.g., those receiving cash assistance), objective measures (e.g., family income, months receiving cash support) do not always differentiate those who have perpetrated maltreatment from those who have not, but material hardships (e.g., food insecurity) and subjective economic stress are consistently associated with maltreatment risk (Azar et al., 2012; Cancian et al., 2010; Dworsky, Courtney, & Zinn, 2007; Slack et al., 2004; Yang, 2015). The family stress model posits that economic hardship diminishes parents' capacities to effectively care for children by adversely affecting parents' cognitions, emotions, behaviors, and relationships, which in turn increase negative parenting behaviors (e.g., harshness, inconsistency) and reduce positive parenting behaviors (e.g., warmth, involvement) (Conger et al., 1992; Conger, Ge, Elder, Lorenz, & Simons, 1994; Elder & Caspi, 1988; McLoyd, 1990; Mistry & Wadsworth, 2011). Considerable empirical work testing the family stress model with diverse samples has shown that associations between economic stress and parenting behaviors are indeed mediated by increased parental stress, depressive symptoms, and relationship conflict (Coley & Hernandez, 2006; Conger et al., 1992; Conger & Donnellan, 2007; Conger et al., 1994; Linver, Brooks-Gunn, & Kohen, 2002; Mistry, Vandewater, Huston, & McLoyd, 2002; Newland, Crnic, Cox, Mills-Koonce, & Family Life Project Key Investigators, 2013; Parke et al., 2004; Williams, Cheadle, & Goosby, 2013). These same issues (i.e., parents' mental health problems and interparental conflict and violence) are consistently associated with maltreatment perpetration (Black et al., 2001; Campbell, Matestic, von Stauffenberg, Mohan, & Kirchner, 2007; De Bellis et al., 2001; Knickerbocker, Heyman, Smith Slep, Jouriles, &

McDonald, 2007; Krishnakumar & Buehler, 2000; Kujawa et al., 2014; McLearn, Minkovitz, Strobino, Marks, & Hou, 2006)..

Research with men specifically provides additional support for the role of economic stress in men's parenting risk. Fathers' unemployment has been associated with greater risk for physical abuse, as well as greater recurrence of abuse in families in which the father had previously perpetrated physical abuse (Coohey, 2006; Wolfner & Gelles, 1993). However, it must be noted that other research has not found links between fathers' earnings and employment status and father-child aggression (Guterman et al., 2009; Lee, Guterman, & Lee, 2008). There is some evidence that links from unemployment and economic hardship to mental health problems and relationship discord are stronger for working class men (Artazcoz, Benach, Borrell, & Cortès, 2004; Mossakowski, 2009; Murali & Oyebode, 2004; Schieman & Young, 2010; Williams et al., 2013), and mental health and relationship problems contribute to greater parenting risk in disadvantaged fathers (Bronte-Tinkew, Moore, Matthews, & Carrano, 2007; Finger et al., 2010; Lee, 2013; Lee, Perron, Taylor, & Guterman, 2011). These findings support the importance of economic stress in fathers' risk for perpetrating physical abuse and neglect.

### **Work Stress and Parenting Risk**

Economic stress is closely tied to work, yet relatively little research has examined how work-related factors may affect fathers' risk for perpetrating physical abuse and neglect. The literature on fathers' parenting risk has focused largely on unemployment and income, with little attention paid to how other aspects of work may affect parenting risk. While employment provides fathers with social and economic capital, it may create work stress that spills over into their relationships with their partner and children. Recent economic changes that negatively affect the quality of jobs available to rural men make these questions especially timely and

important for understanding their parenting risk. Economic restructuring over the past several decades has resulted in a service-oriented economy, in which 24/7 employment and shifting, nonstandard work schedules (e.g., evenings, weekends) are the norm, wages and benefits are low (and declining), and jobs are unstable (Edgell, Ammons, & Dahlin, 2012; Presser, 2004).

Changes in wages are also evident; although women's wages have remained relatively stable, men's wages have dropped dramatically, with an almost 50% decrease in median wages over the past several decades (Ruggles, 2016). Similarly, men's relative income shows steep decreases; men aged 24-29 can now expect to earn only half as much as their fathers earned (Ruggles, 2016). These changes are particularly pronounced for men with a high school degree or less; this group is more likely to work nonstandard hours and has experienced substantial declines in real earnings over the past several decades (Autor, 2014; Presser, 2004; Presser & Ward, 2011).

Rural men are likely to be especially affected by these larger economic changes, as many industries (e.g., manufacturing, logging) have essentially vanished from rural areas, leaving workers with few options, primarily in the service industry (e.g., retail stores, gas stations, restaurants) (K. E. Smith & Tickamyer, 2011; Vernon-Feagans, Burchinal, & Mokrova, 2015). Rural areas have also been slower to recover from the Great Recession (Hertz, Kusmin, Marré, & Parker, 2014). Indeed, rural men now have higher unemployment rates than rural women and urban men, and are more likely to be underemployed than urban men (Jensen & Jensen, 2011). Low-wage jobs with nonstandard hours contribute to a sense of instability, insufficient wages for supporting a family, and difficulty balancing work and family needs due to competing work schedules and frequent changes in shifts (Crouter & Booth, 2004; Edgell et al., 2012). Many low-income workers, especially those who are younger, have less education, and work in manual labor (Danziger & Waters Boots, 2008; L. Golden, 2001; McMnamin, 2007), lack autonomy

and control over scheduling, creating frequent conflict between work and family demands (e.g., picking children up from school, caring for a sick child) (Almeida, 2004; Edgell et al., 2012). Men in low-wage jobs may have to work long hours and multiple jobs to fulfill the provider role, which may decrease resources (e.g., time for childcare) and increase stress, potentially increasing risk for child maltreatment. These challenges highlight the need to examine how work-related factors affect parenting risk for rural fathers.

The demand-control model (Karasek, 1979) and the more recent job demands-resources model (Bakker & Demerouti, 2007; Demerouti, Nachreiner, Baker, & Schaufeli, 2001) posit that demands at work, including high work pressure, unclear roles, and emotional demands, lead to job strain and decrements in employee well-being, while resources, including autonomy, control, and support, lead to motivation and improved employee well-being. Demands and resources have been linked to an array of employee outcomes (e.g., burnout, turnover intentions, organizational commitment) with both additive effects and interaction effects evident (see Bakker & Demerouti, 2007 for a review). In research on work demands and parenting, daily work stressors have been associated with greater withdrawal, anger expression, and discipline use later that day (Repetti, 1994). Likewise, time pressure has been associated with more harsh discipline (Greenberger, O'Neil, & Nagel, 1994) and nonstandard work schedules with less positive and involved parenting and less perceived parental success (Minnotte, 2016; Prickett, 2016). Nonstandard schedules have also been associated with poorer child outcomes, with evidence that these effects are partly mediated through factors such as increased parental depressive symptoms, lower quality parenting, parent-child conflict, and less supportive home environments (Crouter, Bumpus, Maguire, & McHale, 1999; Li et al., 2013; Odom, Vernon-Feagans, & Crouter, 2013). These relationships are particularly strong for disadvantaged parents

working full-time (Li et al., 2013). In contrast, job resources (e.g., coworker and supervisor support, work complexity, work challenge) have been linked to more firm discipline and greater warmth (Greenberger et al., 1994) as well as greater perceived parental success (Minnotte, 2016). In disadvantaged families, access to flexible work arrangements has been linked to greater father involvement (Castillo, Welch, & Sarver, 2012, 2013; Waller, 2009), while nonsupportive work environments and less self-direction have been linked to less supportive and engaged parenting of infants by rural fathers (Goodman, Crouter, Lanza, & Cox, 2008).

Although perhaps less relevant to parenting risk than job demands and stress, associations between work and parenting can also be considered through a socialization perspective. Work environments and occupational self-direction have been argued to be important contributors to social class differences in parental socialization (Kohn & Schooler, 1983). Research has shown that middle class parents value self-direction, while working class and poor parents place a higher value on conformity, view children as subordinate to adults, and are more likely to use directives than negotiate with children (Kohn, Slomczynski, & Schoenbach, 1986; Lareau, 2002). Occupational self-direction and fathers' valuation of self-direction have been shown to influence children's values and self-direction (Kohn et al., 1986), but the parenting processes through which this intergenerational transmission occurs are unclear. More research is needed to understand how work-related factors are associated with low-income fathers' parenting behaviors and risk for perpetrating physical abuse and neglect.

### **Integration of Social Information Processing Factors & Economic Stress**

Relatively little research has examined how social information processing (SIP) and economic stress together relate to parenting risk. There is some evidence that SIP and contextual risk factors have independent effects on parenting risk. In a sample of highly disadvantaged

mothers, SIP factors significantly contributed to the prediction of whether or not mothers had a history of perpetrating child neglect, even after considering life stress, social support, and family financial resources (Azar et al., 2014). Similarly, another study found that cognitive factors contributed to mothers' child abuse potential after considering social support and distress (Rodriguez & Tucker, 2014). These findings suggest additive effects of intrapersonal and contextual risk factors.

Alternatively, economic stress may directly influence SIP deficits or exacerbate their effects on parenting behaviors, such that SIP factors are more strongly associated with parenting behaviors for parents under high stress. A large body of research shows that high levels of stress negatively affect cognitive capacities (e.g., attention, memory, decision-making), both in laboratory and real-world tasks (e.g., driving, job performance; Cohen, 1980; Gilboa, Shirom, Fried, & Cooper, 2008; Lepine, Podsakoff, & Lepine, 2005; Staal, 2004). Economic stress specifically has been argued to increase cognitive load and impair cognitive functioning (Gennetian & Shafir, 2015; Haushofer & Fehr, 2014; Mani, Mullainathan, Shafir, & Zhao, 2013), with evidence that simply evoking financial concerns can cause large decrements in cognitive performance (Mani et al., 2013). EF may be especially susceptible to the negative effects of stress. Although EF and the broader construct of self-regulation are relatively stable at an individual level (Baumeister, 1998; Diamond, 2013), self-regulation consumes limited and depletable cognitive resources (Baumeister, 1998; Baumeister, Gailliot, DeWall, & Oaten, 2006); accordingly, these capacities are strongly impacted by day-to-day experiences (e.g., stress, loneliness, lack of sleep) (Diamond, 2013). This work suggests that stress may impact parenting by causing decrements in SIP capacities, particularly EF. It must be acknowledged that these pathways are likely bidirectional, as SIP problems, including poor EF, may increase stress.



Other research suggests that parents' cognitive capacities are more strongly linked to parenting behavior under conditions of high stress (Bridgett, Burt, Edwards, & Deater-Deckard, 2015). For example, maternal EF has been shown to moderate relationships between children's behavior and parenting, such that children's negative behaviors were more strongly linked to negative parenting for mothers with low EF (Deater-Deckard et al., 2010, 2012), suggesting that EF capacities help regulate harsh responses to misbehavior (Deater-Deckard, Chen, Wang, & Bell, 2012; Deater-Deckard et al., 2012). Parenting schemas may also interact with stress to predict parenting risk. For example, fathers' self-schemas may moderate the impact of workplace factors on fathers' parenting risk. Linville's (1985, 1987) theory of the buffering role of self-complexity suggests that high stress work environments are likely to have stronger negative effects on parenting for fathers with less differentiated schema in which work plays a central role (i.e., high work centrality) than fathers with more differentiated self-schemas that place less importance on work.

Taken together, these findings highlight the importance of considering SIP factors in conjunction with economic stress in order to clarify whether SIP and economic stress have additive effects on parenting risk, whether economic stress indirectly affects parenting risk through SIP capacities, or whether economic stress acts as a moderator, such that SIP factors are more strongly associated with parenting risk for parents experiencing greater economic stress. In addition, as EF has been shown to be especially susceptible to stress, research should examine associations between economic stress and EF specifically. Lastly, interactions between work stress and fathers' self-schemas should be examined, as work stress may impact parenting risk more for fathers with high work centrality. Furthering our understanding of parenting risk requires integrative research that incorporates multiple etiological theories.

## Current Study

The current study examined the impact of intrapersonal and contextual risks on fathers' parenting risk. Associations of SIP factors, economic stress, and work stress with parenting risk indicators were examined in a sample of disadvantaged resident fathers of children aged 2-6 years living in rural areas. Analyses also tested additive effects of SIP and economic stress, whether economic stress contributed to or interacted with SIP factors to impact parenting risk, and whether work stress interacted with fathers' self-schema regarding work (i.e., work centrality) to predict parenting risk, integrating individual and contextual risks to better inform our understanding of fathers' parenting risk.

As was made evident in the above literature review, parenting risk is conceptualized as encompassing a broad spectrum of parenting behaviors; accordingly, outcomes for this study include multiple indicators of parenting risk. Indicators of risk for child physical abuse in this study are (1) a measure of child abuse potential and (2) positive beliefs about punitive discipline (i.e., high acceptability). Risk for child neglect is indicated by (1) self-reported inconsistent parenting behavior, (2) injury prevention beliefs, (3) children's history of medically attended injuries, and (4) observer ratings of the condition of the home. Lastly, self-reported CPS involvement is used as an indicator of parenting risk.

### Study Hypotheses

**Hypothesis 1:** SIP deficits will be associated with greater risk for physical child abuse and neglect as indicated by (1) child abuse potential, (2) more positive beliefs regarding punitive discipline, (3) more self-reported inconsistent parenting behavior, (4) more maladaptive and less adaptive injury prevention beliefs, (5) more medically attended injuries, and (6) poor home condition. Participants with a history of CPS involvement will exhibit more SIP deficits.

**Hypothesis 2:** Economic stress will be associated with greater risk for physical child abuse and neglect using the indicators specified above. CPS-involved participants will report greater economic stress.

**Hypothesis 3:** For currently employed participants, work stress will be associated with greater parenting risk using the above indicators. CPS-involved participants will report greater work stress.

**Hypothesis 4:** For currently employed participants, work stress will contribute to each indicator of parenting risk after accounting for the contribution of economic stress.

**Exploratory Analyses:** Additional analyses examined whether SIP factors and economic stress had additive effects on parenting risk and if there was any evidence of indirect effects (i.e., mediation) or interactive effects (i.e., moderation). First, additive effects of SIP and economic stress were tested. Next, mediation (i.e., whether greater economic stress indirectly contributed to greater parenting risk through SIP deficits) was tested. Lastly, moderation, specifically whether SIP factors were more strongly associated with parenting risk for fathers experiencing greater economic stress, was tested. As EF is considered to be especially susceptible to stress, mediation and moderation hypotheses were also examined with EF alone. A final exploratory analysis examined moderation of work stress by fathers' schemas about work. Work stress was hypothesized to be more strongly linked to parenting risk for fathers with high work centrality than fathers with low work centrality.

## Methods

### Participants

Participants were 61 disadvantaged rural fathers of young children. Participants were required to live with and act as a parent to at least one child aged 2 to 6 years; the majority of

participants (91.8%) were the index child's biological father. Recruitment targeted low-income fathers to increase variability in parenting risk within the sample. Eligible fathers had (1) a high school education or less OR (2) a family income of less than \$50,000 annually. Those with a family income of more than \$50,000 annually and more than a high school education, as well as those with more than 16 years of education (regardless of income), were excluded. Fathers were recruited at community events, through a university database, and through Head Start programs. Of the 91 fathers who were eligible to participate in the study, 82 (90.1%) agreed to participate. Visits were completed with 60 participants and a partial visit was completed with 1 participant.

Although the word rural evokes shared images of farms and small towns far from urban areas (Bauer, Dyk, Son, & Dolan, 2011), rural is a Roschian (1973) concept, with unclear boundaries that hinder its definition and operationalization. This study relied on two commonly used definitions of rural areas to target appropriate areas for recruitment. The Rural-Urban Continuum Codes (RUCC; Butler & Beale, 1990; USDA Economic Research Service, 2013) classify counties based on the size of their urban population and proximity to metro areas. Codes range from 1 to 9, with 1-3 labeled metropolitan (metro) counties and 4-9 labeled nonmetropolitan (nonmetro) counties. A second definition identifies urban areas (i.e., a core of densely settled units and adjacent territory) based on population density at the level of census blocks and tracts (U.S. Census Bureau, 2011); all areas not included within an urban area are considered rural. Recruitment efforts targeted counties with RUCC of 4 or higher (nonmetro), as well as rural areas of counties with RUCC of 3.

## Procedures

Participants were interviewed in person during one 3 ½ hour home visit.<sup>1</sup> Child care was provided and breaks were given to minimize fatigue. All participants provided informed consent and received \$40 for completing the interview. The study protocol was approved by the Pennsylvania State University Institutional Review Board.

## Measures

**Demographics.** Most participants had a family income of less than \$50,000 annually (90.2%) and approximately two-thirds had a high school diploma or less (68.9%). On average, participants had 2.57 ( $SD = 1.33$ ) biological children and 2.44 ( $SD = 1.10$ ) children in their household. Additional demographic information is presented in Table 1. Most participants (72.1%) were married; four participants (6.6%) were not currently in a relationship. Figure 1 illustrates the diversity of family structure within the sample. Approximately one-third of participants ( $n = 20$ ) lived with children from their or their partner's previous relationship(s) or had nonresidential children. Half of the sample (50.8%) lived in a nonmetropolitan county and almost all (90.2%) lived outside of an urban area.

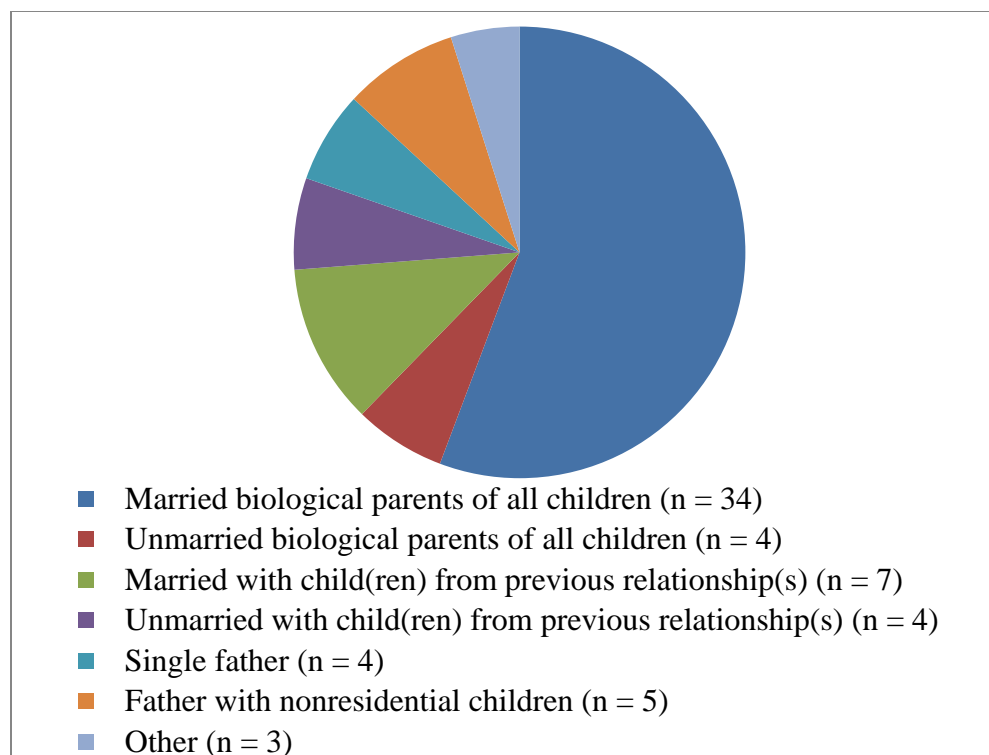
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<sup>1</sup> Two fathers chose to complete the visit at the university.

Table 1

*Participant Demographics*

	M (SD)	n (%)	Range
Age (years)	34.41 (7.67)		20.92-53.25
Education			
Years completed	12.64 (1.62)		10-16
High school diploma or less		42 (68.9)	
Vocational training after high school		8 (13.1)	
Associate's or bachelor's degree		13 (21.3)	
Ethnicity			
Hispanic/Latino		1 (1.6)	
Not Hispanic/Latino		60 (98.4)	
Race			
White/Caucasian		55 (90.2)	
Black/African American		6 (9.8)	
Number of biological children	2.57 (1.33)		1-7
Number of children in household	2.44 (1.10)		1-5
Index child age	4.33 (1.34)		2-6.92
Index child race/ethnicity			
White/Caucasian (non-Hispanic)		53 (86.9)	
Hispanic/Latino		1 (1.6)	
Multiracial		7 (11.5)	
Female index child		31 (50.8)	
Participant IQ	97.30 (15.82)		65-138



*Figure 1.* Participant family structure

**Intellectual functioning.** To assess intellectual functioning, participants were administered the Matrix Reasoning and Information subscales of the Wechsler Adult Intelligence Scale (WAIS-IV; Wechsler, 2008); IQ estimates based on these two subscales correlate highly scores from full administrations ( $r = .84$ ) (Sattler & Ryan, 2009). Intellectual functioning has previously been associated with SIP factors and parenting risk (Azar et al., 2012).

**Social desirability.** Participants' tendency to engage in impression management was assessed with the Marlowe-Crowne Social Desirability Scale (Loo & Thorpe, 2000; Reynolds, 1982). Participants indicated whether each of 13 statements was true or false. The Marlowe-Crowne scale has good psychometric properties and is effective in detecting "faking good;" it is widely used in surveys utilizing self-report measures to control for responses biases (Lambert, Arbuckle, & Holden, 2016; Reynolds, 1982).

**Social information processing: Schemas.**

*Parent Opinion Questionnaire (POQ).* Unrealistic expectations for children were assessed with the POQ (Azar et al., 1984; Azar & Rohrbeck, 1986). The POQ consists of 80 items (e.g., “A 3-year-old child usually knows when his mom or dad is upset and that he should stay out of the way at these times”) in an agree-disagree format and items are summed such that higher scores indicate more unrealistic expectations of children. It has good test-retest reliability over a two-week period ( $r = .85$ ; Haskett et al., 2006) and good internal consistency; Cronbach’s  $\alpha$  in this sample was 0.78. In prior studies, the POQ has been shown to differentiate maltreating and at-risk mothers (e.g., substance abusing) from comparison mothers (Azar et al., 1984; Azar & Rohrbeck, 1986; Spieker, Gillmore, Lewis, Morrison, & Lohr, 2001). Similarly, parents with high POQ scores show more coercive and less adaptive discipline responses (Azar et al., 1984; Azar & Rohrbeck, 1986; Azar et al., 2012; Spieker et al., 2001) and POQ scores are positively associated with child abuse potential (McElroy & Rodriguez, 2008; Okado & Azar, 2011).

*Work Centrality Scale (WCS).* The extent to which individuals consider work to be an important, central part of their lives was assessed with the WCS (Paullay, Alliger, & Stone-Romero, 1994). Participants rated the extent to which they agreed or disagreed with each of 12 statements (e.g., “Work should be considered central to life”) on a 6-point scale from ‘strongly disagree’ to ‘strongly agree.’ The WCS has good internal consistency (Hirschfeld & Feild, 2000; Paullay et al., 1994); Cronbach’s  $\alpha$  was 0.77 in this sample. Work centrality as measured by the WCS is related to involvement in and commitment to current jobs, but reflects a broader schema about the importance of work to an individual (Hirschfeld & Feild, 2000; Paullay et al., 1994).

**Social information processing: Executive functioning and problem-solving.**



**Trail Making Test.** Participants were administered parts A and B of the Trail Making Test (Bowie & Harvey, 2006) to assess cognitive flexibility and set-shifting capacities. Part A requires participants to connect 25 encircled numbers in sequence as quickly as possible and assesses primarily visuo-perceptual abilities, while Part B requires participants to connect alternating letters and numbers and assesses both working memory and task-switching abilities (Sánchez-Cubillo et al., 2009). The difference between time to complete part B and time to complete part A has been used as an indicator of executive control abilities (Sánchez-Cubillo et al., 2009). Both the total time to complete Part B and B-A scores were used as measures of executive functioning for this study. The Trail Making Test has been validated against other measures of executive functioning and demonstrates sensitivity to neurological impairment from a variety of causes (e.g., age-related declines, head injuries; Bowie & Harvey, 2006).

**Wisconsin Card Sorting Test (WCST).** Executive functioning, specifically the ability to shift set, was assessed with the WCST, a widely used neuropsychological test of the ability to display flexibility in the face of changing stimuli and rules (Berg, 1948; Heaton, 1981). Participants were given cards with stimuli differing in color, quantity, and shape and asked to match the cards to a set of key cards; they were told only if each attempted match was correct or incorrect. After a specified number of correct matches, the matching rule changed, requiring participants to stop using the previous rule and determine the new rule. For this study, the number of preservative errors (i.e., the number of times a participant continued to use a rule that was no longer correct; Berg, 1948) was used to measure cognitive flexibility and “set-shifting.” Individuals with neurological impairments perform more poorly on the WCST than controls (Nyhus & Barceló, 2009), and in one early study, mothers at high risk for perpetrating maltreatment performed more poorly than low-risk mothers (Nayak & Milner, 1998).

***Alternate Uses.*** Cognitive flexibility was also assessed using the Alternate Uses test (Guilford, Christiansen, Merrifield, & Wilson, 1978). In this task, participants were asked to produce as many uses as possible, other than the typical use, for six familiar objects. For example, a newspaper is typically used for reading, but could be used to start a fire or wrap a package as well. Acceptable responses are those that are conceivable, unique from one another, and produced within the time limit. Responses were coded by two independent raters; interrater agreement was excellent (Cohen's kappa = 0.87). The total number of acceptable responses produced was used as a measure of cognitive flexibility. Response production has been associated with other EF tasks and is argued to reflect underlying EF capacities (Gilhooly, Fioratou, Anthony, & Wynn, 2007).

***Digit Span.*** Participants were administered the Digit Span subtest of the WAIS-IV to assess working memory, one dimension of executive functioning (Sattler & Ryan, 2009; Wechsler, 2008). Standard scores were calculated and used as a measure of working memory. This subtest has excellent reliability and scores are strongly associated with other measures of working memory (Wechsler, 2008).

***Parent Problem Solving Inventory (PPSI).*** Problem solving abilities in parenting situations were assessed with the PPSI (Wasik & Bryant, 1994), which is modeled after a commonly used adult problem-solving test, the Means-Ends Problem Solving Test, developed by Platt and Spivack (1975). The PPSI consists of 10 typical childrearing problems presented in story form (e.g., tantrum in a store, siblings fighting over a toy). Participants were read the beginning of each story, outlining the problem (e.g., a mother is in the grocery store and her child begins to throw a tantrum), and then given the end of each story, where the problem has been resolved (e.g., the child has quieted down). Participants were asked to provide the middle of

the story (i.e., solution[s] to the problem). Responses were scored by independent raters for (1) number of irrelevant solutions (responses that did not solve the problem); (2) the total number of solution categories used across the 10 stories (e.g., leaving the situation, compromising); and (3) the total number of solutions given across the stories. Interrater reliability in this sample was good (in a random sample of 20, Cohen's kappa = .76 for irrelevant agreement; ICC = 0.84 and 0.88 for number of solution categories and solutions, respectively). This measure has been shown previously to distinguish maltreating from nonmaltreating parents (Azar et al., 1984, 2012).

### **Social information processing: Attributions.**

*Child Vignettes.* Hostile attributions for children's behavior were assessed with the Child Vignettes. Participants were presented with 18 vignettes of hypothetical aversive child behavior (Plotkin, 1983), asked to imagine that the child presented in each of the vignettes is their own, and rated how much they think the child did the behavior to annoy them on a 9-point scale from 'not at all' to 'very much.' Three types of vignettes are included: intentional child misbehavior, unintentional child misbehavior, and ambiguous child misbehavior. Ratings for each vignette are summed so that higher scores indicate more hostile attributions towards children's behavior. This measure has excellent internal consistency (Cronbach's  $\alpha = 0.90$ ). Mothers who have perpetrated child maltreatment have been shown to rate child misbehavior as more intentional than control mothers (Azar et al., 2012; Haskett et al., 2003; Plotkin, 1983).

### **Economic stress.**

*Income Questionnaire.* To assess economic stress, participants provided information about amounts and sources of household income (e.g., work done by father, work done by partner, TANF) and the number of people living on this income. Monthly income (from all sources) was used to calculate participants' income-to-needs ratio – family income divided by

the 2016 poverty guideline for family size (U.S. DHHS, ASPE, 2016). Participants rated the stability of their family's income on a 6-point scale from 'very unstable' to 'very stable,' reported whether they had money saved (i.e., no money saved, some money saved, more than 6 months of living expenses saved), and reported whether or not they had experienced each of 8 economic hardships (e.g., lost a job, could not pay bills) in the past 6 months. Psychological stress from debt was assessed with four questions from the Consumer Finance Monthly survey (e.g., "How often do you worry about the total amount your family owes in overall debt?"), each using a 5-point scale (Dunn & Mirzaie, 2012); this measure had excellent internal consistency (Cronbach's  $\alpha = 0.86$ ). Greater debt stress has been associated with health problems and negative impacts on work and family life (Dunn & Mirzaie, 2012).

***Family Resources Scale (FRS).*** Subjective perceptions of economic stress were assessed with the Basic Needs and Extra Resources subscales of the FRS (Brannan, Manteuffel, Holden, & Heflinger, 2006; Dunst & Leet, 1987), which assesses the adequacy of resources in households with young children. Participants rated 10 items addressing the adequacy of resources on a 5-point scale from 'not at all adequate' to 'almost always adequate.' The FRS has good internal consistency and adequate test-retest reliability (Dunst & Leet, 1987). Cronbach's  $\alpha$  for the Basic Needs and Extra Resources subscales were 0.70 and 0.82, respectively. The FRS is significantly correlated with other measures of family resources and has been found to predict child outcomes after considering family income, parents' education, and parents' employment (Brannan et al., 2006; Van Horn et al., 2001).

#### **Employment and work stress.**

***Employment Questionnaire.*** Participants provided information about their current job(s) and employment history. For each job held within the past six months, participants reported the

type of work, position, hours worked per week, and schedule. Fathers who were not currently employed provided a reason (e.g., looking for work, disabled, in school). Information related to position and type of work was used to assign occupational prestige scores (Hout, Smith, & Marsden, 2015; Nakao & Treas, 1994). The extent to which fathers work nonstandard or changing schedules was rated on a 0-8 scale by summing their endorsement of occasional (1) or frequent (2) evening/night shifts, weekend shifts, changing work hours, and changing work days.

***Moos Work Environment Scale (WES)***. Participants' workplace environment was assessed with the Work Pressure and Managerial Control subscales of the WES (Moos, 1994). Participants indicated whether each of 18 statements about their workplace (e.g., "There is a constant pressure to keep working") was true or false for their primary workplace. WES subscales have good internal consistency and test-retest reliability (Moos, 1994); Cronbach's  $\alpha$  in this sample was 0.70 for Work Pressure and 0.75 for Managerial Control. Participants were also administered 9 items assessing coworker support; these items are not included in analyses because of poor internal consistency for this subscale (Cronbach's  $\alpha = 0.33$ ). Total WES scores are associated with job satisfaction and the selected subscales have been associated with burnout in expected directions, indicating good construct validity (Maqsood, 2011; Savicki & Cooley, 1987; Tumulty, Jernigan, & Kohut, 1994).

### **Indicators of parenting risk.**

***Brief Child Abuse Potential Inventory (BCAPI)***. Risk for physical child abuse was assessed with the Brief Child Abuse Potential Inventory (BCAPI; Ondersma et al., 2005), a 34-item measure based on the Child Abuse Potential Inventory (CAPI; Milner, 1986), the most widely researched and used measure of parental risk for child maltreatment. The BCAPI has excellent internal consistency (Cronbach's  $\alpha = 0.87$  in this sample) and a stable factor structure

(Ondersma et al., 2005). The BCAPI has been shown to longitudinally predict future reports to Child Protective Services for both abuse and neglect (Ondersma et al., 2005) and is strongly related to the full CAPI (Ondersma et al., 2005), which has been shown to differentiate maltreating parents from non-maltreating parents (Milner, 1994; Walker & Davies, 2010).

***Dimensions of Discipline Inventory.*** Beliefs about punitive discipline practices, which are associated with physical abuse risk (Black et al., 2001; Cappa & Khan, 2011; Zolotor et al., 2008), were assessed with items reflecting punitive discipline strategies selected from Part E of the Dimensions of Discipline Inventory (Straus & Fauchier, 2007). Participants rated the extent to which they approve or disapprove of each of 13 specific discipline behaviors (e.g., “spank, slap, smack, or swat children that age,” “send children that age to bed without a meal”) using a 4-point scale, from ‘never OK’ to ‘always or almost always OK’ (Straus & Fauchier, 2007; Van Leeuwen, Fauchier, & Straus, 2012). Internal consistency for this measure was adequate; Cronbach’s  $\alpha = 0.72$ . Good construct validity is indicated by strong associations with measures of self-reported discipline, as well as links with use of physical punishment in hypothetical situations (Fauchier & Straus, 2010; Russa, Rodriguez, & Silvia, 2014).

***Alabama Parenting Questionnaire-Preschool Revision (APQ-PR).*** Self-reported parenting behavior was assessed with the APQ-PR (Clerkin, Halperin, Marks, & Policaro, 2007; Shelton, Frick, & Wootton, 1996). The APQ assesses an array of parenting practices (e.g., positive parenting, poor monitoring, inconsistent discipline) and has been widely used with parents of school-aged children; it has strong associations with children’s conduct problems, indicating good construct validity (Dadds, Maujean, & Fraser, 2003; Essau, Sasagawa, & Frick, 2006). The Preschool Revision eliminates several items not relevant to younger children; participants rated how often each of the 32 remaining items typically occurs in their home on a

5-point scale from 'never' to 'always.' Clerkin and colleagues (2007) found that items loaded onto three subscales reflecting positive (e.g., "You praise our child if he/she behaviors well"), inconsistent (e.g., "You let your child out of a punishment early"), and punitive (e.g., You yell or scream at your child when he/she has done something wrong") parenting. To reduce concerns about mandated reporting, this study did not include the three items assessing use of corporal punishment. As the remaining two items assessing punitive parenting had poor internal consistency in this sample (Cronbach's  $\alpha = 0.25$ ), the punitive subscale was dropped from analyses. Internal consistency for the positive and inconsistent subscales was adequate (Cronbach's  $\alpha = 0.82$  and Cronbach's  $\alpha = 0.70$ , respectively). The inconsistent parenting subscale was used as an indicator of risk for perpetrating neglect, as inconsistent parenting has been associated with poor monitoring (Essau et al., 2006; Turner et al., 2012)

***Parent Supervision Attributes Profile Questionnaire (PSAPQ).*** To assess maladaptive beliefs regarding supervision, participants completed the PSAPQ, a 29-item questionnaire measure of parent supervision beliefs (Morrongiello & Corbett, 2006; Morrongiello & House, 2004). Factor analysis has identified four subscales: Protectiveness (e.g., "I think of all the dangerous things that could happen"), Supervision (e.g., "I know exactly what my child is doing"), Risk Tolerance (e.g., I encourage my child to try new things"), and Belief in Fate (e.g., "Whether or not my child gets injured is largely a matter of fate"). Participants rated each item on a 5-point scale from 'never' to 'all of the time.' The PSAPQ has good test-retest reliability (Morrongiello & Corbett, 2006); internal consistency for subscales was adequate in this sample (Cronbach's  $\alpha = 0.61-0.85$ ). The PSAPQ is associated with parents' supervision behaviors in real-world settings, as well as children's risk-taking behavior and injury histories, indicating

strong construct and predictive validity (Klommek, Chaimongkol, Deenan, Wongnum, & Flick, 2015; Morrongiello & House, 2004; Petrass, Blitvich, & Finch, 2011).

***Injury Attitudes Questionnaire (IAQ).*** To assess beliefs about injuries, participants completed the IAQ, a 30-item measure assessing perceived benefits of child injuries (Lewis et al., 2004). Fathers indicated their agreement with each statement (e.g., “Injuries can help my child to learn to handle physical pain better”) on a 7-point scale from ‘very strongly disagree’ to ‘very strongly agree.’ Items have been found to load onto two distinct factors – beliefs that children learn from injuries and beliefs that children are toughened by injuries (Lewis et al., 2004). The IAQ has good test-retest reliability and internal consistency (Lewis et al., 2004); Cronbach’s  $\alpha = 0.79$  in this sample. Fathers also reported how many times their child had experienced an injury requiring medical attention.

***Home condition.*** Physical condition of the home was assessed by interviewers using standardized rating scales. Scales included four Physical Care subscales (Crowding, Furnishings, Sanitation, and Safety) of the Child Well Being Scales (CWBS; Magura & Moses, 1986), the Physical Environment subscale of the HOME (Bradley, Corwyn, McAdoo, & Coll, 2001), and two items assessing overall condition of the inside and outside of the home. Inter-rater reliability for all observer ratings was excellent (ICCs = 0.91-0.96). The CWBS and HOME have been associated with CPS neglect reports and children’s outcomes (Dubowitz, Pitts, & Black, 2004).

***Child Protective Services (CPS) involvement.*** Participants self-reported whether their family had ever been involved with child welfare. These data were available for 58 participants; 18 were considered CPS-involved and 40 were considered comparison fathers.<sup>2</sup>

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<sup>2</sup> Four comparison participants were granted full custody of their child by CPS following their former partner’s CPS involvement. An additional comparison participant sought help from CPS due to concerns about sexual abuse outside of the home. Three participants were excluded; one participant was not asked this question and two participants reported both CPS involvement and being a foster/adoptive parent.



## **Analytic Plan**

**Hypothesis testing.** A series of linear regressions was used to test main effects of SIP factors (Hypothesis 1), economic stress (Hypothesis 2), and work stress (Hypothesis 3) on each indicator of parenting risk (i.e., (1) child abuse potential, (2) punitive discipline beliefs, (3) self-reported inconsistent parenting behavior, (4) injury prevention beliefs, (5) injuries, and (6) observer-rated poor home condition). A log transformation of child abuse potential (i.e., BCAPI risk scores) was used in all regression analyses to address a non-normal distribution of residuals and avoid violating the assumption of normally distributed errors. For each outcome, covariates were entered in the first block and independent variables (i.e., SIP, economic stress, or work stress variables) in the second block. Differences between CPS-involved and comparison fathers were tested using independent samples t-tests. Linear regression was also used to test whether work stress contributed significantly to indicators of parenting risk after accounting for the contribution of economic stress (Hypothesis 4). Covariates were entered in the first block, economic stress variables in the second block, and work stress variables in the final block.

**Exploratory analyses.** Linear regression was used to test for additive effects of SIP and economic stress on parenting risk. Mediation and moderation hypotheses were tested using Hayes' (2012) PROCESS modeling tool. When testing for mediation, PROCESS compares the strength of the indirect effect to the null hypothesis that the indirect effect is zero; an indirect effect is considered statistically significant if the confidence interval does not include zero. Indirect effects were estimated using a bias-corrected bootstrap method because it has high power with little excess Type I error (Taylor, MacKinnon, & Tein, 2007). When testing for moderation, PROCESS tests whether the interaction term contributes significant variance to the

outcome after considering covariates and each of the main effects. For significant interactions, simple slopes were plotted to examine the direction of the effect.

## Results

### Preparatory Analyses

**Data reduction.** As many constructs of interest were assessed with multiple measures, bivariate analyses were used to examine intercorrelations among related variables (Supplemental Tables 1-5). Principal components analysis (PCA) was used to reduce multiple variables into a smaller number of summary variables (Abdi & Williams, 2010; Blunch, 2013). PCA was conducted for six groups of highly intercorrelated variables – EF variables, problem-solving variables, economic stress variables, work stress variables, injury beliefs, and ratings of home condition (Table 2; see Supplemental Tables 6-11 for factor loadings). The number of factors retained was determined based on the Kaiser criterion (i.e., retaining factors with eigenvalues greater than 1) and visual examination of scree plots. When PCA resulted in more than one factor, varimax rotation was applied to aid in interpretation of factors. Factor scores were calculated by regression, creating an optimally-weighted composite of the observed variables.

Executive functioning (EF) measures loaded onto one factor, labeled ‘EF’ in PCA. Similarly, the three scores obtained for the Parent Problem Solving Inventory were combined into one factor, ‘Problem-Solving,’ for analyses. For both the EF and problem-solving factors, a higher score indicates better performance. Measures of economic stress loaded onto two factors; higher scores for ‘Economic Resources’ indicate more resources and fewer hardships and higher scores for ‘Economic Security’ indicate less debt stress and more stable income. Work stress variables loaded onto two factors, the first, ‘Work Resources,’ indicates greater occupational prestige and less managerial control and the second, ‘Work Demands,’ indicates greater work

pressure and a more nonstandard schedule. PCA of injury beliefs found two factors consistent with prior work (Azar, Miller, Stevenson et al., 2016): ‘Maladaptive Injury Prevention Beliefs’ and ‘Adaptive Injury Prevention Beliefs.’ Lastly, observer ratings of the home environment loaded onto one ‘Poor Home Condition’ factor; higher scores indicate less clean and safe homes.

Table 2

*Factors Identified in Principal Components Analyses*

<i>Factor Name</i>	<i>Measure</i>	<i>Score/Subscale</i>	
<b>Executive Functioning</b>	Trail Making Test	Trail B time B-A time difference	
	WAIS-IV Digit Span	Scaled score	
	Alternate Uses	Total acceptable uses	
	Wisconsin Card Sorting Test	Perseverative errors	
<b>Problem-Solving</b>	Parent Problem Solving Inventory	Irrelevant responses Number of solution categories Number of solutions	
	<b>Economic Resources</b>	Income Questionnaire	Income-to-needs ratio Savings
		Family Resources Scale	Extra Resources subscale Basic Needs subscale
<b>Economic Security</b>	Responses to Stress Questionnaire	Number of economic hardships	
	Income Questionnaire	Debt stress mean Income stability rating	
<b>Work Resources</b>	Employment Questionnaire	Occupational prestige rating	
<b>Work Demands</b>	Moos Work Environment Scale	Managerial Control subscale	
	Employment Questionnaire	Extent of nonstandard schedule	
	Moos Work Environment Scale	Work Pressure subscale	
<b>Maladaptive Injury Prevention Beliefs</b>	Injury Attitudes Questionnaire	Learning subscale Toughening subscale	
		Risk Tolerance subscale	
	Parent Supervision Attributes Profile Questionnaire	Belief in Fate subscale	
<b>Adaptive Injury Prevention Beliefs</b>	Parent Supervision Attributes Profile Questionnaire	Supervision subscale Protectiveness subscale	
	<b>Poor Home Condition</b>	Child Well-Being Scales	Sum score
Interviewer rating		Indoor condition	
Home Observation for Measurement of the Environment		Physical Environment subscale	

Table 3

*Correlations between Demographic and Parenting Risk Measures*

	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age (years)	.054	-.011	.202	.537**	.369**	.092	.128	.318*	-.149	.062	-.115	.045	-.030	-.122
2. Education (years)		.477**	-.015	.051	.258*	.167	.120	-.196	.287*	-.127	-.013	-.357**	.126	-.396**
3. IQ			-.108	-.035	.327*	-.101	-.113	-.182	.337**	-.136	.053	-.521**	.094	-.363**
4. Racial/ethnic minority				.271*	-.118	-.057	.132	.277*	-.069	.201	.140	.229+	.009	.104
5. Number of children					.266*	.080	.215+	.005	-.165	.085	-.163	-.107	-.095	-.044
6. Index child age						.022	-.008	.119	.238+	.212	-.060	-.354**	.304*	-.209
7. Index child gender							.209	.060	-.113	-.321*	-.118	.110	-.071	-.063
8. Social desirability								-.291*	-.226+	-.256*	.096	.024	-.174	-.085
9. Child abuse potential									.118	.251+	.057	.286*	.043	.225+
10. Punitive discipline beliefs										.121	.183	-.296*	.040	-.303*
11. Inconsistent parenting											.244+	.045	.221+	.195
12. Maladaptive injury prevention beliefs												.000	.311*	-.030
13. Adaptive injury prevention beliefs														-.166
14. Medically attended injuries														.414**
15. Poor home condition														.128

\*\* $p < .01$  \* $p < .05$  + $p < .10$

**Correlations and selection of covariates.** Previous research has shown relationships between demographic variables, intellectual functioning, and measures of parenting risk (e.g., Azar et al., 2012); therefore, correlations among these variables were examined to determine if these factors were associated with the parenting risk indicators utilized in this study (Table 3). Participant IQ and years of education were significantly positively correlated with punitive discipline beliefs and negatively correlated with adaptive injury prevention beliefs and poor home condition; participant IQ was chosen as a covariate. IQ was also included as a covariate for all SIP analyses to better identify the contributions of EF and problem-solving (both highly correlated with IQ). Social desirability was included as a covariate in analyses of all outcomes except poor home condition, which was observer-rated and not correlated with social desirability. Fathers who identified as racial/ethnic minorities and older fathers had higher child abuse potential; given the small number of non-White fathers in the sample, only age was used as a covariate.<sup>3</sup> As fathers of a male index child reported more inconsistent parenting than fathers of a female index child, child gender was used as a covariate in inconsistent parenting analyses. Child age was associated with adaptive injury prevention beliefs and injury history and previous research has linked child age and gender to supervision and injuries (Damashek, Borduin, & Ronis, 2014; Morrongiello & Dawber, 1999; Morrongiello et al., 2009); both child age and gender were used as covariates in analyses of injury prevention beliefs and injury history.

### **Associations among Parenting Risk Indicators**

To examine the validity of the parenting risk indicators used in this study (i.e., (1) child abuse potential, (2) punitive discipline beliefs, (3) inconsistent parenting behavior, (4) injury prevention beliefs, (5) injuries, and (6) poor home condition), t-tests were used to examine whether indicators of parenting risk differed between CPS-involved and comparison fathers

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<sup>3</sup> Controlling for minority status in regression analyses does not change findings.

(Table 4) and associations between measures of parenting risk were examined with correlational analyses (Table 3). Differences between groups and associations with other risk indicators provide evidence that a measure is a valid indicator of parenting risk in this sample.

Overall, the sample exhibited relatively low levels of risk, particularly for child abuse potential and punitive discipline beliefs<sup>4</sup> (see Table 4 for descriptive statistics). Child abuse potential, inconsistent parenting, maladaptive injury prevention beliefs, medically attended injuries, and poor home condition had evidence of validity as risk indicators. CPS-involved fathers exhibited more child abuse potential, more inconsistent parenting, and poorer home condition; associations among these measures were in expected directions. Although there were no significant differences between groups in maladaptive injury prevention beliefs or children's medically attended injuries, maladaptive injury prevention beliefs were correlated with more injuries and this association remained significant after considering child age and gender ( $r = .34$ ).

Little support was found for punitive discipline beliefs and adaptive injury prevention beliefs as valid indicators. Unexpectedly, comparison fathers reported significantly more positive punitive discipline beliefs and less adaptive injury prevention beliefs than CPS-involved fathers. These measures also had similarly unexpected associations with other risk indicators. More positive punitive discipline beliefs were correlated with better home condition and not related to child abuse potential (a measure of physical abuse risk). Adaptive injury prevention beliefs were positively correlated with child abuse potential and poor home condition; they were not associated with injuries. For consistency, these two outcomes are included in analyses, but findings should be considered with caution, given little evidence for their validity in this sample.

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<sup>4</sup> Only 8 participants (13%) indicated that spanking was "usually OK" and only 4 (6.5%) indicated that using an object was ever OK (all selected "rarely OK").

Table 4

*Parenting Risk Measures: Descriptive Statistics and Differences by CPS Involvement*

	Full Sample (n = 61)		CPS Involved (n = 18)	Comparison (n = 40)	<i>t</i>
	M (SD)	Range	M (SD)		
Child abuse potential <sup>1</sup>	4.67 (4.66)	0.00-16.00	7.35 (5.57)	3.73 (3.93)	-2.44*
Punitive discipline beliefs <sup>1</sup>	1.66 (0.29)	1.15-2.46	1.52 (0.23)	1.73 (0.30)	2.59*
Inconsistent parenting <sup>1</sup>	15.70 (3.85)	7.00-25.00	17.41 (3.39)	15.08 (3.98)	-2.12*
Maladaptive injury prevention beliefs	0.00 (1.00)	-1.68-2.66	-0.08 (0.92)	0.09 (1.05)	0.59
Adaptive injury prevention beliefs	0.00 (1.00)	-2.38-2.00	0.44 (0.97)	-0.16 (0.99)	-2.12*
Medically attended injuries	0.56 (0.59)	0.00-2.00	0.72 (0.67)	0.48 (0.55)	-1.47
Poor home condition <sup>2</sup>	0.00 (1.00)	-0.95-2.77	0.75 (1.22)	-0.28 (0.72)	-3.22**

\*\* $p < .01$  \* $p < .05$  + $p < .10$

<sup>1</sup> n = 60 (17 CPS-involved, 40 comparison)

<sup>2</sup> n = 58 (17 CPS-involved, 38 comparison)

### **Hypothesis 1: Main Effect of SIP on Parenting Risk**

SIP factors were hypothesized to be associated with greater parenting risk and CPS-involved participants were expected to exhibit more SIP deficits. In regression analyses (Table 5), SIP factors significantly added to inconsistent parenting and maladaptive injury prevention beliefs and marginally added to punitive discipline beliefs. Contrary to hypotheses, no SIP factors contributed to child abuse potential, injuries, or poor home condition. Descriptive statistics and group differences are presented in Table 6.

Unrealistic expectations were significantly associated with more positive punitive discipline beliefs and more maladaptive injury prevention beliefs in bivariate and multivariate analyses (see Supplemental Table 12 for correlations), but did not differ between groups. Poorer EF and problem-solving were correlated with poor home condition and poorer EF was correlated with more inconsistent parenting. After considering covariates, EF was significantly associated with maladaptive injury prevention beliefs and marginally associated with inconsistent parenting in expected directions. As hypothesized, CPS-involved fathers exhibited poorer scores on the EF factor (with significantly poorer performance on the WCST and marginally poorer performance on Trail Making Part B) and significantly poorer problem-solving than comparison fathers. Unexpectedly, EF and problem-solving were correlated with punitive discipline beliefs and adaptive injury prevention beliefs in the opposite direction as hypothesized; in regression analyses, better problem-solving was marginally associated with less adaptive injury prevention beliefs. Lastly, hostile attributions were significantly correlated with greater child abuse potential and more inconsistent parenting and marginally correlated with injuries, consistent with hypotheses. Attributions did not differ between groups. In regression analyses, attributions were only marginally associated with more inconsistent parenting.



Table 5

*Contributions of SIP Factors to Parenting Risk*

Outcome	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	Change in <i>R</i> <sup>2</sup>	Step 1					Step 2			
				IQ	Social desirability	Age	Child age	Child gender	Unrealistic expectations	EF	Problem-solving	Hostile attributions
				$\beta$								
Child abuse potential	.323**	.232	.073	-.062	-.373**	.301*	----	----	.136	-.092	.032	.187
Punitive discipline beliefs	.277**	.195	.127+	.227	-.159	----	----	----	.296*	.069	.186	.062
Inconsistent parenting	.344**	.256	.164*	.258	-.235+	----	----	-.285*	-.015	-.300+	-.255	.272+
Maladaptive injury prevention beliefs	.268*	.153	.230**	.398*	.153	----	-.123	-.095	.364*	-.459*	.187	.015
Adaptive injury prevention beliefs	.368**	.269	.064	-.369*	-.110	----	-.189	.081	-.016	.048	-.278+	-.116
Medically attended injuries	.224+	.102	.086	.183	-.139	----	.291*	-.025	.129	-.117	.028	.217
Poor home condition <sup>1</sup>	.183+	.104	.051	-.299	----	----	----	----	-.117	-.125	-.073	-.117

\*\**p* < .01   \**p* < .05   +*p* < .10

Note: Change in *R*<sup>2</sup> indicates change from a covariate(s) only model

<sup>1</sup>*n* = 58

Table 6

*SIP Measures: Descriptive Statistics and Differences by CPS Involvement*

	Full Sample (n = 61)		CPS Involved (n = 18)	Comparison (n = 40)	<i>t</i>
	M (SD)	Range	M (SD)		
Unrealistic expectations	8.08 (4.62)	2.00-30.00	9.00 (6.20)	7.88 (3.88)	-0.84
EF (factor score) <sup>1</sup>	0.00 (1.00)	-2.41-1.78	-0.45 (1.08)	0.12 (0.92)	2.04*
Perseverative errors	12.64 (8.89)	4.00-41.00	17.00 (9.86)	10.70 (8.06)	-2.57*
Alternate uses (total) <sup>1</sup>	17.83 (7.58)	5.00-33.00	15.24 (6.95)	18.53 (7.81)	1.50
Trail B time <sup>1</sup>	56.29 (23.34)	24.84-133.09	65.74 (25.80)	53.59 (21.71)	-1.83+
Trail B-A time <sup>1</sup>	33.62 (20.49)	7.28-110.83	39.90 (22.09)	32.05 (19.81)	-1.32
WAIS-IV Digit Span	8.97 (2.79)	4.00-15.00	8.17 (2.60)	9.05 (2.75)	1.15
Problem-solving (factor score) <sup>1</sup>	0.00 (1.00)	-2.40-1.56	-0.48 (1.03)	0.14 (0.93)	2.21*
Irrelevant responses <sup>1</sup>	1.87 (1.67)	0.00-6.00	2.59 (1.87)	1.63 (1.56)	-2.01+
Number of categories used <sup>1</sup>	11.17 (2.75)	5.00-16.00	9.88 (2.69)	11.48 (2.58)	2.11*
Number of means used <sup>1</sup>	11.95 (3.16)	5.00-17.00	10.41 (2.98)	12.38 (3.03)	2.25*
Hostile attributions	38.70 (18.43)	18.00-88.00	42.17 (21.66)	38.33 (17.10)	-0.73

\*\* $p < .01$    \* $p < .05$    + $p < .10$

<sup>1</sup> n = 60 (17 CPS-involved, 40 comparison)

**Hypothesis 2: Main Effect of Economic Stress on Parenting Risk**

Economic stress was hypothesized to be associated with greater parenting risk and CPS-involved participants were expected to report greater economic stress. In both bivariate and multivariate analyses, economic resources were negatively associated with child abuse potential, inconsistent parenting, and poor home condition, as expected, but were not associated with punitive discipline beliefs, injury prevention beliefs, or injuries (Table 7, see Supplemental Table 12 for correlations). Economic security was significantly negatively associated with child abuse potential in regression analyses. Fathers with histories of CPS involvement had significantly fewer economic resources than comparisons (Table 8); they had significantly lower incomes and income-to-needs ratios, more economic hardships, and were less likely to have money in savings than comparisons, although there were no differences in their perceptions of adequate resources on the FRS. There were no differences between groups in economic security.

Table 7

*Contributions of Economic Stress to Parenting Risk*

Outcome	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	Change in <i>R</i> <sup>2</sup>	Step 1					Step 2	
				IQ	Social desirability	Age	Child age	Child gender	Economic resources	Economic security
				$\beta$						
Child abuse potential <sup>1</sup>	.431**	.390	.220**	----	-.426**	.253*	----	----	-.423**	-.208*
Punitive discipline beliefs	.153+	.091	.004	.311*	-.183	----	----	----	.053	.030
Inconsistent parenting <sup>1</sup>	.241**	.186	.101*	----	-.249*	----	----	-.222+	-.277*	-.163
Maladaptive injury prevention beliefs	.103	.001	.065	.118	.126	----	-.102	-.125	-.014	-.259+
Adaptive injury prevention beliefs	.325**	.248	.020	-.438**	-.055	----	.078	-.236+	-.055	-.134
Medically attended injuries	.160+	.083	.022	----	-.185	----	.344**	.016	-.109	.113
Poor home condition <sup>2</sup>	.244**	.202	.112*	-.299*	----	----	----	----	-.341**	-.008

\*\**p* < .01   \**p* < .05   +*p* < .10

Note: Change in *R*<sup>2</sup> indicates change from a covariate(s) only model

<sup>1</sup>*n* = 60

<sup>2</sup>*n* = 58

Table 8

*Economic Stress Measures: Descriptive Statistics and Differences by CPS Involvement*

	Full Sample		CPS Involved	Comparison	
	(n = 61)		(n = 18)	(n = 40)	
	M (SD) / n (%)	Range	M (SD) / n (%)		<i>t</i> / $\chi^2$
Monthly income	2806.08 (1283.85)	0.00-6408.00	2004.22 (1017.05)	3161.18 (1258.89)	3.42**
Economic resources factor	0.00 (1.00)	-2.37-2.41	-0.56 (0.94)	0.30 (0.93)	3.26**
Income-to-needs ratio	1.32 (0.61)	0.00-3.16	0.95 (0.54)	1.50 (0.58)	3.44**
FRS Basic Needs	4.42 (0.50)	2.60-5.00	4.32 (0.55)	4.48 (0.50)	1.05
FRS Extra Resources	3.16 (0.80)	1.40-4.80	2.98 (0.81)	3.28 (0.82)	1.31
Hardships	1.38 (1.43)	0.00-5.00	1.94 (1.55)	1.05 (1.28)	-2.30*
Savings	34 (55.7%)	----	6 (33.3%)	27 (67.5%)	5.91*
Economic security factor	0.00 (1.00)	-2.97-1.75	0.16 (1.11)	-0.10 (0.97)	-0.92
Income stability	4.66 (1.29)	1.00-6.00	4.44 (1.25)	4.73 (1.34)	0.75
Debt stress	1.36 (0.91)	0.00-3.25	1.32 (1.01)	1.41 (0.90)	0.33

\*\**p* < .01   \**p* < .05   +*p* < .10

**Hypothesis 3: Main Effect of Work Stress on Parenting Risk**

For currently employed participants ( $n = 50$ ), work stress was hypothesized to be associated with greater parenting risk. CPS-involved participants were expected to report greater work stress. Bivariate associations are presented in Supplemental Table 12. In regression analyses (Table 9), work demands were significantly associated with greater child abuse potential and more positive beliefs about punitive discipline, but the addition of work stress variables to these models was only marginally significant. Work resources and demands did not add significantly to models for inconsistent parenting, injury prevention beliefs, injuries, or poor home condition, although there was an unexpected trend-level association between more work resources (i.e., greater prestige and autonomy) and less adaptive injury prevention beliefs. CPS-involved fathers were less likely to be employed (55.6% vs. 92.5%,  $\chi^2 = 11.03$ ,  $p < .01$ ) and worked fewer hours ( $M = 22.06$  vs.  $M = 42.34$ ,  $t = 3.43$ ,  $p < .01$ ) than comparisons, but when considering only currently employed fathers, there were no differences in work stress between groups (Supplemental Table 13).

**Hypothesis 4: Additive Effect of Work Stress on Parenting Risk**

For currently employed participants, work stress was hypothesized to contribute to parenting risk even after accounting for economic stress. The addition of work stress factors contributed significantly to the model for child abuse potential, with work resources and demands both marginally associated with child abuse potential (Table 10). Work demands were significantly associated with more positive beliefs about punitive discipline, although the addition of work stress to the model was only marginally significant. Work stress did not add significantly to models for inconsistent parenting, injury prevention beliefs, injuries, or poor home condition.

Table 9

*Contributions of Work Stress to Parenting Risk*

Outcome	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	Change in <i>R</i> <sup>2</sup>	IQ	Social desirability	Age	Child age	Child gender	Work resources	Work demands	
				Step 1					Step 2		
				$\beta$							
Child abuse potential	.323**	.263	.092+	----	-.314*	.364**	----	----	-.160	.263*	
Punitive discipline beliefs	.284**	.221	.081+	.379**	-.174	----	----	----	.036	.297*	
Inconsistent parenting	.134	.057	.010	----	-.159	----	----	-.252+	.014	.105	
Maladaptive injury prevention beliefs	.093	-.034	.076	.068	.175	----	-.092	-.120	.151	.247	
Adaptive injury prevention beliefs	.348**	.257	.068	-.353*	.078	----	-.224+	.092	-.235+	.143	
Medically attended injuries	.157	.061	.030	----	-.124	----	.272+	-.068	-.028	.177	
Poor home condition <sup>1</sup>	.127	.068	.032	-.291*	----	----	----	----	-.168	.053	

\*\**p* < .01   \**p* < .05   +*p* < .10

Note: Change in *R*<sup>2</sup> indicates change from a covariate(s) only model

<sup>1</sup>*n* = 48

Table 10

*Contributions of Economic and Work Stress to Parenting Risk*

Outcome	<i>R</i> <sup>2</sup>	Adjusted <i>R</i> <sup>2</sup>	Change in <i>R</i> <sup>2</sup>	IQ	Social desira bility	Age	Child age	Child gender	Economic resources	Economic security	Work resources	Work demands
				Step 1				Step 2		Step 3		
				$\beta$								
Child abuse potential	.529**	.463	.075*	----	-.378**	.309**	----	----	-.367**	-.246*	-.188+	.206+
Punitive discipline beliefs	.291*	.192	.086+	.378**	-.174	----	----	----	-.007	.085	.030	.308*
Inconsistent parenting	.266*	.163	.002	----	-.227	----	----	-.224	-.272+	-.222	-.004	.049
Maladaptive injury prevention beliefs	.143	-.024	.065	.095	.168	----	-.137	-.126	-.051	-.221	.149	.223
Adaptive injury prevention beliefs	.374**	.252	.062	-.339*	.080	----	-.254+	.082	-.009	-.164	-.231+	.127
Medically attended injuries	.197	.063	.030	----	-.175	----	.279+	-.026	-.189	.113	-.056	.173
Poor home condition <sup>1</sup>	.351**	.274	.034	-.171	----	----	----	----	-.428**	-.194	-.181	.039

\*\**p* < .01   \**p* < .05   +*p* < .10

Note: Change in *R*<sup>2</sup> indicates change from adding work stress to a covariate(s) and economic stress model

<sup>1</sup>*n* = 48



## **Exploratory Analyses**

**Additive effects of SIP and economic stress.** As a first step in integrating the intrapersonal and contextual models tested in this study, the additive effects of SIP and economic factors were examined (Table 11). After considering covariates and economic stress, SIP factors contributed significantly to inconsistent parenting and maladaptive injury prevention beliefs and contributed marginally to punitive discipline beliefs. When SIP variables were entered first, economic stress factors contributed significantly to child abuse potential and poor home condition. The full models accounted for 25-51% of the variance in outcomes. The pattern of findings for individual economic and SIP factors remained almost identical, suggesting that both intrapersonal and contextual factors make unique contributions to parenting risk.

Table 11

*Additive Contributions of Economic Stress and SIP Factors to Parenting Risk*

Outcome	$R^2$	Adjusted $R^2$	Change in $R^2$ SIP <sup>a</sup>	Change in $R^2$ Economic <sup>b</sup>	Economic resources	Economic security	Unrealistic expectations	EF	Problem-solving	Hostile attributions
					$\beta$					
Child abuse potential <sup>1</sup>	.508**	.419	.050	.184**	-.393**	-.226*	.122	.079	-.029	.153
Punitive discipline beliefs	.283*	.171	.130+	.007	.082	.024	.302*	.037	.198	.065
Inconsistent parenting <sup>2</sup>	.398**	.290	.127*	.054	-.203+	-.139	-.027	-.208	-.289+	.255+
Maladaptive injury prevention beliefs	.323*	.184	.220**	.055	.097	-.228+	.391**	-.441*	.191	-.010
Adaptive injury prevention beliefs <sup>3</sup>	.397**	.274	.072	.029	-.088	-.154	-.015	.104	-.296+	-.132
Medically attended injuries <sup>4</sup>	.245	.092	.084	.021	-.067	.140	.111	-.126	.024	.232
Poor home condition <sup>5</sup>	.303**	.205	.059	.120*	-.363**	-.015	-.154	-.010	-.129	-.113

\*\* $p < .01$  \* $p < .05$  + $p < .10$

<sup>a</sup> Change in  $R^2$  SIP indicates change from a covariate(s) and economic stress model.

<sup>b</sup> Change in  $R^2$  Economic indicates change from a covariate(s) and SIP model.

<sup>1</sup> Significant positive effect of father age and negative effect of social desirability

<sup>2</sup> Significant negative effect of social desirability and effect of child gender (males more inconsistent parenting)

<sup>3</sup> Significant negative effect of father IQ

<sup>4</sup> Significant positive effect of child age

<sup>5</sup>  $n = 58$

**Indirect effects of economic stress through EF.** Given evidence for the impact of economic stress on cognitive functioning (e.g., Mani et al., 2013), EF was explored as a mediator of the effects of economic stress on parenting risk. A significant indirect effect was found for inconsistent parenting (-0.21, 95% CI -0.78 – -0.001), such that fewer economic resources were indirectly associated with more inconsistent parenting through EF problems. No evidence of mediation was found for other outcome measures.

**Interactions between SIP factors and economic stress.** Interactions between economic stress and SIP factors were explored to determine whether SIP factors were more strongly associated with parenting risk for fathers experiencing greater economic stress. Interactions between SIP factors (i.e., expectations, EF, problem-solving, attributions) and economic resources were tested separately. There were no significant interactions.

**Interactions between work stress and work centrality.** Work stress was hypothesized to interact with fathers' self-schemas to predict parenting risk, such that work stress would be more strongly linked to indicators of parenting risk for fathers with high work centrality. Contrary to hypotheses, work resources did not interact with work centrality to predict any indicator of parenting risk. One trend-level interaction was found for work demands, with the interaction of work demands and work centrality contributing to inconsistent parenting, but in the opposite direction as hypothesized. Work demands were positively associated with inconsistent parenting for fathers with low work centrality and not significantly associated with inconsistent parenting at higher levels of work centrality (Figure 3).

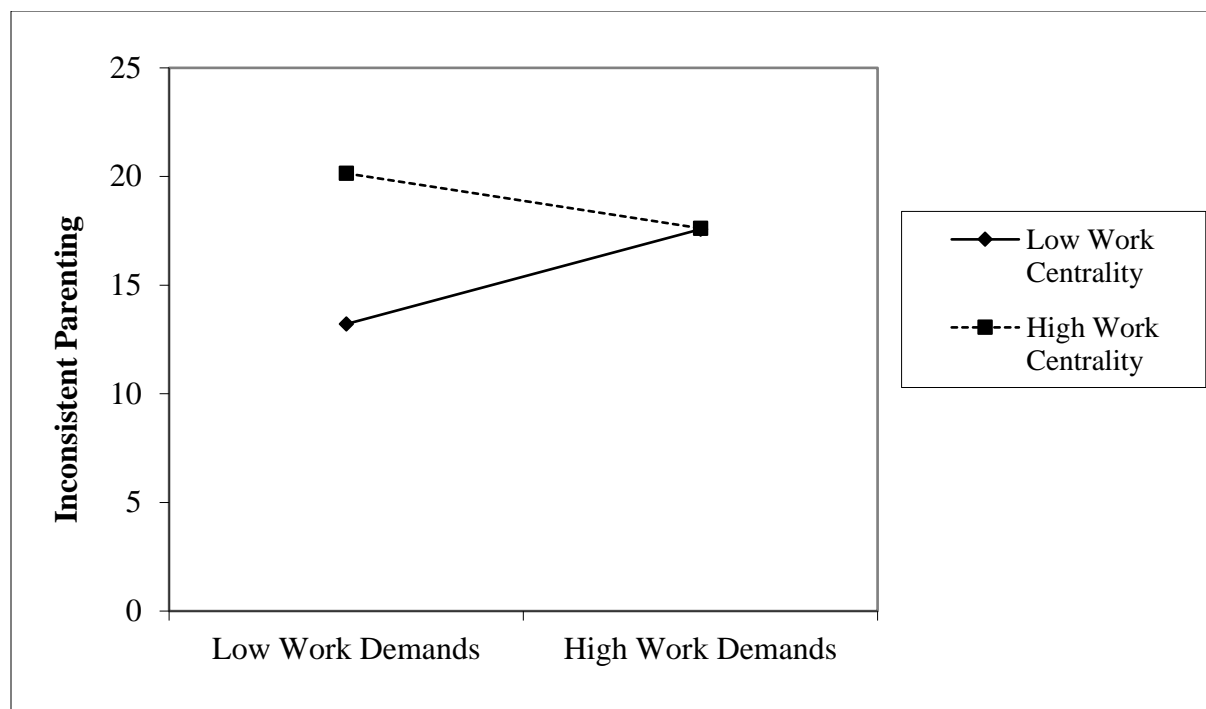


Figure 2. Interaction of work demands and work centrality contributing to inconsistent parenting

## Discussion

This study is unique in its focus on disadvantaged rural fathers, a population that has largely been ignored in existing research on parenting, and provides some insight into parenting risk for this group. This study examined a SIP model of parenting risk that has been successfully used to understand maternal parenting risk and found evidence for its validity in fathers. It also examined the contributions of economic and work stress and found support for their importance in fathers' parenting risk. Lastly, SIP and economic stress were examined in conjunction with one another and shown to have independent additive effects on parenting risk.

### Validity of Parenting Risk Indicators

Before discussing findings, it is important to briefly discuss the level of parenting risk in this sample and the validity of the chosen risk indicators. A substantial proportion of participants in this study (30%) reported their family had been involved with CPS. This rate of involvement

is higher than that reported by families in the Fragile Families Study (11% reported involvement between ages 3 and 9; Font & Berger, 2015) as well as the estimated cumulative rate of maltreatment investigations by age 6 (more than 20%; Kim, Wildeman, Jonson-Reid, & Drake, 2017). The high involvement rate suggests that this study's sampling strategy did capture an at-risk population as intended, although child abuse potential scores were relatively low in this sample. Child abuse potential, inconsistent parenting, maladaptive injury prevention beliefs, medically attended injuries, and poor home condition were shown to be valid indicators of parenting risk based on their associations with other indicators and with CPS involvement.

This study is the first to directly link fathers' maladaptive injury prevention beliefs (e.g., injuries are good for children, injuries are caused by fate) to children's history of medically attended injuries, a valuable contribution to this area of research. Overall, fathers in this sample agreed that injuries had benefits for children, consistent with prior work highlighting fathers' positive beliefs about injuries and concerns about overprotecting children (Brussoni & Olsen, 2013; Guilfoyle, 2009; Lewis et al., 2004). Still, the question of how fathers' maladaptive injury prevention beliefs lead to increased injury risk remains to be answered. It is possible that fathers who hold these beliefs encourage greater risk-taking by their children, as fathers' encouragement of risk-taking has been linked to more risky child behaviors (StGeorge et al., 2015). Observational studies of fathers' supervision and encouragement of children's risk-taking could provide further evidence for this theory.

There was little support for punitive discipline beliefs and adaptive injury prevention beliefs as risk indicators. Overall, participants reported little approval of punitive discipline, especially corporal punishment, perhaps reflecting societal trends toward lower acceptability of corporal punishment (Straus, 2010). Unexpected findings for punitive discipline beliefs may be

an artifact of the small sample size and low variability, but still raise doubts about the usefulness of punitive discipline beliefs as an indicator of parenting risk. Adaptive injury prevention beliefs may be less relevant for fathers, as one study found that mothers' supervision reports, but not fathers' reports, were associated with children's injuries (Morrongiello et al., 2009).

Alternatively, the relevance of adaptive injury prevention beliefs to injury risk may differ by socioeconomic status. Perhaps more disadvantaged parents report more positive beliefs about supervision and protectiveness because they parent in a more dangerous environment (Evans, 2004), but these environmental demands reduce the extent to which parents' beliefs are tied to their actual behavior. Examining associations of adaptive beliefs with supervision behavior in more disadvantaged and diverse populations is an important direction for future research.

### **SIP and Parenting Risk**

The findings of this study provide some support for the role of SIP factors in parenting risk, extending the SIP model of parenting risk to fathers. SIP factors were significantly associated with two risk indicators – inconsistent parenting and maladaptive injury prevention beliefs – and marginally associated with punitive discipline beliefs. Specific findings for unrealistic expectations, EF and problem-solving, and hostile attributions are discussed below.

In this study, unrealistic expectations were associated with two risk indicators, both cognitive in nature – more positive punitive discipline beliefs and more maladaptive injury prevention beliefs. The association between unrealistic expectations and positive beliefs about punitive discipline is consistent with previous research with mothers finding that expectations were associated with more hostile and controlling parenting and more self-reported harsh discipline (Dayton et al., 2010; Haskett et al., 2006). Similarly, findings for maladaptive injury prevention beliefs replicate results with disadvantaged mothers (Azar, Miller, Stevenson et al.,

2016). These findings indicate that unrealistic expectations are also an important risk factor for fathers and provide empirical support for Peterson and Brown's (1994) theoretical model of the shared etiology of child injury and child maltreatment, which highlights the importance of parental expectations for children.

This study contributes to the burgeoning literature on the role of EF in parenting (Azar et al., 2012; Cuevas et al., 2014; Deater-Deckard et al., 2012) by examining EF among fathers specifically, using multiple measures of EF capacities, and accounting for general intellectual functioning, a potential confound rarely controlled for in research on cognition and parenting (Crandall, Deater-Deckard, & Riley, 2015). In this study, EF was associated with maladaptive injury prevention beliefs and fathers with histories of CPS involvement exhibited significantly poorer EF and problem-solving than comparisons. These findings extend prior research conducted primarily with mothers (Azar et al., 2017; Azar, Miller, Stevenson, et al., 2016; Azar et al., 1984, 2012; Cantos et al., 1997; Fontaine & Nolin, 2012; Hansen et al., 1989; Nayak & Milner, 1998) and establish EF as a cognitive capacity relevant to parenting risk in both mothers and fathers. EF was also associated with inconsistent parenting, consistent with prior literature reporting more inconsistent parenting among parents with ADHD (Chen & Johnston, 2007; Chronis-Tuscano et al., 2008; Lowry et al., 2015; Mokrova et al., 2010; Murray & Johnston, 2006). The use of multiple direct measures of EF, rather than an ADHD diagnosis, supports EF as a specific capacity that affects parenting and suggests that the impact of EF on parenting is not limited to parents with ADHD. Findings from this study demonstrate the importance of accounting for IQ, as some associations (e.g., EF/problem-solving and poor home condition) were no longer evident after considering IQ and others (e.g., EF and maladaptive injury prevention beliefs) emerged. Failure to account for general intellectual functioning when

examining associations between EF and parenting may lead to inaccurate conclusions about the specific role of EF in parenting.

Hostile attributions were correlated with greater child abuse potential and more inconsistent parenting, but did not differ between CPS-involved and comparison fathers and were not significantly related to any outcome in regression analyses. In comparison to other studies using this attributions measure, scores in this sample were considerably lower (Azar et al., 2017, 2013, Haskett et al., 2006, 2003; Rodriguez et al., 2016) and indicators of risk for physical abuse specifically (i.e., child abuse potential and punitive discipline beliefs) suggested relatively low risk for physical abuse in this sample. A substantial literature supports the role of hostile attributions in child abuse and other aggression (e.g., childhood aggression, intimate partner violence) and attributions may be more relevant to men's physical abuse risk than neglect risk. Importantly, attributions are often used as a standalone cognitive measure and in this study, attributions were considered in context with other aspects of cognition. Attributions are theorized to result from other cognitive activity (e.g., activation of schemas; Azar et al., 2008; Seng & Prinz, 2008) and were strongly associated with unrealistic expectations ( $r = .53$ ) and EF ( $r = -.31$ ) in this sample. Although the small sample precluded more complex analyses, more sophisticated models testing pathways (e.g., hostile attributions as a mediator of associations between unrealistic expectations or EF and outcomes) may be better able to identify the contribution of hostile attributions to parenting risk (for an example, see Azar et al., 2013).

### **Economic Stress and Parenting Risk**

This study found that fewer economic resources were significantly associated with greater child abuse potential, more inconsistent parenting, and poorer quality home environments. CPS-involved fathers also had significantly lower scores on the economic



resources factor than comparisons. These findings are consistent with a large body of research on the impact of economic stress on parenting and maltreatment risk (Cancian et al., 2010; Doidge et al., 2017; Drake & Jonson-Reid, 2014). Economic resources were not, however, associated with the cognitive measures of risk in this study, specifically beliefs regarding punitive discipline and injury prevention. Limited variability in punitive discipline beliefs may have contributed to the lack of findings. Alternatively, beliefs may be a more distal indicator of parenting risk that is less susceptible to economic stress. With regard to injury prevention beliefs, previous research has found that fathers often have positive attitudes toward risk-taking and little concern about minor injuries (Brussoni & Olsen, 2011; Lewis et al., 2004); the findings of this study suggest this may be true regardless of family's economic resources.

Income instability is recognized as an important dimension of economic stress; still, research on this topic is rather limited (Hill, Morris, Gennetian, Wolf, & Tubbs, 2013). In this study, economic security, assessed with measures of income stability and debt stress, exhibited surprisingly few associations with measures of parenting risk. Economic security was only associated with lower child abuse potential. It is possible this sample had insufficient variability to examine these associations. Only 10 participants (16.4%) rated their income as more unstable than stable and three-quarters of the sample had a debt stress score below the midpoint of the scale. Anecdotally, income instability was reported most often in the context of overtime, and variability in income perceived as "extra" may have different effects on parenting than variability in income used for basic needs. Lastly, the context in which this study occurred is important to consider. Data collection occurred from November 2015 to December 2016, at which time the country had largely recovered from the Great Recession and unemployment rates were close to pre-recession rates. Although this study did not assess economic security at the

macro level, it is possible that the larger economic climate moderates the impact of individuals' economic security, such that income instability is less threatening, and therefore affects parenting less, in a more positive economic climate.

### **Work Stress and Parenting Risk**

Findings for work stress support prior research on the impact of work on parenting and add to the literature by demonstrating that work stress affects fathers' parenting risk in a more disadvantaged sample than typically utilized in studies of work stress. Although effects were small, including only currently employed fathers in these analyses limited power to detect effects. Work demands (indicated by more nonstandard schedules and work environments characterized by urgency and high workloads) were significantly associated with greater child abuse potential and more positive punitive discipline beliefs and work resources were marginally associated with less adaptive injury prevention beliefs. Work stress added little after considering covariates and economic stress, yet this pattern of associations remained. These findings for work stress, though relatively weak, are consistent with the job demands-resources model and evidence that work demands are associated with lower quality parenting (Goodman et al., 2008; Greenberger et al., 1994; Li et al., 2013); they extend this model by demonstrating its utility in understanding parenting risk.

Findings that work demands are associated with more punitive discipline beliefs and work resources with less adaptive injury prevention beliefs also support a socialization perspective. Work environments are thought to be a primary driver of parental socialization of self-direction versus conformity to external authority (Kohn & Schooler, 1983; Kohn et al., 1986). Discipline and supervision beliefs may be one mechanism through which socialization of self-direction and conformity occurs. That is, fathers in demanding work environments may view

punitive discipline as an appropriate way to prepare their children for similar work environments. Similarly, fathers with less prestige and control over their work are likely to be more closely supervised at work and therefore may see supervising their children closely as preparing them for future work where they will likely be subject to more scrutiny. Qualitative work would be useful in examining how these beliefs are related to work environments and ways in which fathers may socialize their children for similar work environments.

Although it was hypothesized that work stress would impact parenting risk more for fathers with high work centrality, the opposite effect was found. Greater work demands were associated with more inconsistent parenting only for fathers low in work centrality. One possible explanation for this effect comes from border/boundary theory, which posits that individuals actively manage boundaries between work and personal domains and vary in the segmentation of these domains (Clark, 2000; Nippert-Eng, 1996). If low work centrality reflects less segmentation and greater permeability between domains, work demands would affect parenting more for fathers with more permeable boundaries (Ashforth, Kreiner, & Fugate, 2000). Although consistent with the interaction effect found in this study, this interpretation is quite speculative, as boundaries between domains were not assessed directly. Another plausible explanation is that fathers with high work centrality may be less involved with parenting, and as a secondary caregiver, be more inconsistent regardless of work demands. Indeed, work centrality was positively associated with inconsistent parenting in the full sample ( $r = .26$ ). This interpretation suggests that more gendered division of responsibilities may protect against some of the negative impacts of fathers' work stress, perhaps because these fathers spend less time with children. Examining how work centrality relates to the time fathers spend with children and at work is one way to test this hypothesis. However, high work centrality did not protect against the impact of

work demands on child abuse potential, suggesting that work demands impact some aspects of parenting for all fathers.

### **Integration of Social Information Processing Factors & Economic Stress**

In exploratory analyses, this study expanded on previous research by considering how SIP factors and economic stress together relate to parenting risk. Independent effects were evident in regression models including both SIP and economic stress factors, with SIP factors contributing to inconsistent parenting, maladaptive injury prevention beliefs, and punitive discipline beliefs, and economic stress contributing to child abuse potential and poor home condition. Importantly, the extent to which specific SIP and economic stress measures contributed to outcomes remained consistent. These findings are consistent with two previous studies supporting independent and additive effects of intrapersonal and contextual factors (Azar et al., 2014; Rodriguez & Tucker, 2014). Notably, this study is the first to provide evidence of these effects in fathers.

Mediation and moderation analyses explored whether economic stress contributed to SIP deficits or exacerbated their impact on parenting risk. There was no evidence of interactions between SIP factors and economic stress and only one significant indirect effect was found. Economic resources had a significant indirect effect on inconsistent parenting (but not other outcomes) through EF. Although this pathway is theoretically plausible and prior research has shown causal associations between economic stress and cognitive impairment (Mani et al., 2013), longitudinal data is needed before drawing any causal conclusions.

### **Limitations and Future Directions**

It must be noted that the within-group design of this study does not allow direct comparisons of this population to mothers or to parents in urban areas. In addition, the use of a

non-representative convenience sample limits the extent to which findings can be generalized to the broader population of fathers in rural areas. The rural areas in Pennsylvania and New York in which study participants lived are relatively advantaged compared to rural areas in other states, particularly those in the Deep South, where metro-nonmetro disparities in poverty are greatest (USDA Economic Research Service, 2017a), and do not have much racial or ethnic diversity. In Pennsylvania, racial/ethnic minorities constitute only 8 percent of the rural population, compared to 22 percent in the nation as a whole and close to 50 percent in many states (e.g., Mississippi, Texas) (Housing Assistance Council, 2012). The findings of this study may not generalize to more disadvantaged rural contexts or those with greater racial/ethnic diversity.

Although the sample did have sufficient power to detect the main effects of interest, the sample size limited power to detect indirect effects and interactions, and these should be tested in future research. The number of analyses conducted raised the risk of spurious findings, requiring findings to be interpreted cautiously. This study was cross-sectional and does not allow tests of causality; how risk for perpetrating maltreatment changes over time is an important question for future work. This study, however, clearly demonstrated the feasibility of conducting research with rural fathers, setting a foundation for future research efforts with larger, more representative samples, including longitudinal studies that can greatly advance our understanding of parenting risk in this population.

This study largely relied on self-reports of parenting behavior, with the exception of utilizing observer ratings of the home environment to measure risk for neglect. The relatively high incidence of self-reported CPS involvement (30%) suggests participants were not underreporting and social desirability was included as a covariate in all analyses of self-report data to reduce response biases. Future studies would benefit from obtaining additional

observation data and data from other sources. For example, fathers could be observed interacting with their children in structured tasks or supervising their children in potentially dangerous situations, partners and other family members could report on fathers' parenting, and data could be gathered from child welfare records. Hospital records of injuries would also be useful, as self-report can suffer from both social desirability and recall biases. As medically attended injuries are relatively rare, especially for young children, the number of injuries for all children in the household may be a more useful measure of parenting risk than child-specific injuries. The variability in findings for the outcomes in this study highlights the importance of utilizing diverse assessment methods to measure parenting risk and test etiological models.

### **Clinical Implications**

Research and practice regarding child maltreatment, especially neglect, are often subject to gendered assumptions about parenting (O'Donnell, Johnson, D'Aunno, & Thornton, 2005; Scourfield, 2006). Although child neglect constitutes 75% of maltreatment cases (U.S. DHHS, 2017), research examining fathers' risk for maltreatment has focused disproportionately on father-child aggression and risk for perpetrating physical child abuse (Daniel & Taylor, 2006; Dubowitz et al., 2000; Lee et al., 2009). The results of this study highlight the role of fathers' cognition in children's risk of neglect and unintentional injuries. Incorporation of cognitive strategies into child maltreatment prevention efforts with mothers has shown some promise (Bugental et al., 2002; Sanders et al., 2004); the findings of this study suggest cognitive strategies may also be a useful prevention approach for fathers. In addition, this study found that fathers' maladaptive beliefs about injuries were associated with children's medically attended injuries. Injury prevention efforts that target fathers' beliefs may reduce children's injury risk. The lack of findings for adaptive injury prevention beliefs suggest that simply encouraging

greater supervision and protectiveness among fathers may be less impactful than addressing specific maladaptive beliefs, such as positive beliefs about injuries and belief in fate as the cause of injuries (Morrongiello & Corbett, 2008). Efforts that are narrow, consistent with fathers' values and identities, and support fathers in balancing risk-taking and protection in specific situations are most likely to be successful (Brussoni & Olsen, 2011; Morrongiello & Corbett, 2008).

Biological and resident fathers perpetrate a significant proportion of maltreatment, but fathers are rarely included in research studies (Dubowitz, 2006; Lee et al., 2009) and preventative and intervention efforts typically have very low rates of father engagement and involvement in services (Duggan et al., 2004; Maxwell, Scourfield, Featherstone, Holland, & Tolman, 2012; T. K. Smith, Duggan, Bair-Merritt, & Cox, 2012). Preventing child maltreatment cannot be done by focusing solely on mothers (Scourfield, 2014; Zanoni, Warburton, Bussey, & McMaugh, 2013). The findings of this study are a first step toward informing child maltreatment prevention efforts in rural areas by identifying risk factors and targets for intervention that are relevant for fathers. Rural cultural competence is rarely considered (Slama, 2004a, 2004b), but may be particularly important in attempts to engage fathers in rural areas in parenting-related services. Increasing engagement of rural resident fathers in evidence-based preventative efforts and ensuring that interventions are effective in reducing fathers' risk for perpetrating maltreatment are crucial to promoting the safety and well-being of rural children.

## **Conclusions**

Children in rural areas are at high risk for experiencing physical abuse and neglect, yet rural families are rarely included in research on parenting risk. This study is the first to examine models of parenting risk in disadvantaged fathers living in rural areas, a unique and understudied

population. Multiple measures of parenting risk were used to assess fathers' risk for perpetrating maltreatment. Findings highlight the role of fathers' cognition in children's risk for neglect and injuries and results support the importance of both SIP factors and economic stress as independent contributors to parenting risk. This study demonstrates the feasibility of conducting research with this population and is a first step in identifying risk factors that are relevant to fathers and can be targeted in child maltreatment prevention efforts. Providing rural fathers with relevant and effective services will reduce their parenting risk and maximize the safety and well-being of rural children.



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## Supplemental Table 1

*Correlations among SIP Measures*

	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b>1. Unrealistic expectations</b>	.078	.033	-.004	.218+	.070	-.313*	-.153	.124	-.135	-.181	.529**	.462**	.522**	.488**
<b>2. EF factor</b>		-.913**	-.890**	-.562**	.590**	.725**	.569**	-.622**	.496**	.524**	-.309*	-.278*	-.370*	-.248+
3. Trail B time			.947**	.399**	-.357**	-.525**	-.482**	.521**	-.424**	-.445**	.161	.117	.280*	.114
4. Trail B-A time				.373**	-.325*	-.486**	-.368**	.419**	-.315*	-.329*	.181	.148	.274*	.131
5. Perseverative errors					-.239+	-.288*	-.402**	.465**	-.340**	-.356**	.304*	.312*	.284*	.246+
6. Alternate uses						.445**	.471**	-.536**	.390**	.433**	-.254*	-.227+	-.305*	-.205
7. Digit Span							.456**	-.450**	.424**	.441**	-.411**	-.383**	-.394**	-.363**
<b>8. Problem-solving factor</b>								-.933**	.967**	.980**	-.105	-.120	-.215+	-.017
9. Irrelevant									-.828**	-.864**	.099	.115	.220+	.007
10. Solution categories										.955**	-.101	-.109	-.187	-.032
11. Solutions											-.101	-.120	-.213	-.101
<b>12. Hostile attributions</b>												.957**	.818**	.934**
13. Ambiguous													.738**	.837**
14. Unintentional														.628**
15. Intentional														

\*\*  $p < .01$  \* $p < .05$  + $p < .10$

Note:  $n = 60$  for correlations with Trail Making Test, Alternate Uses, and problem-solving variables.  
SIP: Social information processing. EF: Executive functioning.

## Supplemental Table 2

*Correlations among Economic Stress Measures*

	2	3	4	5	6	7	8	9
<b>1. Economic resources factor</b>	.773**	.708**	.749**	-.733**	.613**	.000	-.249+	.107
2. Income-to-needs ratio		.348**	.360**	-.365**	.248+	-.421**	.016	-.035
3. FRS Basic Needs			.719**	-.440**	.335**	.349**	-.354**	.275*
4. FRS Extra Resources				-.476**	.468**	.425**	-.553**	.197
5. Hardships					-.534**	-.197	.261*	-.245+
6. Savings						.302*	-.220+	.306*
<b>7. Economic security factor</b>							-.720**	.681**
8. Debt stress								-.218+
9. Income stability								

\*\*  $p < .01$  \* $p < .05$  + $p < .10$

FRS: Family Resources Scale.

## Supplemental Table 3

*Correlations among Work Stress Measures*

	2	3	4	5	6
<b>1. Work resources factor</b>	-.800**	.760**	.000	.080	-.009
2. WES Managerial control		-.224	.028	-.083	.005
3. Occupational prestige			.102	.045	.095
<b>4. Work demands factor</b>				.747**	.791**
5. Nonstandard/changing schedule					.193
6. WES Work pressure					

\*\*  $p < .01$  \* $p < .05$  + $p < .10$

Note: Employed fathers only (n = 50)

WES: Work Environment Scale.

## Supplemental Table 4

*Correlations among Injury Prevention Belief Measures*

	2	3	4	5	6	7	8	9
<b>1. Maladaptive injury prevention beliefs</b>	.792**	.790**	.701**	.628**	.000	-.064	.071	.311*
2. IAQ Learning		.465**	.467**	.304**	.063	-.037	.158	.244+
3. IAQ Toughening			.447**	.376**	-.098	-.066	-.086	.186
4. PSAPQ Risk tolerance				.199	-.429**	-.333**	-.219+	.187
5. PSAPQ Belief in fate					.319*	.151	.177	.324**
<b>6. Adaptive injury prevention beliefs</b>						.871**	.864**	-.166
7. PSAPQ Supervision							.594**	-.264*
8. PSAPQ Protectiveness								-.151
<b>9. Medically attended injuries</b>								

\*\*  $p < .01$  \* $p < .05$  + $p < .10$

IAQ: Injury Attitudes Questionnaire; PSAPQ: Parent Supervision Attributes Profile Questionnaire.

## Supplemental Table 5

*Correlations among Observer Ratings of Home Environment*

	CWBS sum score	HOME Physical Environment	Indoor home condition	Outdoor home condition
<b>Poor home condition factor</b>	.903**	-.801	.871**	.364**
CWBS sum score		-.587**	.722**	.184
HOME Physical Environment			.509**	-.441**
Indoor home condition				.330*
Outdoor home condition				

\*\*  $p < .01$  \* $p < .05$  + $p < .10$

CWBS: Child Well-Being Scales; HOME: Home Observation for Measurement of the Environment

Note: n = 58

## Supplemental Table 6

*Principal Components Analysis of Executive Functioning Variables*

	Factor Loadings
	'EF'
Trail Making Test Trail B time	<b>-.913</b>
Trail Making Test B-A time difference	<b>-.890</b>
WAIS-IV Digit Span scaled score	<b>.725</b>
AUT total acceptable uses	<b>.590</b>
WCST perseverative errors	<b>-.562</b>

EF: executive functioning; WAIS-IV: Weschler Adult Intelligence Scale; AUT: Alternate Uses Test WCST: Wisconsin Card Sorting Test

## Supplemental Table 7

*Principal Components Analysis of Problem-Solving Variables*

	Factor Loadings
	'Problem-solving'
PPSI irrelevant responses	<b>-.933</b>
PPSI number of solution categories	<b>.967</b>
PPSI number of solutions	<b>.980</b>

PPSI: Parent Problem-Solving Inventory

## Supplemental Table 8

*Principal Components Analysis of Economic Stress Variables*

	Factor 1 Loadings 'Economic Resources'	Factor 2 Loadings 'Economic Security'
Income-to-needs ratio	<b>.773</b>	-.421
FRS Extra Resources	<b>.749</b>	.425
Economic hardships	<b>-.733</b>	-.197
FRS Basic Needs	<b>.708</b>	.349
Savings	<b>.613</b>	.302
Debt stress	-.249	<b>-.720</b>
Income stability	.107	<b>.681</b>

FRS: Family Resources Scale. Varimax rotation.

## Supplemental Table 9

*Principal Components Analysis of Work Stress Variables*

	Factor 1 Loadings 'Work Resources'	Factor 2 Loadings 'Work Demands'
WES Managerial Control	<b>-.800</b>	.028
Occupational prestige	<b>.760</b>	.102
WES Work Pressure	-.009	<b>.791</b>
Extent of nonstandard schedule	.080	<b>.747</b>

WES: Work Environment Scale. Varimax rotation.

## Supplemental Table 10

*Principal Components Analysis of IAQ and PSAPQ Subscales*

	Factor 1 Loadings	Factor 2 Loadings
	‘Maladaptive Injury Prevention Beliefs’	‘Adaptive Injury Prevention Beliefs’
IAQ: Learning	<b>.792</b>	.063
IAQ: Toughening	<b>.790</b>	-.098
PSAPQ: Risk tolerance	<b>.701</b>	-.429
PSAPQ: Belief in fate	<b>.628</b>	.319
PSAPQ: Supervision	-.064	<b>.871</b>
PSAPQ: Protectiveness	.071	<b>.864</b>

IAQ: Injury Attitudes Questionnaire; PSAPQ: Parent Supervision Attributes Profile Questionnaire. Varimax rotation

## Supplemental Table 11

*Principal Components Analysis of Observed Home Environment*

	Factor Loadings
	‘Poor Home Condition’
CWBS sum score	<b>.903</b>
Indoor home condition	<b>.871</b>
HOME Physical Environment	<b>-.801</b>

CWBS: Child Well-Being Scales; HOME: Home Observation for Measurement of the Environment



Supplemental Table 12

*Correlations between Independent Variables and Parenting Risk Measures*

	Unrealistic expectations	EF factor <sup>1</sup>	Problem-solving factor <sup>1</sup>	Hostile attributions	Economic resources	Economic security	Work resources <sup>3</sup>	Work demands <sup>3</sup>
Child abuse potential <sup>1</sup>	.191	-.167	-.050	.293*	-.330*	-.217+	-.211	.300*
Punitive discipline beliefs <sup>1</sup>	.252+	.295*	.349**	.072	.123	.009	.105	.286*
Inconsistent parenting <sup>1</sup>	.102	-.328*	-.210	.283*	-.300*	-.143	.029	.137
Maladaptive injury prevention beliefs	.392**	-.139	.055	.187	-.069	-.181	.154	.180
Adaptive injury prevention beliefs	.102	-.322*	-.471**	.098	-.104	-.029	-.264+	.145
Medically attended injuries	.202	-.028	.117	.249+	-.102	.072	-.049	.242+
Poor home condition <sup>2</sup>	-.105	-.316*	-.300*	-.009	-.397**	.003	-.188	.107

\*\* $p < .01$  \* $p < .05$  + $p < .10$

<sup>1</sup> n = 60

<sup>2</sup> n = 58

<sup>3</sup> n = 50

Supplemental Table 13

*Work Stress Measures: Descriptive Statistics and Differences by CPS Involvement*

	Full Employed Sample		CPS Involved	Comparison	
	(n = 50)		(n = 10)	(n = 37)	
	M (SD)	Range	M (SD)		<i>t</i>
Work resources factor	0.00 (1.00)	-1.88-2.75	-0.43 (0.74)	0.00 (0.96)	1.32
WES: Managerial control	6.02 (2.36)	1.00-9.00	6.50 (1.90)	6.11 (2.33)	-0.49
Occupational prestige	38.29 (18.23)	5.73-85.99	29.90 (12.40)	39.05 (17.54)	1.54
Work demands factor	0.00 (1.00)	-2.04-2.03	-0.17 (0.92)	0.11 (0.98)	0.80
WES: Work pressure	4.68 (2.33)	0.00-8.00	5.00 (2.31)	4.76 (2.30)	-0.30
Extent of nonstandard schedule	2.90 (2.38)	0.00-8.00	1.90 (2.08)	3.22 (2.38)	1.59

\*\* $p < .01$    \* $p < .05$    + $p < .10$

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