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**COGNITIVE AND TRANSACTIONAL DETERMINANTS OF CHILD COMPLIANCE
AND MATERNAL ENDORSEMENT OF PUNITIVE DISCIPLINE**

A Thesis in

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by

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ABSTRACT

Parents' ability to elicit their children's compliance is crucial for child socialization and influences parental discipline responses. Although previous research suggests that parental use of effective commands and quality of dyadic interaction influence parents' ability to elicit child compliance, comparatively less research has examined the role of social cognitive capacities in determining parents' ability to elicit child compliance as well as their discipline responses. This study examined relationships between maternal Social Information Processing (SIP) deficits, mothers' use of effective commands, dyadic dyssynchrony, child compliance, and maternal endorsement of punitive discipline. It was predicted that greater maternal SIP deficits including unrealistic expectations of children's capacities, problem-solving deficits, and attributional biases toward children's behaviors would result in increased use of ineffective commands and lower the quality of interactions between mothers and their children. In turn, these deficits were predicted to result in lower levels of child compliance and greater maternal endorsement of punitive discipline. These hypotheses were tested in a low-income sample of mothers and their 3-5 year old children. As predicted, maternal SIP deficits were related to mothers' endorsement of punitive discipline. However children's compliance did not mediate this relationship. This study did find the predicted indirect effect of one maternal SIP deficit, unrealistic expectations, on endorsement of punitive discipline through increased dyadic dyssynchrony. These findings present interesting implications for the study of SIP, parent-child interaction, and child socialization as well as intervention and prevention efforts designed to promote child compliance and socialization and efforts to promote positive parenting.

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Introduction

Parents' ability to elicit their children's compliance is crucial to child socialization processes and has been shown to predict parental discipline responses. Compliance as addressed in this study refers to a child's timely acquiescence to parental requests or commands. Previous research indicates that two crucial factors that influence parents' ability to elicit child compliance are parents' use of commands that allow an opportunity for child compliance, and the likelihood that children will comply with such commands. A review of the literature shows that factors such as ineffective parental commands (e.g., commands that fail to provide adequate time to initiate compliance) and histories of discordant interactions between parents and children can reduce child compliance by either failing to provide an opportunity for the child to initiate compliance or by decreasing the likelihood that the child will comply with commands that allow an opportunity for compliance. Research and theory in the area of social cognition suggests that Social Information Processing (SIP) deficits may influence parents' ability to elicit their children's compliance as well as their discipline responses (Azar, Reitz, & Goslin, 2008; Azar & Weinzierl, 2005); however these relationships have received little attention in the research literature.

SIP deficits have been linked to a number of parenting behaviors including endorsement of punitive discipline (e.g., Azar, Okado, Stevenson, & Robinson, 2013; Azar, Povilaitis, Johnson, Ferraro, & Soysa, 1999; Povilaitis, 1998; Strassberg, 1997). It is possible that this relationship is explained in part through SIP deficits' influences on child compliance, as previous studies have found that parents of children who are frequently noncompliant are more likely to utilize punitive discipline strategies (Lansford et al., 2011). A review of the literature indicates

that SIP deficits may put parents at risk for endorsement of punitive discipline responses by decreasing their ability to elicit their children's compliance.

Child Compliance, Punitive Discipline, and Related Outcomes

Child compliance is pivotal to children's acquisition of "the motives, values, knowledge, and behavior patterns that are needed to function adequately in the society in which they will live as adults" (Maccoby, 1984, p. 317-318). Child compliance is thought to facilitate a number of socialization goals (Eisenberg & Valiente, 2001; Grusec, 2011; Kuczynski, 1984; Maccoby, 1992). Research supports this contention. For example, a study conducted by Kochanska, Coy, and Murray (2001) found that children with higher levels of committed compliance (i.e., compliance defined by the child willingly embracing the maternal agenda) were more likely to continue to follow rules laid out by their mothers after their mothers had left the room. The same study found that higher levels of compliance observed in laboratory-based interactions with the mother were significantly related to higher levels of cooperation with experimenters in subsequent tasks. A number of other studies support the importance of child compliance in the socialization process (Kochanska & Aksan, 1995; Kochanska, Aksan, & Koenig, 1995; Pettygrove, Hammond, Karahuta, Waugh, & Brownell, 2013). Taken together, these findings illustrate the link between children's compliance to parents' commands and components of the socialization process, including internalization of parents' rules and values, and generalization of these rules and values to interactions with other adults.

Just as children's compliance is thought to facilitate children's socialization, high levels of noncompliance early in development have been shown to predict a number of negative outcomes. Chronic noncompliance in infants and young children has been found to predict future externalizing symptoms such as aggression (Keenan & Shaw, 1994; Shaw et al., 1996; Shaw,

Keenan, & Vondra, 1994), as well as the development of more serious oppositional behaviors (e.g. defiance and aggression in the early classroom; Smith, et al., 2014). Indeed, high levels of noncompliance early in development have been identified as risk factors for the development of later externalizing disorders such as Oppositional Defiant Disorder and Conduct Disorder (Campbell, Shaw, & Gilliom, 2000, Harvey, Youngwirth, Thakar, & Errazuriz, 2009; Keenan, Shaw, Delliquadri, Giovannelli, & Walsh, 1998).

In addition, frequent child noncompliance may lead to parents employing more punitive discipline practices, including physical discipline. When parental demands are not met with compliance, parents and children can become involved in escalating cycles, wherein the demander (parent) utilizes increasingly punitive responses to gain compliance (Parpal & Maccoby, 1985; Patterson, 2002). Support for this model is provided by recent longitudinal studies indicating cyclical relationships between early child externalizing behavior (including noncompliance), punitive parenting, and subsequent increases in children's externalizing behavior (Choe, Olson, & Sameroff, 2013; Lansford et al., 2011; Smith et al., 2013). Similar results have been found in a number of other studies (Crockenberg, 1987; Smith, Calkins, Keane, Anastopoulos, & Shelton, 2004). These findings support the link between early child noncompliance, parents' use of punitive discipline strategies and subsequent increases in children's externalizing behaviors.

Research strongly suggests that use of punitive discipline techniques such as yelling, threatening, and physical discipline are problematic in that they are ineffective long-term, resulting in increased disruptive behavior and other negative outcomes for children including increased aggression and decreased quality of parent-child interaction (American Academy of Pediatrics, 1998; Laub & Sampson, 1995). Indeed, parents' use of punitive discipline has been

found to result in children's increased aggression (Bender et al., 2007; Gaylord, Kitzman, & Coleman, 2003; Keiley, Lofthouse, Bates, Dodge, & Pettit, 2003; Weiss, Dodge, Bates, & Pettit, 1992), internalizing symptoms such as anxiety and depression (Laskey & Hatton, 2009), and reduced academic achievement (Fletcher, Walls, Cook, Madison, & Bridges, 2008).

In light of the importance of child compliance for determining child socialization outcomes and parents' discipline responses, factors that may influence parents' ability to elicit child compliance need to be better understood. Specific factors that have been shown to impact parental competence for eliciting child compliance include parental use of effective commands and the overall quality of parent-child interaction. Deficits in these areas may serve to reduce parents' efficacy as socialization agents and increase their risk for employing punitive discipline.

Commands

In order for a child to comply with a parent's command, the command must be delivered in such a way that the child has an opportunity to initiate compliance. It has been argued that a key factor for determining whether or not a child can comply with a command involves allowing adequate time for the child to respond to the command (Peed, Roberts, & Forehand, 1977). Research has indicated that commands that allow less than 5 seconds for the child to initiate compliance fail to provide the child with an opportunity to comply (Peed et al., 1977; Roberts, McMahon, Forehand, & Humphreys, 1978). Several early studies established a link between use of ineffective commands and child noncompliance. A study conducted by Forehand and Scarborough (1975) found that oppositional behavior increased as the number of commands issued by parents increased. Similarly, mother-child dyads referred to a clinic for child noncompliance have been shown to utilize significantly higher rates of commands than non-referred dyads (Forehand, King, Peed, & Yoder, 1975). Further supporting the role of parental use of ineffective

commands in increasing child noncompliance is a study by Johnson and Lobitz (1974), in which parents were asked to make their children appear “good” and “bad” on subsequent days. Observers noted that on “bad” days, parents used significantly higher numbers of commands and received higher levels of child noncompliance. A number of other studies support the link between parents’ use of effective commands and child compliance (Calzada, Eyberg, Rich, & Querido, 2004; Forehand, Wells, & Sturgis, 1978; Wachs, Gurkas, & Kontos, 2004; Williams & Forehand, 1984).

Indeed, due to the strong link between parents’ use of effective commands and child compliance, training in the use of effective commands has been incorporated in most parent training programs in the field. For example, both Parent Child Interaction Therapy (PCIT) and The Incredible Years, two of the most well-validated parenting programs, include parent instruction in issuing effective commands and have been shown to be successful in increasing child compliance (Eyberg & Robinson, 1982; Webster Stratton, 2000). Although parenting programs such as PCIT and The Incredible Years address a number of other parenting skills related to child compliance (e.g., use of effective consequences), interventions aimed specifically at improving use of effective commands have also been shown to improve rates of child compliance. In an early study, Roberts and colleagues attempted to increase mothers’ use of effective commands by training mothers to issue commands that called for a single action, were specific, and allowed 5 seconds for compliance (Roberts et al., 1978). This procedure was shown to successfully increase mothers’ use of effective commands, and found that children of mothers who had received the training exhibited higher ratios of compliance to noncompliance than children of mothers who did not receive the intervention. More recent studies examining parents as well as teachers have found that increasing use of effective commands increases child

compliance (Matheson & Shriver, 2005; Mandal, Olmi, Edwards, Tingstrom, & Benoit, 2000; Roberts, Tingstrom, Olmi, & Bellipanni, 2008; Strand, 2002). These findings clearly indicate that use of effective commands is strongly linked to parents' ability to elicit child compliance

Synchrony and Dyssynchrony

Although use of effective commands impacts a child's ability to initiate compliance, simply providing an adequate opportunity is not sufficient for a parent to gain compliance. Another crucial mechanism in determining whether or not a child will comply with a parent's command is a history of positive and beneficial interactions with the parent. Simply put if a child has a history of poor interactions with their parents (i.e., interactions that did not serve the child's best interests, characterized by high levels of dyadic discordance, conflict, intrusiveness, emotional separateness, etc.), the child will be less likely to comply with a command even if the command allows an opportunity for compliance. Though it is clearly impossible to measure the quality of every interaction that has occurred between a parent and their child, dyadic synchrony represents an appropriate approximation of the quality of parent-child interaction. Although the literature surrounding synchrony reveals a number of different definitions, common elements include matching of affect, temporal summation, maternal warmth, reciprocity, mutual responsiveness, high levels of positive affect and interconnectedness (Brazelton, Koslowski, & Main, 1974; Criss, Shaw, & Ingoldsby, 2003; Harrist & Waugh, 2002; Moore & Calkins, 2004). Thus, synchrony can be defined as a mutual pattern of interaction between parent and child characterized by both high levels of mutual positive affect and consistent mutual responses to changes in affect and behavior that are appropriate both in terms of affect and behavior displayed as well as temporal sequence.

A review of the literature suggests that dyadic synchrony is related to child compliance. In an early study, Pappalardo and Maccoby showed that when mothers interacted responsively with their 3-4 year old children (including use of positive statements and positive affect), children showed significantly higher levels of compliance in a subsequent task than did children who had taken part in an undirected free-play task with their mother (Pappalardo & Maccoby, 1985). More recent research has continued to find associations between the quality of dyadic interaction between parents and their children and child compliance. For example, Feldman and colleagues showed that dyadic synchrony measured in infancy was predictive of child compliance to maternal commands at 2 years of age (Feldman, Greenbaum, & Yirmiya, 1999). A number of other studies support the relationship between dyadic synchrony (or closely related constructs) measured in infancy, toddlerhood, and early childhood and child compliance (Davidov & Grusec, 2006; Kochanska & Aksan, 1995; Kochanska, Forman, Aksan, & Dunbar, 2005; Kochanska & Murray, 2000; Laible & Thompson, 2000; Schuler & Prinz, 2013; Rocissano, Slade, & Lynch, 1987).

Dyadic synchrony likely influences child compliance in part through relationships to children's self-regulatory capacities, capacities that are necessary for child compliance (Eisenberg, et al., 2001; Kochanska, 1993; Kochanska, et al., 2001; Kopp, 1982). Feldman and colleagues (1999) hypothesize that mother-infant synchrony acts as a precursor to the development of self-regulatory capacities. The basis for this assertion lies in two main assumptions. First, early face-to-face interactions are a source of a large amount of social and cognitive stimulation for the child likely to result in arousal, and second, that synchronous patterns of interaction are bidirectional (Cohn & Tronick, 1988).

When infants take part in face-to-face interactions, they receive a flood of social and cognitive stimulation, which results in arousal. In response to the infant's heightened arousal, a synchronous mother will match the affect displayed by her infant in terms of both affect displayed and intensity of affect. Due to the bidirectional nature of synchronous relationships, the infant will match the mother's displayed affect, thereby preventing a higher state of arousal that might impede the infant's ability to continue smoothly engaging in the interaction. Support for this model is provided by a study reporting that infants from high synchrony dyads show greater self-regulation during a subsequent stress-inducing task than infants from less synchronous dyads (Moore & Calkins, 2004). The degree of matching of both type and intensity of affect between mothers and their infants appears to increase as the child develops into toddlerhood and early childhood (Harrist & Waugh, 2002; Lester, Hoffman, & Brazelton, 1985); thus this relationship becomes more cohesive over time and through repetition. Similar mechanisms of external (mother-driven) to internal (child-driven) regulation occur for a number of child capacities including physiological arousal and behavioral regulation (Calkins, Smith, Gill, & Johnson, 1998). Numerous other studies across a number of developmental periods (infancy, toddlerhood, and early childhood) support the link between dyadic synchrony and the development of self-regulation capacities (Bernier, Carlson, & Whipple, 2010; Calkins et al., 1998; Colman, Hardy, Albert, Rafaelli, & Crockett, 2006; Haley & Stansbury, 2003; Kim & Kochanska, 2012).

Related to the concept of synchrony is dyssynchrony. While synchrony refers to an interaction characterized by responsiveness and appropriately matched affect, interactions characterized as dyssynchronous show higher levels of a number of factors which serve to interrupt the flow of the interaction and result in increases in negative affect (Biringen, Emde, &

Pipp-Siegel, 1997). Dyssynchronous interactions are characterized by high levels of dyadic conflict, dyadic disengagement, and dyadic intrusiveness (Azar, Stevenson, & Johnson, 2012). It is important to note that dyssynchrony does not simply refer to lack of synchrony. Indeed, a dyad that showed responsiveness and matched positive affect while at the same time showing intrusiveness and some level of conflict could be viewed as being simultaneously synchronous and dyssynchronous.

Although numerous studies have shown relationships between synchrony and child compliance, few studies have examined dyssynchrony. Despite the lack of research in this area, the importance of the quality of dyadic interaction in determining child compliance strongly suggests that histories of dyssynchronous interactions will reduce the likelihood that children will comply with their parents' commands. Dyadic synchrony increases the likelihood of child compliance through facilitation of the development of self-regulatory capacities and establishing histories of positive, beneficial, mutually responsive interactions. Interactions that are instead characterized by high levels of discordance, conflict, intrusiveness, as well as high levels of negative affect likely will not be conducive to child compliance. Children whose interactions with their parents are characterized by higher levels of dyssynchrony may therefore be less likely to comply with their parents' commands.

Of particular interest are findings suggesting that dyssynchronous interactions may be the mark of a dysfunctional parent-child dyad. Specifically, a study conducted by Cerezo and D'Ocon, (1995) found that physically abusive mothers exhibited higher levels of aversive and arbitrary responses to their children's prosocial behaviors. Interestingly, this study also indicated that although abusive mothers were disengaged and inconsistent in their responses to prosocial behavior, they were attentive and consistent in their responses to disruptive behavior. The

authors suggest that this pattern of interaction may prompt children in these dyssynchronous dyads to exhibit more disruptive behavior to elicit a consistent response. This assertion is supported by studies reporting high levels of noncompliance and disruptive behavior in children from maltreating dyads (Bousha & Twentyman, 1984; Egeland, Sroufe, & Erickson, 1983; Kaplan, et al., 1998; Koenig, Cicchetti, & Rogosch, 2000; Oldershaw, Walters, & Hall, 1986; Stouthamer-Loeber, Loeber, Homish, & Wei, 2001; Teisl & Cicchetti, 2007). Thus, it is possible that maladaptive parent-child interaction characterized by high levels of dyadic dyssynchrony may explain the development of noncompliance.

Social Information Processing

Although use of effective commands and dyadic dyssynchrony are important contributors to parents' ability to elicit child compliance, analysis of these two constructs alone falls short of adequately describing how parents may fail to achieve compliance. Research and theory suggest that parents' Social Information Processing (SIP) capacities may influence use of effective commands as well as the quality of interactions with their children. SIP as addressed in this study encompasses three domains: expectations of children's capacities (reflective of parenting schema), problem-solving capacities, and attributions for children's behavior (Azar, 1986; Stern & Azar, 1998). SIP deficits are thought to contribute to maladaptive parenting behaviors, including child maltreatment (Azar, Robinson, Hekimian, & Twentyman, 1984; Azar & Weinzierl, 2005; Haskett, Smith-Scott, Grant, Sabourin-Ward, & Robinson, 2003; Milner, 2003). Specifically, it has been posited that disturbances in SIP capacities lead to parenting interactions that are outside the child's developmental reach and that disrupt the smoothness of interaction between parent and child (Azar, 1989). In addition, research examining the components of SIP has revealed relationships between SIP capacities and parenting behavior.

Information processing theories of human cognition posit that humans' cognitive processing is analogous to computer-based information processing (Newell, Shaw, & Simon, 1958). Information processing models have been used to explain a number of domains of human cognition, including the processing of social-information (e.g. Gullahorn & Gullahorn, 1963). SIP capacities act to help an individual selectively attend to and interpret social stimuli, as well as to generate behavioral responses. SIP models have been used to describe a number of types of social interaction including parenting transactions (Azar, 1986; Azar, 1989; Haskett et al., 2003; Larrance & Twentyman, 1983; Milner, 2003 Twentyman & Plotkin, 1982).

Key to an understanding of the influence of SIP factors in parenting is an understanding of the role of schema. Schema refer to knowledge structures stored in memory that are activated when faced with novel stimuli. Of particular interest to the study of parenting interactions are relational schema, defined as "...cognitive structures representing regularities in patterns of interpersonal relatedness" (Baldwin, 1992, p. 461). Relevant schema for parenting interactions include expectations and beliefs regarding the role of a parent, one's own caregiving capacity, children in general, expectations and beliefs regarding the specific child, and expectations for interactions between mothers and children (Azar, Nix, & Makin-Byrd, 2005). Schema are thought to serve an adaptive function by allowing mothers to quickly and efficiently interpret a novel parenting situation through comparison to pre-existing knowledge, expectations, and beliefs and assist in rapid selection of a behavioral response from a pre-existing repertoire of parenting responses. However, research and theory indicate that when parenting schema are overly rigid, simplistic, negative, or otherwise inappropriate, they can lead to maladaptive parenting responses (see Azar, et al., 2005; Azar & Twentyman, 1986).

According to these models, while interacting with her child, a mother would use SIP capacities to interpret her child's actions and generate her own behavioral responses. Although these capacities act to help mothers interpret social stimuli in interactions with their children, should SIP capacities be deficient, parents may be at increased risk for engaging in maladaptive parenting behaviors. Several studies examining SIP deficits support this cognitive view of parenting. For example, studies examining maternal expectations have shown that mothers with histories of perpetrating child maltreatment show greater levels of unrealistic expectations regarding children than do control mothers (Azar et al., 1984; Azar & Rohrbeck, 1986). These unrealistic expectations are reflective of the presence of maladaptive parenting schema. Although some studies have failed to find differences in expectations between mothers with histories of perpetrating maltreatment and control mothers (Budd, Heilman, & Kane, 2000; Haskett, Smith-Scott, Wiloughby, Ahern, & Nears, 2006), recent work continues to support the role of unrealistic expectations in predicting parenting risk (Azar, Stevenson et al., 2012). Of particular interest to this study are findings indicating that mothers who are at high-risk for perpetration of maltreatment exhibit differences in their expectations of child compliance, as well as expectations regarding the utility of punitive parenting responses compared to low-risk mothers (Caselles & Milner, 2000; Chilamkurti & Milner, 1993; Dopke & Milner, 2000).

In addition to unrealistic expectations, hostile attributions appear to affect parenting behavior. For example, Slep and O'Leary (1998) found that mothers who were told that their children were responsible for their own misbehavior were significantly more over-reactive and experienced more feelings of anger than did mothers who were told that their children were not to blame for their misbehavior. Similarly, Geller and Johnston (1995) found that for mothers, attributions of child intentionality and control in response to descriptions of their children's

noncompliance were related to higher ratings of maternal angry affect (specifically the extent to which they would be upset), as well as to more intensive parenting responses (the extent to which mothers stated they would intervene). A number of studies have shown similar results (e.g., Dix, Ruble, Grusec, & Nixon, 1986; Snyder, Cramer, Afrank, & Patterson, 2005).

Research also indicates that parental problem-solving capacities are related to parenting behavior. For example, research suggests that maternal problem-solving deficits contribute to mothers' nurturance and feeding behaviors. In a comparison of mothers of infants diagnosed with Failure to Thrive (FFT) to mothers of normal weight infants, mothers of infants with FFT scored significantly lower on a measure of problem-solving capacities (Robinson, Drotar, & Boutry, 2001). Supporting evidence for the role of maternal problem-solving capacities in parenting behaviors include findings indicating that mothers with histories of committing child maltreatment show poorer problem-solving capacities (Azar et al., 1984; Hansen, Pallotta, Tishelman, Conway, & MacMillan, 1989), as well as recent findings linking maternal problem-solving capacities to measures of the quality of the child's home environment (e.g., cleanliness, physical safety, extent to which the home environment is conducive to the child's development; Azar., Stevenson et al. 2012). Taken together, these findings provide strong supporting evidence for the role of SIP in influencing parenting behavior. Of particular interest to this study are findings indicating that SIP factors are related to greater maternal endorsement of punishment in reaction to aversive child behaviors (Azar et al., 2013; Azar et al., 1999), as well as to the frequency and duration of child maltreatment and severity of physical abuse within a maltreating sample (Azar, Miller et al., 2012). Research and theory also indicate that SIP capacities may influence factors related to child compliance including dyadic dyssynchrony and parents' use of effective commands.

A recent study found that greater SIP deficits were related to higher levels of dyssynchrony in a sample of highly disadvantaged mothers (Azar, Stevenson et al., 2012). Consideration of the function of SIP capacities provides an explanation for this effect. SIP capacities act to help the individual selectively attend to and interpret input (i.e., sensory stimuli) as well as produce output in the form of behavior. For example, when a mother is interacting with her child, the child's actions are interpreted through the use of a variety of social-cognitive mechanisms including expectations for the child's behavior and capacities and attributions for behavior. These mechanisms help the mother to interpret the stimuli provided by the child as well as to formulate her own behavioral response to the child's actions. Problem-solving skills are used to change her behavior to fit the child's needs or match changes in the stimuli provided by the child (Azar et al., 1984). Although a mother with high SIP capacities will likely be better able to engage her child in a mutually responsive, developmentally appropriate manner, a mother whose SIP capacities are limited may exhibit biased interpretations of her child's behavior as well as difficulty adjusting her own behavior in response. This biased processing could result in the mother engaging in dyssynchronous interactions with her child. Indeed, a number of other studies support the link between SIP deficits and dyadic dyssynchrony (Azar, Read, Biancaniello, et al., 2011; Azar, Read, Proctor, et al., 2011).

Though SIP has been linked to a number of parenting behaviors, a review of the literature revealed no studies examining how SIP affects parents' use of commands. Despite the paucity of research in this area, consideration of both the components of an effective command as well as SIP deficits suggests that a relationship between the two may well exist. A mother's unrealistic expectations would likely play a role in the way in which she delivers a command as well as in her interpretation of the child's response to the command. For example, a mother with unrealistic

expectations might believe her child capable of complying immediately. This unrealistic expectation could lead to the perception of her child's failure to complete the task as resulting from willful noncompliance rather than an inability to initiate compliance due to inadequate time to comply.

Faced with this perceived willful noncompliance, a mother with SIP deficits might make a hostile attribution towards her child's behavior (e.g., he's doing this to make me angry). In the moment, a hostile attribution combined with the unrealistic expectation that the child is capable of completing the task may lead parents to rapidly issue further commands to gain compliance (e.g., "do it now, right now, do what mommy tells you to do!") or possibly resort to a punitive discipline response. This assertion is supported by studies indicating a link between maternal hostile attributions and use of coercive tactics to achieve compliance/respond to noncompliance (Del Vecchio & O'Leary, 2008; MacKinnon-Lewis et al., 1994; Strassberg, 1997).

Beyond the mother's reaction in the moment, interactions such as these that occur over time could serve to reinforce the hostile attributions and result in punitive discipline strategies becoming the "go-to" tactic to achieve compliance. This assertion is supported by the findings of Strassberg (1995), who indicated that mothers whose children have a history of disruptive behavior tend to give greater ratings of defiant intent and experience higher levels of anger in response to videotapes of children in ambiguous situations. Deficits in problem-solving capacities may also lead to use of less effective commands as mothers with problem-solving deficits may fail to change the pacing of commands to allow the child adequate time to comply. As such, SIP deficits may result in increased levels of child noncompliance and increased maternal endorsement of punitive discipline through increasing dyadic dyssynchrony as well as maternal use of ineffective commands.

Current Study

Using a sample of low SES mothers and their 3-5 year old children, this study tested whether SIP deficits inhibited mothers' ability to elicit child compliance through two mechanisms, and whether lower maternal competency for eliciting child compliance was related to higher endorsement of punitive discipline. Higher maternal SIP deficits were predicted to result in lower maternal competency for issuing effective commands. In other words, mothers with higher SIP deficits were predicted to be more likely to issue commands that did not provide adequate time to initiate compliance. As such, mothers' use of ineffective commands was predicted to result in lower ratios of compliance to total maternal commands.

Although maternal use of effective commands is thought to be necessary to achieve child compliance, other factors such as the quality of dyadic interaction have been found to be influential as well. This study predicted that dyssynchronous interaction styles, reflective of histories of discordant interactions between mothers and their children, would result in lower ratios of child compliance to commands that allowed an opportunity for children to comply. Specifically, it was predicted that higher levels of dyadic dyssynchrony assessed during laboratory-based interactions would predict lower ratios of child compliance to effective commands in a subsequent toy pick-up task. Lower ratios of child compliance to total maternal commands as well as lower ratios of child compliance to commands that allow an opportunity for compliance were hypothesized to predict greater maternal endorsement of punitive discipline in hypothetical situations involving aversive child behavior. Although previous work has examined the impact of synchrony/dyssynchrony (e.g., Kochanska, et al., 2001) or use of effective commands (e.g., Forehand et al., 1975; Wachs et al., 2004) on child compliance, this study is unique in its assessment of the impact of these factors on child compliance and

subsequent endorsement of punitive discipline within the same mother-child dyad. This study tested the following hypotheses:

Hypothesis 1: As has been found in prior studies, greater maternal SIP deficits will be related to greater levels of dyadic dyssynchrony (e.g., Azar, Stevenson et al., 2011), and greater maternal endorsement of punitive discipline strategies (Azar et al., 1999; Dix, Ruble, & Zambarano, 1989; Slep & O’Leary, 1998). It is also predicted greater maternal SIP deficits will be related to greater use of ineffective commands and lower levels of child compliance.

Hypothesis 2: As has been found in prior studies, greater maternal use of ineffective commands will be linked to lower rates of child compliance and lower rates of child compliance will be associated with greater maternal endorsement of punitive discipline (Forehand et al., Lansford et al., 2011). It is further predicted that greater levels of dyadic dyssynchrony will be related to lower rates of child compliance, and greater maternal endorsement of punitive discipline strategies.

Hypothesis 3: Maternal use of ineffective commands and total child compliance will mediate the relationship between maternal SIP deficits and maternal endorsement of punitive discipline strategies (see Figure 1). That is, greater maternal SIP deficits will predict greater use of ineffective commands, which will in turn predict lower ratios of child compliance to total maternal commands and greater maternal endorsement of punitive discipline.

Hypothesis 4: History of dyadic dyssynchrony and child compliance to effective commands will mediate the relationship between SIP deficits and maternal endorsement of punitive discipline strategies (see Figure 2). That is, greater maternal SIP deficits will predict greater levels of dyadic dyssynchrony in previous interactions which will, in turn, predict lower

ratios of child compliance to effective commands and greater maternal endorsement of punitive discipline.

Additional Analyses Focusing on Maternal Maltreatment History: To elucidate the potential impact of child maltreatment histories, exploratory analyses were conducted utilizing dyads for whom data regarding Child Protective Services (CPS) involvement was available. This study sought to determine whether relationships between maternal SIP deficits, commands, dyssynchrony, compliance, and punitive discipline differ between dyads with CPS involvement for maternal perpetration of child maltreatment compared to control dyads.

Methods

Participants

This study utilized data from 96 mother-child dyads with children who were aged three to five and for whom video interaction data was collected in a larger study of parenting, social information processing, and child maltreatment. Mothers (mean age = 29.47 years, SD = 5.47) participated with their preschool age child (mean age = 4.44 years, SD = .80; 46 girls and 50 boys). Mean annual family income was \$12,697.93 (SD = 12,208.42). The majority of mothers (79%) were unemployed and 57.3% were not married. The majority of the sample (81.3%) identified as Caucasian; the remainder identified as Black (8.3%), Asian American (8.3%), or Latina (2.1%). Of the mothers included in this study, 33 had a history of child protective services (CPS) involvement for maternal perpetration of child physical abuse and/or neglect, 36 mothers had no such histories, and for 27 mothers data regarding CPS involvement was not available. Mothers with a history of CPS involvement were recruited from agencies serving CPS parents and comparison mothers were recruited from day care programs serving low SES families and Head Start programs.

Procedure

Following recruitment, mothers received a home visit during which the study procedures were explained and informed consent was obtained. During the home visit, mothers completed a number of questionnaires, including one on background information and two of the SIP measures, the Parent Opinion Questionnaire (measure of expectations of children) and the Parent Problem Solving Inventory (measure of problem solving). All measures were read aloud to the participants to address potential maternal literacy issues. Following the home visit, participants were scheduled for a follow-up laboratory visit at a university within a week of the initial home visit.

During the laboratory visit, mothers completed the third SIP measure, the Cognitive Vignettes (measure of attributions and endorsement of punitive discipline) and participated in a videotaped six-segment observational session. The first segment was a five minute free play situation in which mothers were instructed to play with their child as they normally would at home or in a doctor's office waiting room. Following the free play task, four teaching tasks were completed in which mothers were instructed to teach their children how to assemble four different puzzles. The first two puzzles were designed to be easy enough that most mothers could successfully teach them to their children, while the last two puzzles were designed to be hard enough that most mothers failed at teaching them to their children. Prior to beginning the teaching tasks, mothers were given a social evaluative set ("We think it's important for a mother to be able to teach their child things. We'd like to see how good you are at teaching" (Azar, 1984, p. 131). Mothers were given up to five minutes to teach each puzzle.

Following the teaching tasks and a short break where the child was taken from the observation room and the mother completed another instrument, mothers and their children took

part in a toy pick-up task, a paradigm designed to elicit child noncompliance adapted by Azar (1984) from a procedure employed by Forehand and King (1977). During this procedure, mothers were instructed to have their children dump out one of several bins containing attractive, multi-part toys (e.g., tinker toys, Lincoln Logs). One minute after the child began playing with the first bin of toys, mothers were instructed to have the child put the toys back in the bin by themselves (i.e., mothers were instructed not to assist the child in picking up the toys). This procedure was repeated with four additional sets of toys (or as many as the dyad could complete in a five-minute time allotment). Interactions during each task were coded with the coding systems described below. This study used the dyadic dyssynchrony codes across the free-play and puzzle tasks and maternal commands/child compliance in the toy pick-up task only. The two mediating variables thus were measured in different contexts to reduce the potential for child noncompliance to influence dyadic dyssynchrony codes. Measuring dyssynchrony across the free-play and puzzle interactions allowed for analysis of the quality of mother-child interactions across both a non-evaluative task (free-play) as well as a set of social-evaluative tasks designed to increase maternal frustration (puzzles). Commands and compliance on the other hand were coded for a segment that was designed to evoke both maternal commands and child noncompliance (Forehand & King, 1977). At the completion of the laboratory visit, mothers were extensively debriefed to ensure no adverse effects and paid a small amount for their participation in the study.

Measures

Demographics. The background information form collected demographic information including mother and child date of birth, maternal marital status, education, employment status,

family income level, number of children, age and sex of the participating child, and mother and child race/ethnicity. Participant demographics are presented in Table 1.

Parent Opinion Questionnaire (POQ). The Parent Opinion Questionnaire measures parents' level of unrealistic expectations regarding appropriate childhood behavior and children's capacities (Twentyman, Plotkin, Dodge, & Rohrbeck, 1981). Parents are presented with 80 statements (60 scored items, 20 non-scored filler questions) regarding children's capacities and asked to respond whether they agreed or disagreed with the statement. Sample items include, "It's probably not too much to expect a 4 year old to behave in front of others so not to embarrass the parent," and "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." The POQ has previously been shown to differentiate maltreating and at-risk mothers (e.g., substance abusing mothers) from similar comparison mothers (Azar et al., 1984; Azar & Rohrbeck, 1986; Azar, Stevenson et al., 2012; Spieker et al., 2001). Psychometric analyses of the POQ have indicated adequate test-retest reliability ($r = .85$ at two-week follow-up). In this sample, Cronbach's α was .82 for the non-filler items, indicating adequate internal consistency. In this study, the total sum score for the POQ was used as a measure of unrealistic expectations.

Parent Problem Solving Inventory (PPSI). The Parent Problem Solving Inventory is designed to measure parent problem-solving ability surrounding child-rearing situations. Developed by Wassik, Bryant, and Fishbein (1981), the PPSI consists of ten common child-rearing scenarios presented in story form. Participants are presented with the beginning and end of a short story consisting of a parenting dilemma, and are then asked to provide an appropriate middle that connects the two (i.e., "fill in the middle"). Mothers' responses are recorded

verbatim and subsequently coded by raters blind to other data regarding the mother and study hypotheses.

Mothers' responses were coded for the number of irrelevant solutions provided. An irrelevant solution is one that does not logically connect the beginning of the story to the end of the story (i.e., does not solve the problem). Irrelevant solutions on the PPSI have been shown to differentiate maltreating mothers and demographically matched comparison mothers (Azar et al., 1984; Azar, Stevenson et al., 2012) and have been found to predict the frequency and duration of child maltreatment (Azar, Miller, et al., 2012). Previous psychometric analysis from the larger study from which these participants were selected found evidence of excellent inter-rater reliability with agreement ranging from 94-100%.

Cognitive Vignettes (CV). This instrument is designed to measure parents' endorsement of punishment as well as parental attributions of negative intentionality regarding aversive child behavior (Plotkin, 1983). A total of 18 vignettes of aversive child behaviors are presented to the mothers. Of the 18 vignettes, 6 are vignettes involving clearly intentional child behavior, 6 involve clearly unintentional child behavior, and 6 involve child behaviors for which child's intent was ambiguous. Mothers are instructed to imagine in each vignette that it was their child who had completed the aversive act. Mothers are then asked to rate the extent to which the child committed the act to annoy them (negative intentionality), as well as the severity with which they would punish their child on separate nine-point Likert scales ranging from zero (not at all) to nine (very much). The total score for the intentionality scale was used as a measurement of hostile attributions, and the total score for the punishment scale was used to reflect maternal endorsement of punitive discipline strategies.

Previous studies have indicated that maltreating mothers tend to endorse higher ratings on the punishment scale, indicating construct validity as a measure of punitive discipline (Azar et al., 1984; Azar, Stevenson et al., 2012; Haskett et al., 2003; Plotkin, 1983). Maltreating mothers have also been found to score higher on the negative intentionality subscale than control mothers, and ratings of negative intentionality have been found to be related to greater frequency and severity for child physical abuse as reported in child protection records (Azar, Miller et al., 2012). In this sample, Cronbach's α was .89 for the intentionality scale and .84 for the punishment scale.

Dyadic Dyssynchrony Coding of the Mother-Child Observation. Dyadic dyssynchrony was measured in the free-play and puzzle tasks using an observational coding system developed by Johnson and Azar (1998). The dyssynchrony scale is composed of six subscales, each rated on anchored Likert-type scales, with higher ratings corresponding to higher levels of dyssynchrony. The subscales contributing to the overall dyssynchrony score include level of conflict, extent to which conflict influenced the functioning of the dyad, inappropriate responses to affective displays by the other member of the dyad, discordance between non-affective forms of social interaction, emotional separateness, and intrusiveness. For the dyssynchrony subscales, ratings were made during each of the five interaction segments (free-play and four puzzle tasks) and summed to arrive at a dyssynchrony score for each segment. Total dyssynchrony scores for each dyad were computed by summing dyssynchrony scores for each of the five interaction segments. The dyssynchrony subscales showed good internal consistency across the five segments ($\alpha = .81 - \alpha = .85$), as did the total dyssynchrony score ($\alpha = .88$). A second rater coded a subsample of videos (15%) to determine inter-rater reliability.

Analysis indicates excellent inter-rater reliability, with total dyssynchrony ratings (summed across the free-play and puzzle segments) showing an intraclass correlation of .99.

Command and Compliance Coding System. Mother and child behaviors, including maternal use of effective commands and child compliance/noncompliance were assessed in the toy pick-up task using a coding system adapted by Azar (1984) from a system developed by Baldwin & Ward (1973). Among other behaviors, this coding system was designed to code maternal commands and child responses. For the purposes of this study, maternal effective commands were maternal verbal instructions that called for a behavioral response on the part of the child and allowed 5 seconds for children to initiate compliance. Maternal ineffective commands were commands that failed to allow 5 seconds for the child to comply due to interruption in the form of other verbalizations or other actions on the part of the mother. Child compliance was coded when children attempted to comply in any manner with a maternal command within 5 seconds of its issuance. Child noncompliance was coded when children failed to attempt to comply within 5 seconds, or initiated obvious misbehavior (i.e., direct defiance). For a full list of coding criteria, see Appendix C. The criteria used for coding commands and compliance are similar to other well-validated coding systems (e.g., Forehand & McMahon, 1981). In order to account for differences in the number of commands that mothers issued, this study used the ratio of ineffective commands to total commands issued as a measure of mothers' use of ineffective commands, in line with previous work (e.g., Roberts et al., 1978).

This study utilized two measures of child compliance. In order to determine the impact of maternal use of commands, the ratio of child compliance to all maternal commands (effective commands plus ineffective commands) was computed. This was used as a measure of the ratio of child compliance to total commands (CTC). In order to determine the impact of dyssynchrony

on mother's ability to elicit child compliance to commands that allow an opportunity for compliance, the ratio of total child compliance to total effective commands was computed. This ratio served as a measure of child compliance to effective commands (CEC). Similar distinctions have been used in previous work examining child compliance and parent's use of effective commands (Calzada, et al., 2004).

A subsample (20%) of the videos were assessed for inter-rater reliability. Analysis of double-coded tapes revealed adequate inter-rater reliability for all scales used in this study. For coding of maternal use of ineffective commands, child compliance, and child noncompliance, intra-class correlation coefficients ranged from .84-.92.

CPS Record Checklist. Maltreatment designations were determined based on reviews of CPS records. Researchers examined CPS records in order to determine whether or not a record of substantiated maltreatment existed. If a report existed, it was examined in order to determine the nature of the maltreatment (e.g., physical abuse, neglect, sexual abuse) and the perpetrator of the maltreatment. Of the 69 mothers for whom data regarding CPS status was available, mothers who had a CPS substantiated report for perpetration of abuse, neglect, or both abuse and neglect were considered to be in the maltreatment group, while mothers with no history of perpetrating child maltreatment were considered to be in the non-maltreatment group. Mothers with substantiated reports of perpetration of sexual abuse (n=3) or maltreatment perpetrated by the mothers' partner (n=1) were excluded from this study as SIP has not been tested with this group.

Results

Preparatory Analyses. Means and standard deviations for study variables are presented in Table 2. Prior to formal hypothesis testing, z-scores for each of the three SIP measures (Parent Opinion Questionnaire, Child Vignettes, and Parent Problem-Solving Inventory: Irrelevant

Solutions) were summed to arrive at a composite score for maternal SIP deficits. Demographic variables including child age, child gender, maternal age, number of children, family income, maternal education, and mothers' marital status were correlated with study independent variables using Pearson correlations (for continuous demographic variables) and point-biserial correlations (for dichotomous demographic variables) (Table 3). Previous research has established relationships among demographic variables and a number of the variables used in this study including dyadic synchrony, child compliance, maternal SIP, and use of effective commands (Clark & Ladd, 2000; Dix, Grusec, Ruble, & Nixon, 1986; Harrist & Waugh, 2002; Kopp, 1982; Kuczynski & Kochanska, 1990; Myers, Varkey, & Aguirre, 2002; NICHD Early Child Care Research Network, 1998; Zegiob & Forehand, 1975), as well as maternal discipline attitudes (Dix, Ruble, & Zambarano, 1989, Pinderhughes, Dodge, Bates, Pettit, & Zelli, 2000). In line with previous research, in this study, child age, family income, and maternal education showed significant relationships to study independent variables. Given their potential to influence relationships between study variables, child age, family income, and maternal education were included as covariates in subsequent analyses. All analyses were run with and without these covariates.

Hypothesis 1. Hypothesis 1 was tested using Pearson correlations to examine relationships between the composite measure of maternal SIP deficits and dyadic dyssynchrony, ratio of ineffective commands, ratios of child compliance (to both total and effective commands), and maternal endorsement of punitive discipline (Table 4). As predicted, significant positive correlations were found between the composite of maternal SIP deficits and both dyadic dyssynchrony and maternal endorsement of punitive discipline. Contrary to study hypotheses,

maternal SIP deficits were not significantly associated with ratio of ineffective commands. All relationships held after controlling for covariates using partial correlations (Table 5).

Hypothesis 2. Pearson correlations were used to test the predicted associations between dyadic dyssynchrony, ratio of ineffective commands, and child compliance (Table 4). As predicted, a significant negative correlation was found between ratio of ineffective commands and ratio of children's compliance to total commands. This relationship held after controlling for covariates (Table 5). Similarly, and in line with study hypotheses, dyadic dyssynchrony showed a significant negative correlation with ratio of child compliance to effective commands. However, this correlation was no longer significant after controlling for covariates (Table 5). Contrary to study hypotheses, ratios of child compliance (both to total maternal commands as well as to effective commands) were not significantly associated with maternal endorsement of punitive discipline.

Hypothesis 3. Hayes' (2012) PROCESS macro was used to test the hypothesis that the association between SIP deficits and maternal endorsement of punitive discipline strategies is mediated by ratio of ineffective commands and child CTC (ratio of child compliance to total maternal commands). PROCESS allows for computation of both direct and indirect effects for mediation and produces bias corrected, percentile based confidence intervals via bootstrapping. This confidence interval was used to test the null hypothesis that the magnitude of the indirect effect was not statistically different from zero (Preacher & Hayes, 2004). Utilizing this bootstrapping procedure represents an improvement over other tests of mediation (e.g. Baron & Kenny, 1986) as it allows for direct determination of the strength of indirect effects. Although other techniques also directly calculate indirect effects (e.g., Sobel's test) the PROCESS model does not carry the assumption that the values for the indirect effects are normally distributed

(Preacher & Hayes, 2004), as this assumption may not hold (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002).

Analyses revealed significant total and direct effects of maternal SIP deficits on maternal endorsement of punitive discipline (Table 6). This procedure tested for the presence of three indirect effects: the indirect effect of SIP deficits on endorsement of punitive discipline through maternal use of ineffective commands, the indirect effect of SIP deficits on maternal endorsement of punitive discipline through child CTC, and the indirect effect of SIP deficits on maternal endorsement of punitive discipline through both maternal use of ineffective commands and child CTC (in series). Analyses revealed that all three indirect effects were non-significant (Table 6). Contrary to study hypotheses, the relationship between maternal SIP deficits and maternal endorsement of punitive discipline was not mediated by maternal use of ineffective commands and CTC, either individually or in sequence. Follow-up analyses were conducted to determine whether individual components of the SIP model would exhibit significant indirect effects through mothers' use of ineffective commands, and/or CTC. All three SIP deficits showed significant direct effects on maternal endorsement of punitive discipline, however no significant indirect effects were found. Findings did not change following addition of covariates (Tables 7-9).

Hypothesis 4. In order to test the hypothesis that the association between SIP deficits and maternal endorsement of punitive discipline strategies is mediated by dyadic dyssynchrony and child CEC (ratio of child compliance to maternal effective commands) operating in series, serial mediation was again conducted utilizing the PROCESS macro (Hayes, 2012). As with Hypothesis 3, this procedure allowed for a test of the causal sequence from SIP deficits to dyadic dyssynchrony, to child CEC, to maternal endorsement of punitive discipline. Analyses revealed

significant total and direct effect of maternal SIP deficits on maternal endorsement of punitive discipline (Table 10). This procedure tested for the presence of three indirect effects: the indirect effect of SIP deficits on maternal endorsement of punitive discipline through dyadic dyssynchrony, the indirect effect of SIP deficits on maternal endorsement of punitive discipline through child CEC, and the indirect effect of SIP deficits on maternal endorsement of punitive discipline through both dyadic dyssynchrony and child CEC sequentially. Analyses revealed that all three indirect effects were non-significant (Table 10). Contrary to study hypotheses, the relationship between the composite of maternal SIP deficits and endorsement of punitive discipline was not mediated by dyadic dyssynchrony and CEC, either individually or in sequence. Follow-up analyses were conducted to explore whether individual components of the SIP model would exhibit significant indirect effects through dyadic dyssynchrony, and/or CEC. For one SIP deficit, unrealistic expectations, a single significant indirect effect was found. The relationship between mothers' unrealistic expectations and endorsement of punitive discipline was partially mediated by dyadic dyssynchrony (Table 11). Problem-solving deficits and attributions of negative intentionality showed direct and total effects on endorsement of punitive discipline, but no indirect effects (Table 12 and Table 13). Findings did not change following addition of covariates.

Additional Analyses Focusing on Maternal Maltreatment History. Exploratory analyses were conducted to determine whether the mediational pathways posited in Hypotheses 3 and 4 differed between participants who have perpetrated maltreatment ($n = 33$) versus participants without histories of perpetrating maltreatment ($n = 36$). Results from these analyses are presented in Appendix B. As Hayes' (2012) PROCESS macro does not allow for analysis of moderated serial mediation, analyses were run separately for participants with histories of

perpetrating maltreatment and participants without such histories. Due to the small sample size, caution should be taken in interpreting these results. Prior to performing mediation analysis, analyses were performed to determine whether groups differed on demographic variables. Independent samples t-tests were run for continuous demographic variables (Table B:1) and chi-squared analyses were run for categorical demographic variables (Table B:2). Analyses revealed that maternal education and family income were higher for control mothers, and that control mothers were more likely to be married than mothers in the maltreatment group. These variables, along with child age, were used as covariates in analyses comparing mothers with histories of perpetrating maltreatment to comparison mothers. For both groups, analyses revealed significant total and direct effects of maternal SIP deficits on maternal endorsement of punitive discipline, but no evidence of significant indirect effects (Table B:3 and Table B:4).

Discussion

Parents' ability to elicit their children's compliance is thought to play a role in the socialization process and has been found to predict parents' discipline responses (Kochanska et al., 2001; Smith et al., 2004). Numerous factors including the use of effective commands and the quality of parent-child interaction have been linked to parents' ability to elicit their children's compliance. Research in the area of social cognition has found that maternal Social Information Processing (SIP) deficits influence parenting behavior and parent-child interactions (Azar, Stevenson et al., 2012). Given their relationship to potential predictors of child compliance, as well as past research reporting relationships between children's compliance and parental discipline (e.g., Lansford et al., 2011), this study predicted that maternal SIP deficits would inhibit mothers' ability to elicit their children's compliance, and that reduced ability to elicit

child compliance would explain relationships between maternal SIP deficits and endorsement of punitive discipline.

As predicted, greater SIP deficits were associated with greater endorsement of punitive discipline. Thus, the results of this study provide further support for the relationship between SIP deficits and endorsement of punitive discipline strategies (Azar et al., 1999, Barnes & Azar, 1990; Mackinnon-Lewis et al., 1994). This study further explored this finding by examining relationships among SIP deficits, mothers' ability to elicit their children's compliance, and mothers' endorsement of punitive discipline. SIP deficits were predicted to result in decreased child compliance through greater dyadic dyssynchrony in parent-child interactions as well as through greater maternal use of commands that did not provide adequate time for child compliance.

As predicted, SIP deficits were strongly associated with greater dyadic dyssynchrony. Thus, in line with previous findings (e.g., Azar, Stevenson et al., 2012), the results of this study support a relationship between SIP deficits and the quality of parent-child interaction as assessed by dyadic dyssynchrony. However, contrary to study hypotheses, this study failed to establish a relationship between SIP deficits and use of ineffective commands. Analysis of individual SIP factors indicated a small association among problem solving and use of ineffective commands; however, this association failed to reach significance after controlling for relevant demographic variables.

Although it is possible that mothers' SIP capacities are unrelated to their use of ineffective commands, it is also possible that the setting used to assess commands and compliance in this study may have altered mothers' use of commands. This study assessed mother's use of effective commands in a laboratory-based guided toy-pick up task. Although

prior work has used similar lab-based paradigms to assess commands and compliance (Crockenberg & Litman, 1990; Forehand & King, 1977; Roberts, et al., 1978), it is possible that the setting in which the command and compliance task was conducted impacted mothers' use of commands. Indeed, in a study comparing mothers who had received a behavioral intervention designed to increase use of effective commands compared to control mothers, Forehand and colleagues found that differences between treatment and control groups on maternal use of ineffective commands were greater when mothers were observed in the home completing daily activities than in a laboratory session completing a structured compliance task (Forehand et al., 1977). This finding suggests that factors that influence mothers' use of ineffective commands may have a greater impact in naturalistic settings as compared to laboratory-based, structured activities. Future studies may benefit from use of in-home observation of mothers and their children completing daily activities to further explore relationships between maternal SIP deficits and mothers' use of effective commands.

In line with previous findings (Forehand & Scarboro, 1974; Wachs et al., 2004), greater use of ineffective commands was associated with lower child compliance. That is, use of commands that did not allow adequate time for children to initiate compliance was strongly related to lower child compliance to total maternal commands. Although dyadic dyssynchrony was associated with children's ratio of compliance to effective commands, this association became nonsignificant after controlling for relevant demographics. Based on previous research suggesting that dyadic synchrony (a closely related construct) is predictive of greater levels of child compliance in subsequent interactions (Parpal & Maccoby, 1985; Schueler & Prinz, 2013), it was predicted that dyadic dyssynchrony would promote lower levels of compliance. However, in this study, children's level of compliance was not influenced by dyadic dyssynchrony in

preceding interactions. Greater levels of dyadic dyssynchrony were however associated with greater maternal endorsement of punitive discipline, in line with study hypotheses. Thus, although the results of this study indicate that dyadic dyssynchrony in immediately preceding interactions does not influence children's level of compliance, there is evidence that greater levels of dyadic dyssynchrony are associated with greater maternal endorsement of punitive discipline.

Interestingly, this study failed to find an association between overall SIP deficits and children's compliance in the observation. As with mothers' use of ineffective commands, analysis of the components of SIP revealed that maternal problem solving deficits were weakly associated with child compliance to total maternal commands; however this relationship was no longer significant after controlling for demographic variables. Thus, based on the results of this study, maternal SIP deficits do not appear to influence amount of child compliance elicited in a lab-based compliance task. Interestingly, the results of this study also failed to support a relationship between children's compliance and maternal endorsement of punitive discipline. That is, children's compliance as assessed by independent raters did not appear to influence mothers' endorsement of punitive discipline.

Mediation analyses tested two pathways between SIP deficits and endorsement of punitive discipline. The first predicted that SIP deficits would be related to endorsement of punitive discipline through increased use of ineffective commands and subsequent child noncompliance. The second predicted that SIP deficits would be related to endorsement of punitive discipline through increased dyadic dyssynchrony and subsequent child noncompliance to effective commands. As predicted, this study found that increased SIP deficits were related to increased endorsement of punitive discipline. However, neither hypothesized mediational

pathway was supported, indicating that maternal SIP deficits influence endorsement of punitive discipline regardless of children's observed level of compliance.

As previous studies have found that dyads with maltreatment histories differ from control dyads on a number of key study variables (Azar et al., 1984; Koenig, et al., 2000; Oldershaw, et al., 1986), exploratory analyses were conducted to determine whether the hypothesized pathways differed between dyads with histories of maternal perpetration of child physical abuse and/or neglect and dyads without such histories. Although results should be interpreted with caution due to the small sample size, exploratory analyses revealed that for both groups, greater maternal SIP deficits were related to greater maternal endorsement of punitive discipline strategies. Results from both groups failed to find evidence of indirect effects through dyadic dyssynchrony, mothers' use of ineffective commands, or child compliance. Thus, this study presents evidence that greater maternal SIP deficits are related to greater maternal endorsement of punitive discipline regardless of children's objective level of compliance, and that this relationship holds for dyads with histories of maternal perpetration of maltreatment as well as for dyads without such histories.

Although this study's finding that maternal SIP deficits are related to endorsement of punitive discipline irrespective of children's observed level of compliance is intriguing, it is important to note that characteristics of the study sample may underlie this effect. This study may have had limited power to detect relationships with child compliance because unlike most studies in this area, participants in this study were not selected for clinically elevated levels of noncompliance and externalizing problems. The majority of the studies examining links between child compliance and punitive discipline, as well as links between mothers' commands and child compliance, have utilized samples with clinically elevated levels of child noncompliance or other

early externalizing problems (e.g., Forehand et al., 1975; Roberts et al., 1978; Smith et al., 2004). Compared to these samples, the sample used for this study had a lower overall rate of noncompliance (Forehand et al., 1975; Griest et al., 1981). For example, in a study conducted by Griest and colleagues using a similar paradigm, children were compliant to approximately 27% of maternal commands (Griest et al., 1981). In comparison, the sample used for this study was compliant to approximately 42% of maternal commands. Although some studies have reported relationships among these factors using normative samples (e.g., Forehand & Scarboro, 1975; Lansford et al., 2011; Cockenber, 1987), the lack of relationships between maternal SIP and child compliance, as well as between child compliance and maternal endorsement of punitive discipline may have been due to higher levels of child compliance in this sample.

Despite this limitation, it is also possible that SIP deficits are related to increased endorsement of punitive discipline regardless of children's objective level of compliance. Previous research and theory suggest that SIP deficits may predispose mothers to distorted perceptions of their children's behavior as intentionally negative and hostile (Azar et al., 2008; Azar & Weinzierl, 2005). These distorted perceptions may lead mothers to perceive greater levels of child noncompliance in the moment, as well as to anticipate greater levels of child noncompliance when predicting future interactions with their children. This increased perception and anticipation of child noncompliance may serve to increase mothers' endorsement of punitive discipline strategies irrespective of their child's objective level of compliance. According to SIP models of parenting, this effect could be explained by the influence of maladaptive parenting schema, problem-solving deficits, and attributional biases.

This study assessed maladaptive parenting schema including mothers' overestimation of children's developmental capacities (e.g. "In most cases a 6 year old can get up, wash, dress, and

go to school unassisted”), unrealistic beliefs regarding acceptable behavior (e.g., “Most often a 3 year old will know how to play quietly for longer periods of time when his mother is not feeling well”), and rigid/maladaptive beliefs about punishment and control (e.g. “ Generally , it’s a good idea to physically punish (slapping the hand, etc.) a 2 year old for touching a stereo”). These maladaptive schema may result in mothers’ expectations for compliance that are beyond the child’s developmental capacities, resulting in consistent failure of the child to meet maternal standards for compliance/good behavior. This consistent failure could lead mothers to perceive their child as willfully noncompliant. This maladaptive schema may result in mothers exhibiting attentional biases for children’s misbehavior as well as a tendency to interpret ambiguous child behavior as intentionally noncompliant or hostile.

Attending to social stimuli and forming interpretations that are inconsistent with pre-existing schema have been found to require greater cognitive resources than attending to schema-congruent stimuli or forming schema-congruent interpretations (Fiske, 2011; Gilbert, McNulty, Guiliano, & Benson, 1992). Thus, problem-solving deficits (and related deficits in executive functioning (EF; Azar, Stevenson et al., 2012) may limit a mother’s ability to account for contextual information when evaluating the reason for her child’s failure to comply as well as the appropriateness of her discipline response, thereby increasing her endorsement of punitive discipline. For example, when evaluating the reason for her child’s failure to comply with her command, a mother with limited problem-solving capacities or EF deficits may fail to take into account relevant contextual factors such as the child’s developmental capacities, events that occurred earlier in the day (e.g., the child missed his nap), situational variables (e.g., a loud environment where the child may have difficulty hearing her command), or other contextual factors (e.g., the child is sick, hungry, over-stimulated). Problem solving deficits may also limit

mothers' repertoire of potential responses to perceived noncompliance, further increasing risk for use of punitive responses (Azar & Wolfe, 1998; Beauchaine, Strassberg, Kees, & Drabick, 2002).

The product of these maladaptive schema and problem-solving deficits in the moment may be an increased likelihood for attributions of children's behavior as intentionally noncompliant or hostile (Azar et al., 2008). Thus, rather than attributing her child's failure to comply to the child's limited developmental capacities or contextual/situation variables, mothers may attribute their child's lack of compliance to hostile intent on the part of the child. A number of studies have found that mothers' hostile attributions for children's misbehavior are predictive of increased use of punitive discipline (Pinderhughes et al., 2000, Slep & O'Leary, 1998; Strassberg, 1997) and even abusive behavior (Azar, Miller, McGuier, & Stevenson, 2013). In addition, over time, these interactions may lead mothers to develop the schema of their child as intentionally noncompliant and hostile generally. This maladaptive schema may put mothers at risk for selective attention to negative child behaviors (such as noncompliance), biased interpretation of her child's ambiguous behavior as intentionally noncompliant or hostile and increased endorsement of punitive discipline.

Cognitive research supports these interpretations. A wealth of studies exist indicating that the human cognitive system can develop biases in selection and interpretation of social stimuli that are consistent with pre-existing schema (Baldwin, 1992; Beck, 2002; Darley & Gross, 1983; Dodge, 2012; Nickerson, 1998; Srull & Wyer, 1979). In addition, research examining the influence of schema on recall has found that individuals typically exhibit better memory for schema-consistent information (Baldwin, 1992; McClelland, 2013). Classic work in the area of social cognition has found that when making decisions regarding the likelihood of an event,

(particularly in the face of ambiguous evidence), individuals attribute greater weight to the extent to which the event is reflected in pre-existing knowledge structures, stereotypes, or schema (Kahneman & Tversky, 1973; Tversky & Kahneman, 1974). Thus, when determining the likelihood of child noncompliance (and therefore her need to utilize discipline), mothers with maladaptive schema of their children as intentionally hostile and noncompliant may overestimate the likelihood of child noncompliance and defiance, and overestimate the need for punitive discipline.

Although the majority of the work examining links between maternal social cognition and punitive discipline has conceptualized maternal social cognitive deficits (with attributions of negative child intentionality being the most heavily studied) as reactions to early child externalizing behavior and noncompliance (Dix & Lochman, 1990; Snyder et al., 2005; Strassberg 1995, Wilson, Gardner, Burton, & Leung, 2006), this study presents evidence that maternal SIP deficits are linked to maternal endorsement of punitive discipline irrespective of children's objective level of compliance. A small number of previous studies support this assertion. Nix and colleagues (1999) showed that in a community sample of preschoolers followed longitudinally, mothers' attributions of negative child-intent at kindergarten entry were related to children's externalizing behavior assessed in first, second, and third grade, and that this relationship was mediated by mothers' use of punitive discipline strategies. Results of this study indicated that mothers' attributional biases were best conceptualized as a precursor to children's externalizing problems, rather than resulting from current child externalizing symptoms (Nix et al., 1999). More compelling support for the influence of SIP deficits irrespective of child externalizing behavior or compliance is provided by a recent study of parenting readiness showing links between SIP and endorsement of punitive discipline to hypothetical children in a

sample of at risk adolescent boys who had not yet become parents (Azar et al., 2013). Thus, although traditionally, research examining maternal social-cognitive factors and punitive discipline has taken the stance that maternal SIP deficits (particularly attributional biases) arise due to child noncompliance, the results of this study and several others present evidence that SIP deficits may influence endorsement of punitive discipline regardless of children's objective level of compliance. Future longitudinal work examining links between SIP deficits, and discipline strategies is needed to test the assertion that maternal SIP deficits predispose parents to punitive discipline responses.

In addition to direct relationships between maternal SIP deficits and endorsement of punitive discipline, this study found preliminary evidence for the impact of dyadic dyssynchrony on maternal endorsement of punitive discipline. Analyses revealed that for one SIP factor, unrealistic expectations, the relationship to endorsement of punitive discipline was partially explained by increased dyadic dyssynchrony. Although the majority of the literature examining dyadic synchrony, child compliance, and punitive discipline has focused on the role of child noncompliance (e.g. Feldman et al., 1999; Kochanska & Murray, 2000; Laible & Thompson, 2002), the results of this study suggest that maladaptive parent-child interactions may be related to increased risk for punitive discipline irrespective of children's compliance.

As was described previously, mother-child synchrony can best be conceptualized as an interactional style that serves to regulate interactions. Through regular, synchronous interactions, children develop increased self-regulatory capacities and begin to rely less on their caregivers as sources of external regulation (Harrist & Waugh, 2002). However, should dyads fail to establish this synchronous pattern of interactions, mothers may be forced to rely on more power-assertive parenting techniques including punitive discipline strategies to regulate interactions with their

children. This assertion is supported by research indicating that greater degree of mutually responsive orientation (a parent-child interactional style analogous to dyadic synchrony) predicts lower maternal use of power-assertive strategies in subsequent interactions (Kochanska, 1997; Kochanska et al., 2005). There exists some evidence indicating that factors directly related to dyadic dyssynchrony such as increased intrusiveness and reduced parental responsiveness predict increased parental harshness in subsequent interactions (Joosen, Mesman, Bakermans-Kranenburg, & van IJzendoorn, 2012; Lyons-Ruth, Connell, Zoll, & Stahl, 1987). In addition, mothers' unrealistic expectations have been linked to dyadic dyssynchrony and power assertive discipline strategies (Azar et al., 1999; Azar, Stevenson et al., 2012; Povilaitis, 1998). These findings support this study's interpretation that unrealistic expectations reduce mothers' ability to regulate dyadic interaction and increase reliance on power-assertive or punitive discipline strategies to maintain control over interactions.

It is important to note that the design of this study did not allow a temporal relationship between dyadic dyssynchrony and maternal endorsement of punitive discipline to be established. Therefore, it is possible that unrealistic expectations increase endorsement of punitive discipline, which in turn increases dyadic dyssynchrony. These two pathways are not mutually exclusive and relationships between dyadic dyssynchrony and endorsement of punitive discipline are likely bidirectional, with dyadic dyssynchrony resulting in increased endorsement of punitive discipline and maternal reliance on punitive discipline techniques promoting greater levels of dyadic dyssynchrony. Although future longitudinal work is needed to explore these relationships further, results from this study and others provide preliminary evidence that relationships between maternal unrealistic expectations and endorsement of punitive discipline are explained in part by relationships to dyadic dyssynchrony.

In summary, this study found that maternal SIP deficits were related to mothers' endorsement of punitive discipline irrespective of their child's observed level of compliance. Maladaptive parenting schema may result in mothers being more attentive to their children's noncompliant behaviors as well as interpreting their children's ambiguous behaviors as intentionally noncompliant and hostile, regardless of their children's objective level of compliance. Problem-solving deficits may prevent mothers from overcoming this bias by limiting their ability to utilize information that contradicts maladaptive schema (e.g. child compliance, situational factors, etc.), and may limit mothers' repertoire of responses to perceived noncompliance. These factors may result in the formation of biased attributions of children's ambiguous behavior as intentionally negative and hostile, and result in greater endorsement of punitive discipline strategies. In addition, mothers' unrealistic expectations may limit their ability to effectively regulate dyadic interaction, resulting in increased endorsement of punitive, power-assertive strategies to control interactions with their children. Thus, maternal SIP deficits may lead to mothers' increased endorsement of punitive discipline regardless of their child's objective level of compliance. This could put mothers and their children at risk for entering into negative, coercive cycles of punitive parenting responses and subsequent development of child externalizing problems. The potential for increased punitive discipline regardless of children's level of compliance has several implications for the socialization process and children's development of future negative outcomes.

Punitive discipline strategies over time are thought to inhibit the socialization process and may promote a qualitatively different form of compliance than do less punitive discipline strategies. Research on the development of children's compliance has led to theories positing motivationally distinct forms of compliance (Maccoby, 1992; Maccoby & Martin, 1983). The

first form, dubbed “situational compliance” refers to children’s compliance that is motivated by a desire to achieve a reward or avoid punishment (Kochanska, 2001; Pappalardo & Maccoby, 1985). The second form, committed compliance, refers to compliance motivated by an internalized desire to comply with the parents’ wishes (Kochanska & Aksan, 1995). Children’s committed compliance has been found to better facilitate the socialization process (Kochanska, 2002; Kochanska, Kim, Boldt, & Nordling, 2013; Kochanska et al., 2001; Silverman, 2012).

Empirical studies suggest that punitive discipline strategies promote higher levels of situational compliance and lower levels of committed compliance than do less punitive strategies (Braungart-Rieker, Garwood, & Stifter, 1997; Feldman & Klein, 2003; Kochanska, et al., 2001; Kochanska et al., 2004). Parents’ use of punitive, power-assertive discipline strategies, as well as children’s development of high levels of situational compliance have been linked to a number of negative outcomes including increased externalizing behavior (Deater-Deckard & Dodge, 1997; Kandel & Wu, 1995), poor school adjustment (Stormshak et al., 2000; Walker & MacPhee, 2011), and poor adjustment later in life (Lansford et al., 2009; Knutson, DeGarmo, & Reid, 2004; Schwartz, Lansford, Dodge, Pettit, & Bates, 2013).

A review of the literature strongly suggests that relationships among maternal SIP deficits (particularly hostile attributions), child compliance, and maternal endorsement of punitive discipline are cyclical (e.g., Lansford et al., 2011; Snyder et al., 2005; Strassberg, 1997). However, emerging evidence (Azar et al., 2013; Nix et al., 1999) indicates that maternal SIP deficits may act as a risk factor for the development of punitive discipline responses as well as subsequent child externalizing behaviors. Thus, although this study failed to establish a relationship between maternal SIP deficits and child compliance, maternal SIP deficits may increase risk for children’s later development of externalizing problems due to increased punitive

discipline. Future research efforts in this area would benefit from incorporation of longitudinal designs following children from toddlerhood through the early school years to assess temporal relationships between parents' SIP deficits, parent-child interaction, punitive discipline, and child outcomes including committed vs. situational compliance and later development of externalizing problems.

Clinical Implications

The results of this study present several interesting implications for intervention and prevention efforts. Mechanisms for training parents in use of effective discipline and basic parenting skills such as use of effective commands are well-represented in interventions designed to promote positive parenting and reduce child noncompliance and externalizing behavior (Brinkmeyer & Eyberg, 2003; Forehand & McMahon, 1981; Sanders, 1999; Webster-Stratton, 2000). Although improving these capacities has been found to be an effective means of reducing children's externalizing behavior, including noncompliance, within clinical samples of conduct disordered and oppositional defiant children (e.g., Eyberg, Nelson, & Boggs, 2008) and have been found to reduce parental use of punitive discipline strategies (e.g., Gross et al., 2003; Thomas & Zimmer-Gembeck, 2007; Webster-Stratton, Reid, & Hammond, 2001), the results of this study would suggest that these interventions alone may not address all of the pertinent risk factors for punitive parenting and related negative child outcomes. Intervention and prevention efforts in these areas may benefit from incorporation of SIP factors into their designs.

This study found that maternal SIP deficits exert a direct effect on mothers' endorsement of punitive discipline strategies irrespective of children's compliance within a low SES sample. This finding, along with recent research indicating that SIP deficits influence endorsement of punitive discipline toward children in adolescents who have yet to become parents (Azar et al.,

2013) strongly suggest that addressing SIP deficits could serve to protect against the development of punitive discipline strategies prior to children developing significant behavior problems, or, indeed, prior to children being born. Indeed, one component of SIP deficits, biased attributions of negative child intentionality, has been incorporated into several treatment programs, and improvements in parental attribution biases have been found to reduce punitive parenting (Bugental et al., 2010; Sanders et al., 2004). Efforts should be made to increase attention to SIP elements in future intervention efforts.

Although this study did not directly assess externalizing disorders, the results of this study suggest that intervention and prevention efforts designed to reduce children's externalizing behavior may benefit from addressing parents' SIP deficits as well. The results of this study and others (Strassberg 1995; Strassberg 1997) indicate that maternal social cognitive factors are related to endorsement of punitive discipline, and longitudinal work has shown that use of punitive discipline is a risk factor for the development of externalizing disorders (Dubois-Comtois, Moss, Cyr, & Pascuzzo, 2013; Kandel & Wu, 1995). Therefore, along with decreasing children's externalizing behavior including noncompliance, it may be critical to address social cognitive factors including parents' attributional biases, problem solving deficits, and unrealistic expectations to prevent parents' reliance on punitive discipline. The latter SIP factor may be particularly important as this study indicated that unrealistic expectations may influence endorsement of punitive discipline through increased dyadic dyssynchrony.

The results of this study also suggest relationship among dyadic dyssynchrony and maternal endorsement of punitive discipline. This finding is supported by studies indicating that mothers' ability to regulate dyadic interactions determines their use of power assertive behaviors including punitive discipline when interacting with their children (Kochanska, 1997; Kochanska

et al., 2005). Although a number of parenting interventions have been found to improve parent-child interaction (e.g., Brotman et al., 2008; Harwood & Eyberg, 2006), the processes by which these improvements occur are not well known (Sandler, Schoenfelder, Wolchik, & MacKinnon, 2011). The results of this study and others (Azar et al., 2012; Azar, Read, Biancaniello, et al., 2011; Azar, Read, Proctor et al., 2011) indicate that maternal SIP deficits are related to maladaptive mother-child interaction (as assessed by dyadic dyssynchrony), and this study presented preliminary evidence of an indirect effect of maternal unrealistic expectations on endorsement of punitive discipline through dyadic dyssynchrony. In addition, in a number of studies (e.g., Kochanska & Murray, 2000; Laible & Thompson, 2000), parent-child interaction and dyadic synchrony/dyssynchrony have been shown to predict children's compliance. Therefore, further exploration of relationships between SIP, dyadic synchrony/dyssynchrony, and children's compliance/risk for future externalizing disorders could serve to increase our knowledge of how changes in quality of parent-child interaction are related to changes in child outcomes, as well as inform more targeted intervention strategies to foster increased dyadic synchrony and improve children's outcomes.

Limitations and Future Directions

Several study limitations may have impacted findings and could be addressed in future studies. As was stated previously, in contrast to the majority of studies examining links between child noncompliance, maternal SIP factors, and punitive discipline, this procedure did not recruit a sample identified as having elevated levels of noncompliance or externalizing symptoms. Analysis of studies on which the coding system for compliance was based (Forehand et al., 1975; Griest et al., 1981; Roberts et al., 1978) revealed that the rate of compliance for the sample utilized in this study was higher than the clinical samples on which the coding system for

commands and compliance was based. Therefore, it is possible that differences in the range and variability in compliance may underlie the lack of findings. Future studies may benefit from selection of children with clinically elevated levels of noncompliance and externalizing behavior.

Future studies may also benefit from use of alternative coding systems and paradigms for assessing maternal use of effective commands, child compliance, and punitive discipline. As was discussed in preceding sections, although this study failed to establish relationships among maternal SIP deficits and maternal use of commands that allowed adequate time for children to initiate compliance, it is possible that mothers' commands were influenced by the setting in which commands and compliance were assessed (university laboratory). Future studies may benefit from use of more naturalistic paradigms including in-home observations. In addition, although this study failed to establish relationships between maternal SIP deficits and the ability to provide commands that allowed adequate time for child compliance, it is possible that SIP deficits impact other components of maternal commands that may influence the *likelihood* of child compliance. Previous research has indicated that factors such as establishing joint attention through eye contact prior to giving a command and mothers' tone of voice while issuing commands that allow adequate time for compliance influence the likelihood that a command will be met with compliance (Forehand & McMahon, 2003; Kapalka, 2004; Wahler & Meginnis, 1997). Future research in this area could employ coding systems designed to assess similar qualitative aspects of mothers' commands to further explore the extent to which SIP deficits may influence maternal commands.

As was stated previously, although this study failed to establish relationships among maternal SIP deficits and amount of child compliance, it is possible that SIP deficits influence the form of compliance that mothers elicit from their children. Therefore, future studies may

benefit from utilization of established coding systems for assessment of committed versus situational compliance (e.g., Kochanska & Aksan, 1995) to determine the extent to which maternal SIP deficits, parent-child interaction, and maternal discipline strategies influence the extent to which mothers elicit committed versus situational compliance from their children. In addition, future studies may benefit from more nuanced measures of maternal punitive discipline. Although likert ratings of punishment are well represented in studies examining parents' endorsement of punitive discipline (e.g. Strassberg, 1997; Pinderhughes, et al., 2000), a number of more nuanced measures of parental discipline exists including daily discipline diaries and direct observation (see Locke & Prinz, 2002). Future research efforts may benefit from use of these measures of parental discipline to further explore relationships between SIP deficits and punitive discipline.

As was discussed in preceding sections, the relationship between maternal SIP deficits and mothers' endorsement of punitive discipline has implications for the development of children's externalizing behavior. Early externalizing behavior has been found to be particularly problematic in the early school years as these behaviors put children at risk for a number of negative outcomes including poor academic achievement and early peer rejection (Bierman, 2004; Brennan, Shaw, Dishion, & Wilson, 2012). However, due to the cross-sectional design employed by this study, it was not possible to examine longitudinal relationships among maternal SIP deficits, dyadic dyssynchrony, maternal endorsement of punitive discipline and children's compliance. Future studies employing longitudinal designs and following children into the early school years are needed to further explore these relationships, as well as to examine relationships between these factors and children's risk for development of more serious externalizing behaviors. This research is crucial for informing much needed intervention and

prevention efforts. Longitudinal studies following children into the early school years could help to elucidate relationships among maternal SIP deficits, dyadic dyssynchrony, children's early compliance (including situational vs. committed compliance), maternal discipline, and risk for development of later externalizing problems in the early school years. In addition, such studies would allow for exploration of the relationship between these factors and children's interactions with non-parent adults (e.g., teachers) and peers and shed more light on the extent to which maternal SIP deficits influence the socialization process.

Finally, future longitudinal studies should also include measures of child individual characteristics that may influence child compliance and the development of later externalizing problems. Although parenting behavior and dyadic interactions have been found to predict child compliance, they are far from the only influences. Child individual characteristics such as temperament (Kochanska & Kim, 2013; Lickenbrock, et al., 2013) and physiological reactivity (Calkins & Dedmon, 2000; Hardway, Kagan, Snidman, & Pincus, 2013) have been found to influence children's compliance and parent-child interaction as well as later development of externalizing problems. Future longitudinal studies would benefit from measurement of these child individual characteristics to determine their relative contribution to the development of children's externalizing behavior as well as potential interactive effects with maternal SIP variables and parenting behavior including punitive discipline.

Conclusions

In summary, the results of this study replicated established links between maternal SIP deficits and maternal endorsement of punitive discipline, and provided preliminary evidence that relationships between a specific maternal SIP deficit (unrealistic expectations) and endorsement of punitive discipline are partially explained by relationships with dyadic dyssynchrony. These

effects were found irrespective of children's observed compliance. Thus, SIP deficits may put mothers at risk for endorsement of punitive discipline, regardless of their child's objective level of compliance. Although this study failed to establish a link between maternal SIP deficits and mothers' ability to elicit their children's compliance in a lab-based task, relationships between maternal SIP deficits and maternal endorsement of punitive discipline have several implications for the study of the development of noncompliance and externalizing behavior. A wealth of research exists linking increased parental punitive discipline with subsequent development of conduct problems including noncompliance (Choe et al., 2013; Lansford et al., 2011; Stormshak et al., 2001). Thus, although SIP deficits were not found to be related to child compliance in this study, it is possible that future longitudinal work could establish links between maternal SIP deficits, endorsement of punitive discipline, and future development of noncompliance, externalizing problems, and other negative child outcomes. Although future longitudinal work is needed, these findings suggest that intervention and prevention efforts designed to address SIP deficits may be an effective means of reducing parents' endorsement of punitive discipline strategies and associated negative child outcomes.

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APPENDIX A: TABLES AND FIGURES FOR MAIN ANALYSES

Table 1

Participant Demographics (N= 96)

	Mean	SD
Mother age (years)	29.47	5.47
Last grade completed	11.64	2.36
Family income	\$12,697.93	\$12,208.42
Marital status		
# Married	41	42.7%
# Divorced	13	13.5%
# Single	23	24.0%
# Separated	11	11.5%
# Other	8	8.3%
Child age (years)	4.44	0.80
Child gender		
# Males	50	52.1%
# Females	46	47.9%

Table 2

Descriptive Statistics

	Mean (SD)
Unrealistic Expectations	8.55 (5.86)
Attributions of Negative Intentionality	50.00 (22.36)
Irrelevant Solutions	1.39 (1.65)
Ratio of Ineffective Commands	0.46 (0.15)
Dyadic Dyssynchrony (summed across free play and puzzle tasks)	51.98 (17.95)
Ratio of Compliance to Total Commands	0.42(0.18)
Ratio of Compliance to Effective Commands	0.76 (0.21)
Maternal Endorsement of Punitive Discipline	46.01(16.52)

Table 3

Correlations Among Demographic Variables and Independent Variables

	Unrealistic Expectations	Irrelevant solutions	Attributions of Negative Intentionality	Composite SIP	Dyssynchrony	Ratio of Maternal Ineffective Commands	Compliance to Total Commands	Compliance to Effective Commands
Child Age	-.067	-.065	.012	-.067	-.394**	-.171+	.097	.140
Child Gender	-.116	-.009	-.104	-.116	-.023	-.018	-.051	.010
Mother's Age	-.032	.083	-.076	-.032	-.139	.137	-.132	-.084
Number of Children	-.131	-.068	-.177+	-.131	-.125	.000	-.049	.013
Family Income	-.207*	-.287**	-.314**	-.207*	-.297**	-.235*	.210*	.150
Maternal Education	-.296**	-.442**	-.213*	-.296**	-.292**	-.227*	.180	.016
Marital Status	-.068	-.166	-.118	.034	-.141	-.091	.054	-.031

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

Table 4

Correlations among SIP, Dyssynchrony, Commands, Ratios of Child Compliance, and Endorsement of Punitive Discipline

	Irrelevant Solutions	Attributions of Negative Intentionality	Composite SIP	Dyssynchrony	Ratio of Maternal Ineffective Commands	Ratio of Compliance to Total Commands	Ratio of Compliance to Effective Commands	Maternal Endorsement of Punitive Discipline
Unrealistic Expectations	.474**	.432**	.796**	.453**	.162	-.078	-.063	.431**
Irrelevant solutions		.510**	.823**	.459**	.257*	-.231*	-.139	.463**
Attributions of Negative Intentionality			.796**	.369**	.032	-.044	-.117	.791**
Composite SIP				.453**	.187	-.145	-.131	.693**
Dyssynchrony					.352**	-.291**	-.211*	.370**
Ratio of Maternal Ineffective Commands						-.629**	-.258*	.152
Compliance to Total Commands							.750**	-.093
Compliance to Effective Commands								-.126

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

Table 5

Partial Correlations among SIP, Dyssynchrony, Commands, Ratios of Child Compliance, and Endorsement of Punitive Discipline Controlling for Child Age, Family Income, and Maternal Education

	Irrelevant Solutions	Attributions of Negative Intentionality	Composite SIP	Dyssynchrony	Ratio of Maternal Ineffective Commands	Ratio of Compliance to Total Commands	Ratio of Compliance to Effective Commands	Maternal Endorsement of Punitive Discipline
Unrealistic Expectations	.387**	.387**	.771**	.187*	.070	-.001	-.087	.393**
Irrelevant solutions		.464**	.781**	.392**	.144	-.144	-.115	.425**
Attributions of Negative Intentionality			.786**	.333**	.063	-.035	-.079	.778**
Composite SIP				.384*	.062	-.041	-.104	.680**
Dyssynchrony					.237**	-.211**	-.137	.282**
Ratio of Maternal Ineffective Commands						-.597**	-.218*	.057
Compliance to Total Commands							.750**	-.013
Compliance to Effective Commands								-.066

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

Table 6

Total, Direct, and Indirect Effects of SIP Deficits on Maternal Endorsement of Punitive Discipline Through Ineffective Commands and CTC

Maternal Endorsement of Punitive Discipline			
	Effect	SE	95% CI
Total effect of maternal SIP	4.74	0.54	[3.84, 5.96]
Direct effect of maternal SIP	4.89	0.55	[3.81, 5.97]
	Effect	Bootstrapped SE	Bootstrapped 95% CI
Indirect effect of maternal SIP through ineffective commands	0.02	0.10	[-0.10, 0.41]
Indirect effect of maternal SIP through CTC	0.01	0.07	[-0.09, 0.24]
Indirect effect of maternal SIP through ineffective commands and CTC in serial	0.00	0.06	[-0.19, 0.09]

SE = standard error. CI = confidence interval. 5000 bootstrap samples.

Table 7

Total, Direct, and Indirect Effects of Maternal Unrealistic Expectations on Maternal Endorsement of Punitive Discipline through Ratio of Ineffective Commands and Ratio of CTC

Maternal Endorsement of Punitive Discipline			
	Effect	SE	95% CI
Total effect of unrealistic expectations	1.10	0.27	[0.57, 1.63]
Direct effect of unrealistic expectations	1.09	0.27	[0.56, 1.62]
	Effect	Bootstrapped SE	Bootstrapped 95% CI
Indirect effect of ratio of ineffective commands	0.02	0.06	[-0.05, 0.22]
Indirect effect of unrealistic expectations through ratio of CTC	-0.01	0.04	[-0.17, 0.04]
Indirect effect of unrealistic expectations through ratio of ineffective commands and ratio of CTC in serial	0.01	0.04	[-0.03, 0.17]

SE = standard error. CI = confidence interval. 5000 bootstrap samples.

Table 8

Total, Direct, and Indirect Effects of Maternal Problem Solving Deficits on Maternal Endorsement of Punitive Discipline Through Ratio of Ineffective Commands and Ratio of Child Compliance to Total Commands

Maternal Endorsement of Punitive Discipline			
	Effect	SE	95% CI
Total effect of problem solving deficits	4.54	1.01	[2.56, 6.52]
Direct effect of problem solving deficits	4.57	1.02	[2.57, 6.67]
	Effect	Bootstrapped SE	Bootstrapped 95% CI
Indirect effect of problem solving deficits through ratio of ineffective commands	-0.12	0.26	[-1.07, 0.17]
Indirect effect of problem solving deficits through ratio of CTC	0.05	0.18	[-0.13, 0.75]
Indirect effect of problem solving deficits through ratio of ineffective commands and ratio of CTC in serial	0.04	0.16	[-0.13, 0.68]

SE = standard error. CI = confidence interval. 5000 bootstrap samples.

Table 9

Total, Direct, and Indirect Effects of Maternal Attributions of Negative Intentionality on Maternal Endorsement of Punitive Discipline through Ratio of Ineffective Commands and Ratio CTC

Maternal Endorsement of Punitive Discipline			
	Effect	SE	95% CI
Total effect of maternal attributions of negative intentionality	0.57	0.05	[0.47, 0.67]
Direct effect of maternal attributions of negative intentionality	0.57	0.05	[0.47, 0.67]
	Effect	Bootstrapped SE	Bootstrapped 95% CI
Indirect effect of maternal attributions of negative intentionality through ratio of ineffective commands	0.00	0.01	[-0.01, 0.03]
Indirect effect of maternal attributions of negative intentionality through ratio of CTC	0.00	0.01	[-0.01, 0.03]
Indirect effect of maternal attributions of negative intentionality through ratio of ineffective commands and ratio of CTC	0.00	0.01	[-0.01, 0.03]

SE = standard error. CI = confidence interval. 5000 bootstrap samples.

Table 10

Total, Direct, and Indirect Effects of SIP Deficits on Maternal Endorsement of Punitive Discipline Through Dyadic Dyssynchrony and CEC

Maternal Endorsement of Punitive Discipline			
	Effect	SE	95% CI
Total effect of maternal SIP	4.74	0.54	[3.84, 5.96]
Direct effect of maternal SIP	4.89	0.55	[3.81, 5.97]
	Effect	Bootstrapped SE	Bootstrapped 95% CI
Indirect effect of maternal SIP through dyadic dyssynchrony	0.07	0.29	[-0.38, 0.80]
Indirect effect of maternal SIP through CEC	0.00	0.07	[-0.17, 0.13]
Indirect effect of maternal SIP through ineffective commands and CEC in serial	0.00	0.04	[-0.08, 0.06]

SE = standard error. CI = confidence interval. 5000 bootstrap samples.

Table 11

Total, Direct, and Indirect Effects of Maternal Unrealistic Expectations on Maternal Endorsement of Punitive Discipline Through Dyadic Dyssynchrony and CEC

Maternal Endorsement of Punitive Discipline			
	Effect	SE	95% CI
Total effect of unrealistic expectations	1.10	0.27	[0.57, 1.63]
Direct effect of unrealistic expectations	0.99	0.27	[0.46, 1.52]
	Effect	Bootstrapped SE	Bootstrapped 95% CI
Indirect effect of unrealistic expectations through dyadic dyssynchrony	0.11	0.10	[0.01, 0.37]
Indirect effect unrealistic expectations through CEC	0.00	0.03	[-0.05, 0.05]
Indirect effect of unrealistic expectations through dyadic dyssynchrony and CEC in serial	0.00	0.01	[-0.01, 0.03]

SE = standard error. CI = confidence interval. 5000 bootstrap samples.

Table 12

Total, Direct, and Indirect Effects of Maternal Problem Solving Deficits on Maternal Endorsement of Punitive Discipline Through Ratio of Ineffective Commands and Ratio of Child Compliance to Total Commands

Maternal Endorsement of Punitive Discipline			
	Effect	SE	95% CI
Total effect of problem solving deficits	4.54	1.01	[2.56, 6.52]
Direct effect of problem solving deficits	4.57	1.02	[2.57, 6.67]
	Effect	Bootstrapped SE	Bootstrapped 95% CI
Indirect effect of problem solving deficits through dyadic dyssynchrony	-0.12	0.26	[-1.07, 0.17]
Indirect effect of problem solving deficits through ratio of CEC	0.05	0.18	[-0.13, 0.75]
Indirect effect of problem solving deficits through dyadic dyssynchrony and ratio of CEC in serial	0.04	0.16	[-0.13, 0.68]

SE = standard error. CI = confidence interval. 5000 bootstrap samples.

Table 13

Total, Direct, and Indirect Effects of Maternal Attributions of Negative Intentionality on Maternal Endorsement of Punitive Discipline Through Dyadic Dyssynchrony and CEC

Maternal Endorsement of Punitive Discipline			
	Effect	SE	95% CI
Total effect of maternal attributions of negative intentionality	0.57	0.05	[0.47, 0.67]
Direct effect of maternal attributions of negative intentionality	0.57	0.05	[0.47, 0.67]
	Effect	Bootstrapped SE	Bootstrapped 95% CI
Indirect effect of maternal attributions of negative intentionality through dyadic dyssynchrony	0.01	0.03	[-0.02, 0.07]
Indirect effect of maternal attributions of negative intentionality through ratio of CEC	0.00	0.01	[-0.01, 0.01]
Indirect effect of maternal attributions of negative intentionality through dyadic dyssynchrony and CEC in serial	0.00	0.00	[-0.01, 0.01]

SE = standard error. CI = confidence interval. 5000 bootstrap samples.

Figure 1

Proposed Mediation of the Relationship Between SIP Capacities and Endorsement of Punitive Discipline by Use of Ineffective Commands and Ratio of Child Compliance to Total Maternal Commands

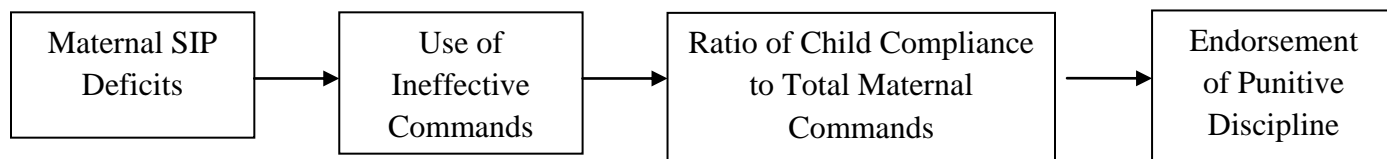
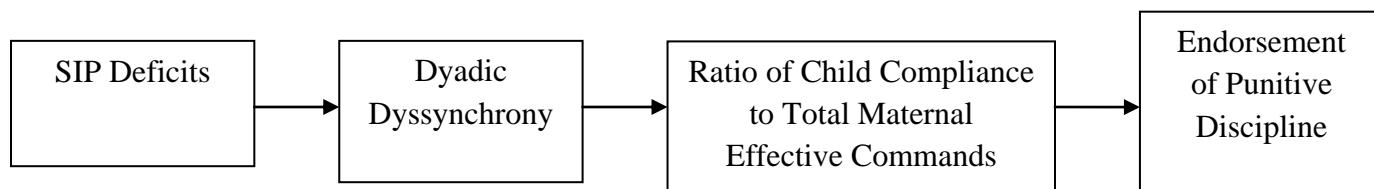


Figure 2

Proposed Mediation of the Relationship Between SIP Capacities and Endorsement of Punitive Discipline by Dyadic Dyssynchrony and Child Compliance to Maternal Effective Commands



**APPENDIX B: TABLES FOR ADDITIONAL ANALYSES FOCUSING ON MATERNAL
MALTREATMENT HISTORY**

Table B:1

Differences in Demographic Variables by Maltreatment Status

	M (SD)		
	Maltreatment (n = 33)	No Maltreatment (n = 36)	
Mother Age (years)	29.16 (6.14)	28.87 (4.50)	$t(67) = -0.22$
Last Grade Completed	10.97 (2.43)	12.11 (1.39)	$t(67) = 2.42^*$
Family Income	\$7969.70 (\$5306.16)	\$14,875.03 (12,176.41)	$t(67) = 3.00^{**}$
Child Age (years)	4.52 (0.72)	4.48 (0.75)	$t(67) = -0.27$

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

Table B:2

Differences in Demographic Variables by Maltreatment Status

	<i>n</i> (%)		$\chi^2(1, N = 69)$
	Maltreatment (<i>n</i> = 33)	No Maltreatment (<i>n</i> = 36)	
Marital Status			5.86*
Married	8 (24.2)	19 (52.8)	
Unmarried	25 (75.8)	17 (47.2)	
Child Gender			1.80
Males	20 (60.6)	16 (44.4)	
Females	13 (39.4)	20 (55.6)	

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

Table B:3

Total, Direct, and Indirect Effects of SIP Deficits on Maternal Endorsement of Punitive Discipline Through Ineffective Commands and Ratio of CTC: Comparison of Dyads with and without Histories of Child Maltreatment

Maternal Endorsement of Punitive Discipline for Participants with Histories of Perpetrating Maltreatment				Maternal Endorsement of Punitive Discipline for Participants without Histories of Perpetrating Maltreatment			
	Effect	SE	95% CI		Effect	SE	95% CI
Total effect of maternal SIP	5.06	1.17	[2.77, 7.35]	Total effect of maternal SIP	5.89	0.81	[4.30, 7.48]
Direct effect of maternal SIP	5.23	1.27	[2.74, 7.72]	Direct effect of maternal SIP	5.82	0.84	[4.17, 7.47]
	Effect	Bootstrapped SE	Bootstrapped 95% CI		Effect	Bootstrapped SE	Bootstrapped 95% CI
Indirect effect of maternal SIP through ineffective commands	0.35	1.10	[-1.27, 3.87]	Indirect effect of maternal SIP through ineffective commands	0.05	0.23	[-0.19, 0.86]
Indirect effect of maternal SIP through CTC	-0.04	0.24	[-0.77, 0.27]	Indirect effect of maternal SIP through CTC	0.05	0.20	[-0.18, 0.73]
Indirect effect of maternal SIP through ineffective commands and CTC in serial	-0.48	0.86	[-3.71, 0.50]	Indirect effect of maternal SIP through ineffective commands and CTC in serial	-0.04	0.16	[-0.68, 0.10]

SE = standard error. CI = confidence interval. 5000 bootstrap samples.

Table B:4

Total, Direct, and Indirect Effects of SIP Deficits on Maternal Endorsement of Punitive Discipline Through Dyadic Dyssynchrony and CEC: Maltreating Dyads: Comparison of Dyads with and without Histories of Child Maltreatment

Maternal Endorsement of Punitive Discipline for Participants with Histories of Perpetrating Maltreatment				Maternal Endorsement of Punitive Discipline for Participants without Histories of Perpetrating Maltreatment			
	Effect	SE	95% CI		Effect	SE	95% CI
Total effect of maternal SIP	5.06	1.17	[2.77, 7.35]	Total effect of maternal SIP	5.89	0.81	[4.30, 7.48]
Direct effect of maternal SIP	5.23	1.27	[2.74, 7.72]	Direct effect of maternal SIP	5.82	0.84	[4.17, 7.47]
	Effect	Bootstrapped SE	Bootstrapped 95% CI		Effect	Bootstrapped SE	Bootstrapped 95% CI
Indirect effect of maternal SIP through dyadic dyssynchrony	-0.02	0.68	[-1.95, 2.54]	Indirect effect of maternal SIP through dyadic dyssynchrony	0.50	0.54	[-0.37, 1.89]
Indirect effect of maternal SIP through CEC	-0.06	0.36	[-1.39, 0.27]	Indirect effect of maternal SIP through ratio of CEC	0.00	0.20	[-0.43, 0.42]
Indirect effect of maternal SIP through dyadic dyssynchrony and CEC in serial	-0.14	0.36	[-1.75, 0.11]	Indirect effect of maternal SIP through dyadic dyssynchrony and ratio of CEC in serial	0.00	0.19	[-0.26, 0.46]

SE = standard error. CI = confidence interval. 5000 bootstrap samples.

APPENDIX C: MEASURES

Background Information Sheet

Mother's name or # _____ Date _____
 Date of Birth _____
 Marital Status M Div Sep Single Other
 Education (last grade completed) _____
 Employed? Yes (1) No (0) Part-time No. of hours _____
 Profession _____ (even if not currently working)
 Father's birth date _____
 Father's Education (last grade completed) _____
 Father's occupation _____
 Family Income

01.	Less than 8,000 a year	11.	26,011 to 28,000
02.	8,001 to 10,000	12.	28,001 to 30,000
03.	10,001 to 12,000	13.	30,001 to 35,000
04.	12,001 to 14,000	14.	35,001 to 40,000
05.	14,001 to 16,000	15.	40,001 to 45,000
06.	16,001 to 18,000	16.	45,001 to 50,000
07.	18,001 to 20,000	17.	50,001 to 55,000
08.	20,001 to 22,000	18.	55,001 to 60,000
09.	22,001 to 24,000	19.	Over 61,000
10.	24,001 to 26,000		

Number of siblings _____ Number of Pregnancies _____
 Names, birthdates, ages, and sexes of children:

Index child's age _____
 Index child's sex Male (1) Female (2)
 Birth order of index child: 1st 2nd 3rd 4th 5th
 Mother's age when index child was born: _____
 Mother's age when oldest child was born: _____
 Was index child full term: Yes (1) No (0)
 If no, weeks premature _____
 Index child birth complications _____ Yes (1) No (0)
 Nature of complication _____

Other Children	Full Term	Weeks Premature	Birth Complications
Name	Yes (1)/No (0)		Be Specific

Index child in daycare/Head Start/nursery school? Yes (1) No (0)

Hours per week: _____

Other Caretakers:

_____ hrs/week _____
 _____ hrs/week _____
 _____ hrs/week _____

Total number of hours in the care of others _____

Any counseling? Yes (1) No (0)

Other children in school information

Name	Daycare/School	Hours	Other Caretakers	Hours	Total
------	----------------	-------	------------------	-------	-------

Race: Caucasian Afro-American Hispanic Other _____

Urban Rural

Have any of your children ever been in placement outside of the home, such as in Foster Care?

Yes	No	
Who?	When?	For how long?

Parent Opinion Questionnaire

Name _____

Date / /

Parent Opinion Questionnaire

INSTRUCTIONS: The following questionnaire includes a series of statements that have to do with parents and children. Read each of the statements and determine if you **AGREE** or **DISAGREE** with the statement. If you agree with a statement, circle **A** for agree. If you disagree with a statement, circle **DA** for disagree. Remember to read each statement; it is important not to skip any statement.

-
- | | | | |
|-----|--|---|----|
| 1. | In most cases, a 6 year old can get up, wash, dress, and go to school unassisted | A | DA |
| 2. | It's reasonable to think that most 5 year olds can cross a busy street and buy groceries at a corner store | A | DA |
| 3. | It is acceptable for a 14 year old to participate with parents in adult activities such as drinking and smoking | A | DA |
| 4. | Children (ages 4-5) are able to play outside alone even when there are no fences to keep them in | A | DA |
| 5. | If a baby really loved her mother and father, the baby would be well behaved | A | DA |
| 6. | It's good for a parent to set a 4 year old on the toilet for an hour after the child messed up his pants | A | DA |
| 7. | In most cases, a 12 year old would not be able to stay at home alone for even a few hours without getting into trouble | A | DA |
| 8. | A 9 year old should usually be able to get himself and brothers and sisters off to school, keep rooms in order, and prepare coffee for his or her parents | A | DA |
| 9. | It's natural for a parent to be upset if a child breaks something expensive | A | DA |
| 10. | Most of the time a 4 year old can choose the right clothing for the weather and then get him or herself off to school | A | DA |
| 11. | A 15 year old should be expected to help "patch up" his or her parents' marital problems | A | DA |
| 12. | Usually, a 2 year old can sit and play quietly alone in a room for several hours | A | DA |
| 13. | It's fine to go shopping and leave the children with a babysitter to supervise | A | DA |
| 14. | I don't think older children should ever do household chores | A | DA |
| 15. | A 3-4 year old can be expected to behave and not cry when mother is upset | A | DA |
| 16. | There is nothing wrong in punishing a nine month old child for crying too much | A | DA |
| 17. | A 1 year old usually can feed him or herself | A | DA |
| 18. | It's not a good idea to take away a privilege because it can be bad for children | A | DA |
| 19. | An older daughter (12 years old) could reasonably be expected to discipline younger brothers and sisters | A | DA |
| 20. | It is alright for a parent to ask a 13 year old to stay home from school in order to help a grandparent even if this happens somewhat frequently | A | DA |
| 21. | A 7 year old is old enough to set his or her own curfew and meal times | A | DA |
| 22. | 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 | A | DA |
| 23. | A 9 year old child would probably be saddened by a death in the immediate family | A | DA |
| 24. | It's usually a good idea to physically punish a 6 year old with a belt for acting out on the school bus because the child will learn how to behave next time | A | DA |
| 25. | Children ages 8-10 are usually old enough to wash their own clothes and also earn money for most of their personal supplies | A | DA |

26. An 8 year old probably can get a 2 year old brother dressed and off to day care before going to school A DA
27. It's OK to punish a child once in a while if he really misbehaves A DA
28. A 13 year old should be expected to stay home and rarely go out with friends in order to keep a parent company if the parent is feeling down about things A DA
29. A 6 year old is probably old enough to be able to use a stove without parental supervision A DA
30. Most often a 3 year old will know how to play quietly for longer periods of time when his or her mother is not feeling well A DA
31. A 16 year old is not old enough to do his or her own laundry A DA
32. When a 4 year old rudely grabs something that belongs to his or her mother, it is probably a good lesson for the child if the mother bends back the child's thumb A DA
33. A 2 year old child can be expected to toilet train him or herself with little help from parents A DA
34. Parents should have older children participate in household chores A DA
35. Parents can expect even a child as young as 2½ to be able to comfort them when they are sad and crying A DA
36. Generally 10:00 pm is not too late for a 7 year old to remain outside in the neighborhood A DA
37. A 13 year old is not old enough to go to the corner store and buy groceries A DA
38. Talking in front of children (5 to 7 years old) about problems in the family is OK because they can't understand A DA
39. When a 2 year old bites his or her mother, it's all right for the mother to bite the child back to teach the child that biting mother isn't allowed A DA
40. A 5 year old can be expected to help by feeding, dressing, and changing diapers for an infant A DA
41. If an infant or young child sucked his thumb a lot, and kept doing this even when told not to, it would be good to spank him once to teach him to stop A DA
42. Even a 3 month old would miss a brother or sister if they were separated A DA
43. I think the sign of a good parent is approving of everything a child does A DA
44. If a parent had to work nights, older children (8 to 10) would take the take the responsibility and be left home alone A DA
45. Most 12 year olds are old enough to be able to listen to their mother's problems and give advice A DA
46. A 6 year old should be expected to keep his or her room clean and pick up toys after playing A DA
47. A 2 year old can sometimes take a bath without the parent being in the room A DA
48. Generally, it's a good idea to physically punish (slapping the hand, etc.) a 2 year old for touching a stereo A DA
49. A 2 to 3 year old boy can be expected to "act like a little man," that is, not cry when his mother leaves home to go shopping A DA
50. A 12 year old can take a bath without help A DA
51. It's OK to leave a 3 year old, who is soundly sleeping in a bed, alone in the house or apartment while the parent walks a friend to the corner bus stop A DA
52. It won't hurt a 10 year old to stay home from school occasionally when a parent feels sad or ill A DA
53. School age children can stay home on weekdays sometimes in order to clean house and do the laundry A DA
54. A 3 year old can usually be expected to button shirts and tie shoe laces A DA
55. I don't think kids should ever get punished A DA

56. If a 6 year old disobeys, it's all right to occasionally use a stick to physically punish him or her A DA
57. Even small infants have mean tempers and disobey when mad A DA
58. It's not fine for a 15 year old to take a bus without parental supervision A DA
59. A 12 year old can be expected to get up, pick out his or her clothes, and get to school A DA
60. Generally, it would be all right to leave kids alone for a few days if they are as old as 12 or 13 A DA
61. Parents can expect infants to always show them love and affection A DA
62. Occasionally, even a 10 year old should be expected to do his or her part for the family by staying home from school to help run a business like a family store A DA
63. It's a good idea to take away children's privileges if they misbehave A DA
64. A 1 year old can usually feed him or herself without spilling food A DA
65. If a young child continues to disobey, it is the parent's right to sternly use a belt for discipline A DA
66. A parent should not be upset if a child breaks something expensive, because it's normal for children to do things like that A DA
67. Generally, one could expect a 4 year old to understand why his or her brother, who suffered a birth defect, gets extra love and attention A DA
68. It's all right for a parent to leave a 6 year old alone for the day if taking time off from work would be very costly A DA
69. Even preschool kids have feelings A DA
70. It's probably not too much to expect a 4 year old to behave in front of others so not to embarrass the parent A DA
71. Parents do not need to approve of everything a child does A DA
72. A 7 year old is old enough to be expected to do the laundry for the family A DA
73. A young child (7 years old) will not be bothered much by moving 3-4 times a year A DA
74. A parent can expect a young child (3 to 4) to know enough to behave in a supermarket so that the parent won't look foolish in front of others A DA
75. If a child is misbehaving, it's appropriate for a parent to physically punish the child with a board or stick A DA
76. A 5 year old should be mature enough not to be bothered when he or she doesn't get candy or praise from his/her parents A DA
77. It's all right to leave an 8 month old infant on a bed or couch for a while A DA
78. In most cases a 10 year old can be expected to care for an elderly grandparent, which includes giving pills each day A DA
79. A 15 year old is not old enough to help with the cooking A DA
80. A 2 year old can be expected to go to his or her room and get dressed when told A DA

Thank you very much for your participation.

Parent Problem Solving Inventory

INSTRUCTIONS:

In this part, we are interested in how people handle problems with children. You are to make up some stories (smile – Are you good at making up stories?) For each story you will be given the beginning of the story and how the story ends. Your job is to make up a story that connects the beginning that is given to you with the ending given you. In other words, you will make up the middle of the story. It's sort of like you were watching a movie and saw the first part, had to leave, and came back for the last part and someone asked you what happened in the middle.

Different people make up different stories. We would like you to make up a story that connects the beginning to the end. I will write down what you say (I want to get exactly what you say – so go easy on me). You can read along on the card while I read the story aloud. (Hand them the cards.)

1. Every time Paula sees a particular friend, who has 2 older children, her friend offers unwanted advice about how Paula should raise her baby. Paula is angry at her friend. The story ends with Paula no longer angry at her friend because she is no longer advising Paula without being asked. Begin the story with Paula being angry with her friend.
2. Mary has been feeling “cooped up” and lonely since her baby was born. There is a movie downtown that she should like to see. The story ends with Mary going to the movie with a friend and the baby being cared for by someone else. Begin the story with Mary wanting to go to the movie.
3. Gloria’s baby has been fussy all day and seems to be running a fever. This is the first time her baby has seemed to be sick and she is very worried. The story ends with the baby asleep apparently feeling fine. Begin the story with Gloria thinking that her baby may be sick.
4. The baby’s father doesn’t think that Barbara is being firm enough with the baby. Barbara does not like the idea of punishing her baby but the father thinks the child is being spoiled. The story begins with Barbara and the father having an argument about whether to punish the baby. It ends with the agreement reached between the parents about the issue.
5. Pam is at the store with her baby when the baby gets cranky and starts to throw a temper tantrum. This makes Pam feel embarrassed and irritated. The story ends with the baby being quiet and content. Begin the story with Pam feeling embarrassed and irritated.
6. Sara’s older boy, a 2-year old, was picking on the younger one. He took the baby’s toys away, pushed him over, and made him cry. The story ends with both boys calmed down and playing nicely together. Start with Sara seeing the older one pick on the baby.

7. Martha is going back to work soon after her baby is born. Begin the story with Martha worried about what arrangement to make for her baby. End it with her finding a good place for him during the day.
8. Diane feels that her baby is ready to begin feeding himself. Up until now, she has fed the baby. The story ends with the baby feeding himself. Begin the story with Diane wondering what she can do to encourage her baby to be more independent in feeding.
9. Betty would like to see her toddler playing more with other children. The story ends with Betty's child playing more cooperatively with other children. Begin the story with Betty wondering what she can do to encourage her child to play more with other children.
10. Jean's baby has been crawling for some time and appears to be ready to begin walking. The story ends with the baby learning how to walk. Begin the story with Jean trying to think of ways to encourage her baby to walk.

Cognitive Vignette

A P

7. You give your infant a bottle and come back a few minutes later and see him/her drop the bottle which breaks on the rug.
8. Your four-year-old has the flu and is sick in bed with a fever and stomach ache. When you take him his/her supper, s/he refuses to eat.
9. Shortly after you punished your five-year-old, you tell her/him to play quietly with her/his toys. Very soon after this instruction s/he stands up, looks at you in the eye, throws a toy at an expensive lamp, breaks it, and then laughs.
10. Your preschool child is in the next room and you do not know what is going on in there. You ask him/her for a favor but there is no reply.
11. As your three year old child is walking home from the store with you s/he remarks that s/he has to go to the bathroom -- s/he no longer can wait. Unfortunately a bathroom is still a long walk away. Upon arrival home, the child embarrassedly shows you the dirty, soiled underwear and pants.
12. After you bathed, clothed, fed, and played with your two-year-old child, you gently place him/her in a quiet room. For no seemingly good reason you hear the child crying.
13. Your four-year-old child comes in, after playing outside, for lunch. You notice that s/he doesn't eat anything.
14. Your infant is not good at holding on to objects yet. You give him/her a bottle and it slips out of his/her hands and breaks on the rug.
15. You ask your preschool child to get your cigarettes, a favor that s/he can sometimes do. After the request your child just stands there, like s/he didn't hear you.

-3-

A P

- — 16. You leave your five-year-old child and his/her friend in the next room to play for a while. After a few seconds you decide to check and see how things are going with the kids. At that moment you see your child throw an object and break an expensive lamp.
- — 17. Your two-year-old is with you while you go shopping. Both of you are tired when you return home. You put him/her in the next room to rest and then you start your own chores. Soon after that you hear your child crying and when you go to the next room you see him/her alone crying.
- — 18. Your infant has been very difficult all day. You give her/him a bottle to make him/her feel better. S/he throws it on the rug and it breaks.

Dyadic Dyssynchrony Coding of the Mother-Child Observation

Dyssynchrony scale

In assessing the level of dyssynchrony, consider the following elements:

1. Level of conflict
2. Extent to which conflict influences dyadic functioning
3. Responsiveness to affective displays (general lack of/inappropriate)
4. Discordance between non-affective forms of social interaction (eg. questions, answers, etc.)
5. Emotional separateness
6. Intrusiveness

Remember to consider the behavior of both mother and child when making judgments. Although it is likely that the interaction will be more mother driven, it is not sufficient to make judgments solely on her behavior.

Please note that the dyssynchrony scale is qualitatively different from the synchrony measure. Also notice that there is some overlap between the two scales (eg. conflict). Where applicable, attempt to ensure consistency. Please assign a rating (one being the lowest level of dyssynchrony) to each segment along the following five dimensions:

I. **Level of Conflict:** (may be noncompliance, "power struggle", argument, etc).

1. No evidence of conflict.
2. Some evidence of conflict.
3. Moderate level of conflict.
4. High level of conflict.

II. **Extent to which conflict influences dyadic functioning:** (does the conflict escalate? do members of the dyad stop interacting with one another? do members become less responsive to one another?)

1. No evidence of conflict
2. Conflict, regardless of level or extent, does not influence dyadic functioning.
3. Conflict sometimes influences functioning.
4. Conflict usually influences functioning.
5. Conflict always influences functioning.

III. **Responsiveness to affective displays:** (may be general lack of responsiveness or discordance between affective displays-eg. laughing when other is crying)

1. Member(s) do not respond inappropriately.
2. Member(s) don't respond.
3. Member(s) occasionally respond inappropriately.
4. Member(s) usually respond inappropriately.
5. Member(s) always respond inappropriately.

IV. **Discordance:**

1. No discordance.
2. There is some evidence of discordance.
3. There is moderate evidence of discordance (the dyad is usually discordant)
4. There dyad is always discordance between members.

V. **Emotional Separateness:** (consider, for example, warmth, physical proximity, affect, etc.)

1. There is no evidence of emotional separateness.
2. The dyad is at times emotionally separate or is in general, a bit emotionally separate.
3. The dyad is usually emotionally separate.
4. The dyad is always emotionally separate.

VI. **Intrusiveness:**

1. No evidence of intrusiveness.
2. Member(s) are a bit intrusive.
3. Member(s) are usually intrusive.
4. Member(s) are always intrusive.

Command and Compliance Coding System

Commands: Maternal verbal instructions that call for a motoric response on the part of the child and allow up to five seconds for the child to initiate compliance

Ineffective Commands: Maternal verbal instructions that call for a motoric response on the part of the child but fail to allow up to five seconds for the child to initiate compliance

Noncompliance: Failure to even attempt to comply with a command within 5 seconds or obvious misbehavior (e.g., failing to stay in chair or run around room).

Compliance: Attempting to comply in any manner within 5 seconds of a command

CPS Record Checklist

RECORD CHECKLIST

Please indicate how many supported 51A's have been filed in the case listed below and complete one form for each supported 51A.

Client Name _____ Worker's Name _____

Today's Date: / /

TOTAL NUMBER OF SUPPORTED 51A'S _____

If for some reason you feel this does not accurately represent the frequency of the maltreatment in the case, please explain below (e.g., chronic neglect).

(NOTE: ONE OF THESE FORMS SHOULD BE COMPLETED ON EACH SUPPORTED 51A)

Perpetrator (circle one): Mother Other: _____

Date: / / List which children were specifically maltreated: _____

CHECK AS MANY AS APPLY AND CIRCLE SPECIFICS IF POSSIBLE
 NOTE THE CHILD(REN) INVOLVED IF NOT ALL OF ABOVE AFFECTED

1. Nature of maltreatment:

EMOTIONAL AND PHYSICAL ABUSE:

- swore at; cursed; shouted at; spit at
- threatened to send away/put away
- restricted to chair (1 hr. or more);
- isolated in room (1 hr. or more)
- locked out of house; kicked out
- isolated in dark room, cellar, or closet;
- tied up; restricted physically; locked in car trunk
- soap in mouth; pepper in mouth;
- tabasco sauce in mouth
- slapped face, hands, arms; shook;
- pulled hair, spanked
- pushed against something; thrown against something; grabbed or swung by limb
- punched; hit with stick, paddle, hard object, strap, rope, belt; whipped
- attempted to use knife; threatened to use knife; hung out window
- biting; bite, left mark; kicked; stepped on
- burned; scalded
- shot gun at; choked, strangled; used knife (stabbed); used scissors (cut); use of saw; pushed out window; drowned in toilet
- Other (not listed): _____

2. Extent of maltreatment:

RESULTING FROM ABUSE:

- vomiting; dizziness, headaches
- swelling bruises; welts; contusions; abrasions; scratches
- internal injuries; hemorrhages; hematoma; bloody nose
- wounds; cuts; lacerations; punctures; infections; bite marks
- bone fractures; concussions; knocked teeth out; convulsions
- poisoned
- burns, scalding; gun shot wounds
- brain damage; loss of memory
- death

RESULTING FROM NEGLECT:

- dirty; needs food
- diaper rash; rash
- exposure to elements; frostbite
- malnutrition
- failure to thrive
- abandonment leads to injury (specify) _____
- emotional reaction (specify) _____
- lack of supervision leading to injury (specify) _____

NEGLECT:

- physical neglect (failure to thrive)
- abandonment; desertion
- lack of supervision
- lack of medical attention
- educational neglect
- failure to feed
- poorly clothed
- accident (fell, dropped, burned)
- poor hygiene
- gave alcohol; drugs
- other _____

SEXUAL ABUSE: (Specify) _____

REMEMBER TO BOTH CHECK THE GENERAL CATEGORY AND CIRCLE THE SPECIFIC ITEM AND INDICATE THE CHILD(REN) INVOLVED IF NOT ALL THOSE LISTED WERE INVOLVED