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Intellectual Disabilities and Neglectful Parenting: Preliminary Findings on the Role of Cognition in Parenting Risk

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Abstract

Parents with intellectual disabilities (PID) are over-represented in the child protective services (CPS) system. This study examined a more nuanced view of the role of cognition in parenting risk. Its goal was to validate a social information processing (SIP) model of child neglect that draws on social cognition research and advances in neuroscience. Mothers who had CPS child neglect cases were compared with mothers with no CPS involvement on a set of SIP factors. Mothers with low IQs were oversampled. As predicted, the Neglect group had significantly greater SIP problems than the Comparison mothers. SIP problems were associated with direct measures of neglect (e.g., cognitive stimulation provided children, home hygiene, belief regarding causes of child injuries). Further, for the direct measures that were most closely linked to CPS Neglect Status, IQ did not add significant predictive capacity beyond SIP factors in preliminary model testing. Implications for intervention with PID discussed.

Intellectual disabilities, using IQ as the indicator, have long been thought to be synonymous with parenting risk (Ethier, Couture, & Lacharite, 2004; Schilling, Schinke, Blythe, & Barth, 1982; Whitman & Accardo, 1993). In some eras, this belief was so strong that sterilization of women who were labeled as “mentally retarded” based on IQ scores was allowed legally in order to prevent them from procreating (Buck v. Bell, 1927; Estate of C. W., 1994; Field & Sanchez, 1999). Except for IQs below 60, evidence for the definitiveness of such risk is still rather scarce (Benjet, Azar, & Kuersten-Hogan, 2003; Tymchuk & Andron, 1990). Yet, intellectual disability, typically defined by IQ, continues to be considered as a factor in child protection services (CPS) decision-making (i.e., in determinations of child risk). There is evidence for over-representation of parents with low IQs in CPS caseloads with these mostly labeled as neglectful (Aunos, Goupil, & Feldman, 2003; McGaw, Shaw, & Beckley, 2007; Schilling, Schinke, Blythe, & Barth, 1982; Tymchuk & Andron, 1990).

Although it may be common sense that the adjustment difficulties that may come with having an IQ in the lower ranges (for our purposes in the Mild Mental Retardation or Borderline ranges) may spill over into the parenting role, the association between IQ and adjustment difficulties generally is only moderate (Loveland & Tunali-Kotoski, 1998). The use of IQ scores as the most useful indicator of such cognitively-based parenting risk, therefore, may not be entirely justified (Benjet, Azar, & Kuersten-Hogan, 2003). Further,

even if moderately linked to parenting competency/risk, an IQ score does not provide specific enough information for forming intervention plans. The *g*-factor that IQ tests are designed to assess in theory is made up a multitude of capacities (Guilford, 1968), not all of which, if found to be low, may signal parenting problems. More recently, cognitively-based parenting risk models have been posited that offer a more refined view of how cognitive difficulties may lead to parenting missteps. These models offer a set of more fine grained capacities that may better map the nature of risk and allow more careful assessment and targeted interventions than use of gross IQ level. Indeed, some of the diminished capacities outlined in these social information processing (SIP) models may be found in some higher IQ individuals and predict parenting risk levels in these ranges as well. Such models focus on social cognitive factors that have been linked to interpersonal functioning (Fiske, 1992; Fiske & Taylor, 2008) and also draw on newer neuroscience research that links narrow band cognitive capacities (e.g., executive functioning) to both learning and maladaptive social behavior (e.g., aggression; prosocial responses; Ellis, Weiss & Lochman, 2009). It is this narrower set of cognitive capacities that these models argue may account for the parenting responses that are labeled child maltreatment (Azar & Twentyman, 1986; Azar, 1997; Crittenden, 1993; Milner, 2003). These models may be especially relevant to neglect in that it inherently involves an extreme inattentiveness to children's needs (e.g., parents' failure to recognize children's immature capacities; poor planning, problem-solving and monitoring; failure to flexibly adapt to changes in children's capacities and to environmental risks). Further, the cognitive capacities that these models delineate, and the behavioral consequences to which they are linked, may also explain the broad spectrum of environmental difficulties that are often seen in neglect (e.g., social isolation due to poor social skills difficulties, household disorganization and lack of cleanliness, poor ability to handle family finances). These same difficulties may occur with greater frequency among parent with intellectual disabilities.

The study that will be described examined the validity of such a SIP model of parenting risk for neglect. It tests the ability of the SIP factors to differentiate mothers identified by CPS for child neglect from those who have no history of CPS involvement. Further, it oversampled mothers with lower IQs in both groups allowing a test of validity of this more refined cognitive view of parenting risk for this group of parents. To further test the validity of the SIP model, associations between the posited SIP factors and direct indicators of the components of neglect available for a subset of these mothers (e.g., lower levels of child cognitive stimulation in the home environment, home hygiene, supervision and injury attitudes, and disturbed parent child interaction patterns) were also examined. Because this is a preliminary report on this ongoing project, the sample size precludes large model testing, but the value of SIP factors in predicting both CPS status and direct indicators was examined, along with whether IQ adds further predictive power. The validation of this model for neglect may provide a more refined view of parenting risk than use of IQ alone. It may better inform intervention and may ultimately allow a more refined approach to determine risk level within parents who have intellectual disabilities. The SIP model that acts as a framework for this study is outlined below.

Social Information Processing Theory and Parenting Risk

In recent years, cognitive science has been increasingly applied to interpersonal responses (Fiske & Taylor, 2008). These concepts (e.g., schemata, Mandler, 1975; attribution theory; Jones & Davis, 1965) have been linked to interpersonal judgment errors and maladaptive responses. SIP theory, which integrates these concepts, argues that cognitive mechanisms mediate between environmental stimuli and individuals' emotional and behavioral responses and that it is disturbances in aspects of SIP that may explain dysfunctional interpersonal behavior. Specifically, in the model that acts as a foundation for the present study, a combination of simplistic, inappropriate, and rigid schema (e.g., unrealistic expectations), poor executive functioning (e.g., problem-solving, cognitive flexibility) and biased appraisals (e.g., attributional biases) are seen as playing a causal role in the occurrence of maladaptive parenting (Azar, 1986; 1997; Azar, Reitz, & Goslin, 2008). These SIP factors have been linked to maladaptive interpersonal functioning of adults within families (e.g., marital distress; Eidelson & Epstein, 1982; domestic violence; Holzworth-Monroe, 2000) and parenting (e.g., inadequate and overly harsh caretaking, Azar & Weinzierl, 2008; Dix & Grusec, 1985; Haskett, Scott, Grant, Ward, & Robinson, 2003; Peterson & Brown, 1994; Slep & O'Leary, 2007). These cognitively-based risk factors inherently offer potential mechanisms for explaining the relation between IQ and child neglect (Benjet et al., 2003) and may do so with greater precision. Thus, such factors would have more practical utility for making parenting risk judgments.

Such theorizing has been applied to the neglect of children. The SIP model of parenting risk that acts as a framework for the present study was initially posited by Azar and Twentyman (1986) and later elaborated on by Azar (1986; Azar, Barnes, & Twentyman, 1988; Azar & Weinzierl, 2005). Its elements attempt to explain the myriad of social deficiencies of parents at risk for maltreatment, not only those in the parenting domain, but also those that detract from the overall caregiving environment provided to children. This makes it especially relevant to parents with lower IQs, many of whom show more general life adjustment difficulties. Differences in three sequential cognitive elements are posited as playing a role in parenting risk: maladaptive schema about children and the parenting role (e.g., unrealistic expectancies), poor executive functioning (e.g., as reflected in problem-solving difficulties), and maladaptive appraisals (the products of the interaction of these two, such as negative intent attributions). How these elements operate dynamically in reaction to any given child stimulus event is displayed in Figure 1. Each SIP element is described briefly below with the evidence supporting its link to parenting risk, and then its specific relevance to parents with intellectual disabilities (PID) is outlined. The elements are presented in a somewhat linear form, but in any given situation, the parent cycles through them over and over again (see Azar, Reitz, & Goslin, 2008 for a fuller discussion).

Schema (Unrealistic Expectations)

Schemas act as filters to determine what cues elicit parental attention and thus, how much information about the event and surrounding context enters the adult's cognitive system (Mandler, 1975). At times, they activate other elements of the model (e.g., if these knowledge structures are violated by environmental stimuli, problem-solving may be

activated). Although not accessible directly, parental *expectations* are one way to study schemas because they reflect parents' ideas about what *should* happen in everyday situations (i.e., judgments about complex sequences of behavior (e.g., a 2-year-old child can be expected to toilet train him or herself with little help from parents) and their role in relation to others (e.g., 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). If parents' internal construction of children is not differentiated from that of adults (e.g., adults are capable of identifying environmental risks and protecting themselves), this may mean the parent will expect too much from young children (e.g., not be vigilant enough regarding environmental risk and not see themselves as responsible for preventing injuries) and/or have attitudes that children are toughened by injuries. In a small sample study, mothers who have maltreated their children have been shown to have higher levels of unrealistic expectations of children (Azar, Robinson, Hekimian, & Twentyman, 1984). Also, in a study examining causes of childhood injuries, mothers' beliefs about the causes of injuries and attitudes toward how much supervision children need were linked to supervision behavior and to level of injuries (Morrongiello & House, 2004), suggesting potential links to child neglect.

Executive Functioning

Although many tasks of parenting involve automatized responses (e.g., rocking a child who is starting to doze off to sleep), and may be primarily schema driven, novel situations can present dissonance with existing schemas (expectations are violated) and require more active cognitive engagement (active cognitive processing capacities). Children's ever-changing developmental needs and immature abilities to communicate often present such stimuli. The broad concept of executive functioning (EF), the second cognitive component of the SIP model, is how cognitive science has described the more "stepped up" cognitive engagement that should occur at those parenting moments (e.g., "rule" discovery, working memory, set shifting; Royall et al., 2002). Parents must have a capacity to shift set as new information is available (e.g., developmental or environmental changes). Adapting behavior in response to change is crucial to child safety and supervision (e.g., installing barriers with greater child mobility). Failures here may account for neglectful responses. Parents must also be able to approach parenting with complex decision-making skills, attending to detailed cues at multiple levels, selecting out the most useful ones and incorporating adequate levels of information before reaching a decision. Parents with poorer social reasoning skills (poor means-ends thinking) and less complex decision-making strategies may not identify or misinterpret social problems, and if they do identify them, may generate fewer possible responses and/or make inappropriate choices (e.g., failing to notice their child is feverish and not keeping them home from school; allowing a very young child to stay home alone when a babysitter cancels). Indeed, a less conscientious style in parents (i.e., less attention to detail) has been related to less adequate supervision and to more child injuries (Morrongiello & House, 2004). Thus, a lack of cognitive flexibility would increase neglect risk. To date, the operation of EF is reflected in studies of parental problem-solving ability. Two studies have found maltreating parents were poorer at problem-solving (Azar, Robinson, Hekimian, & Twentyman, 1984; Hansen, Pallotta, Tishelman, Conaway & MacMillan, 1989). Problem-

solving skill deficits have also been the hallmark of individuals with a variety of interpersonal problems (e.g., Cordova, 2004; Oswald & Clark, 2006). Along with problem-solving, more fine-grained ways of assessing EF exist (e.g., neurocognitive measures). One study has shown EF problems in mothers who are at risk for maltreatment (Nayak & Milner, 1998). Difficulties in social reasoning ability (i.e., identifying causal links between an identified problem and the goal intended) may appear more often in individuals with intellectual disabilities.

Appraisals (Attributions)

The final model element involves the *products* of cognitive activity “in the moment” (the judgments resulting from activation of schema and problem solving), specifically, parental appraisals (attributions). Attributions can impact directly upon responses to children. Indeed, attributing negative intent to children has been linked to inappropriate responses to them (e.g., Bugental & Happaney, 2000; Dadds, Mullins, McAllister, & Atkinson, 2003; Dopke & Milner, 2000). Larrance and Twentyman (1983) in a small-scale study found that neglectful mothers’ attributions for their own children’s transgressions fell in between abusive and comparison mothers in how internal and stable they were, and their responses did not vary with situation (i.e., they failed to take in the full breadth of information in the stimuli with which they were presented). The researchers noted that the latter corroborates some views of neglectful parents as unresponsive to their environments (i.e., disengaged from their children). In the Larrance and Twentyman study, neglectful mothers did not differentiate their appraisals in response to whether their child was a transgressor or was transgressed against, blaming them in both situations for what occurred. Unlike comparison mothers in this study, self-serving attributions (i.e., seeing oneself as less responsible for negative events and more responsible for positive events), typically seen as extended to significant others, were not evident in neglectful mothers. That is, their responses were more like that toward strangers or competitors (another adult). They did not take into account extenuating environmental factors to explain their children’s negative behavior and attributed negative intent on their children’s part even when it was not warranted. Indeed, maltreating parents have been shown to have such attributional biases. Such a bias would lead to parents’ finding the child to be an aversive stimulus and lower the parents’ typical sense of agency in children’s caregiving and heighten risk tolerance.

In sum, if parents show deficits in all three elements of the SIP model, parenting responses will be less effective and detrimental to children’s outcomes. Azar and Weinzierl (2005) outline how this would lead to the kinds of parenting that would be labeled as neglectful (i.e., that would lead to child injury, poor care taking and lack of cognitive stimulation) (Figure 1).

Intelligence and SIP Problems

Indirect evidence exists linking intellectual disabilities to the SIP problems described above and to less adequate social responses generally. Beginning in childhood, intellectual disabilities (ID) have been linked to deficits in these SIP domains. Children with greater ID are more likely to attribute hostile intent to benign acts (Leffert, Siperstein & Millikan,

2000; van Nieuwenhuijzen, Vriens, Scheepmaker, Smit & Porton, 2011), and the extent to which hostile attributions are made relates to level of maladaptive responses (Jahoda, Pert & Trower, 2006). This finding is likely related to experiences of harassment and discrimination having damaged their self-concepts and creating a schema that includes the expectation of others hurting them (Jahoda, Pert, Squire & Trower, 1998). Additionally, children with greater ID show difficulties in coming up with multiple and appropriate solutions to social problems, instead most frequently choosing to get help from an adult (Leffert, Siperstein & Millikan, 2000). They also show perseveration in the use of an ineffective solution to social problems (Wilson, 1999). Evidence of greater difficulty with perspective-taking, problem recognition, working memory, and emotion recognition has also been documented (van Nieuwenhuijzen et al., 2011). The deficits in “peer-related social competence” associated with children with ID is likely due to increased difficulty in focusing on, encoding, and integrating the types of social information necessary to navigate every day social situations (especially as the complexity of the situation increases), often resulting in social isolation (Guralnick, 2006; van Nieuwenhuijzen et al., 2011).

Relevant to considering parenting, many of these same difficulties appear to persist into adulthood. Adults with ID show more reliance on others (Bybee & Zigler, 1998), and this may generalize to “expecting” too much from their children as well. They are poor social problem solvers and persist in responses that are ineffective (Azar, Read, & Proctor, 2009). Their exposure to negative evaluation by others (stigma) and greater likelihood of experiencing “social defeat” across their lives (Jahoda & Markova, 2004; Reis & Benson, 1984) are said to lead them to monitor their social behavior more actively in adulthood and to make negative appraisals (i.e., seeing others as negatively evaluating them and having negative intent, including their own children). In addition, children with learning problems have a tendency to be helpless in their attributions for their performance (Nunez et al., 2005). This may be carried into adulthood, leading to withdrawal under stress, and negative self evaluations. The resulting chronic social anxiety may lead to a greater tendency to stereotype (e.g., less complexity and more rigidity in thinking; Broadbent & Broadbent, 1988; Mandler, 1975).

This work is suggestive of difficulties that, if present, may bode poorly for parenting. These findings also fit with the elements of the model of parenting risk outlined above.

SIP and Parenting Risk

SIP deficits, therefore, may be characteristic of a portion of individuals with ID and thus, may underlie the IQ -neglect link. That is, IQ may be a proxy for the range of the social cognitive capacities that act as a foundation for competent parenting. SIP deficits may differentially appear in the lower ranges of IQ and thus, may result in parenting risk and the problematic home environments that are found in families where neglect has occurred. If SIP deficits are in fact linked to neglect, they may provide a more nuanced view of the mechanisms that underlie neglect and may be more clinically useful than IQ scores. That is, assessment of these social cognitive capacities may inform the parenting interventions that are needed (e.g., problem-solving training). Thus, validation of the components of this model for neglect would advance thinking about the role cognition plays in parenting risk.

Further, it would also allow greater differentiation within parents with mild IDs as to their level of parenting risk as well as provide measures for making these differentiations. It may also foster enhancements to interventions with PID addressing social cognitive problems and rehabilitation techniques to circumvent more basic cognitive processing difficulties. We know less about the etiology of neglect than other forms of maltreatment (National Research Council, 1993; McSherry, 2007); thus, validation of this SIP model would advance the field of child maltreatment more generally as well.

The Present Study

The goal of the present study was to examine the validity of a SIP model of child neglect as a more nuanced way to consider the link between IQ and parenting risk. Using preliminary data from an ongoing study of child neglect, elements of this SIP model's association with parenting risk were examined in a sample of disadvantaged mothers. Parenting risk was assessed in two ways: (1) using official Child Protective Service (CPS) Records of child neglect; and (2) in a sub-sample of mothers where more in-depth data were collected, using direct measures of neglect. Using the first indicator (CPS Neglect Status), mothers from disadvantaged backgrounds who had at least one CPS identified incident of child neglect were compared on IQ and SIP elements to mothers without any history of CPS services involvement. It was predicted that mothers who were neglectful would have lower IQs on average and show greater SIP problems than comparison mothers (i.e., more unrealistic expectations of children, poorer problem solving in childrearing situations, less cognitive flexibility, and greater negative attributional bias toward children). It was further expected that the SIP problems would be highly correlated with each other. For a subset of mothers in this study direct measures of neglect were available and preliminary associations between SIP factors and these direct measures were examined. The direct measures included both psychological and physical components of neglect. Psychological components included: overall cognitive stimulation of the home environment, and warmth, flexibility, and dyssynchrony in observed interactions with their children (dyssynchrony included: level of intrusiveness, disengagement, and conflict). The physical components included: physical elements of the families environment (e.g., space), home hygiene, supervision and injury attitudes, and indicators of neglect including quality of home furnishings, security of residence, availability of utilities, overcrowding, home sanitation, and safety.

This study used preliminary data from a larger ongoing NICHD funded project on SIP difficulties, IQ and child neglect. The data used to test these questions is on the first half of the sample that has been completed to date. [Note that when the entire project is complete a fuller examination of the IQ-Neglect link will be possible than will be presented here, including an examination of contextual factors (e.g., social support).]

Method

Participants

Seventy-three low SES mothers were recruited from child protection service contract agencies and programs that provide services to disadvantaged mother populations (e.g., day cares, Head Start). An over-sampling of mothers with IQs in the lower ranges occurred

(overall range 56–115; with a range of 60–108 for Comparison mothers and 56–115 for the Neglect group. All mothers were screened for CPS involvement (i.e., official records were searched for cases of identified maltreatment). To date, 43 mothers who had CPS records for neglect (at least one identified case of neglect perpetrated by the mother) and 30 comparison mothers without any identified CPS maltreatment cases and no evidence of risk on a child maltreatment screening instrument have completed the study. [Note as an added screen, comparison mothers were administered the B-CAPI (Ondersma, Chafin, Simpson & LeBreton, 2005), a brief version of the Child Abuse Potential Inventory (Milner, 1986; 1994). Mothers in the comparison group who scored higher than the risk cutoff on this instrument were not used in the analyses ($n = 16$).] Table 1 provides demographic data. As expected, the statistical analyses comparing the two groups showed significant differences in IQ level (based on four subscales of the WAIS-IV that correlate .955 with full scale IQ (Sattler, 2001): Arithmetic, Matrix Reasoning, Information, and Coding) and education level. Similar to what has been found in past studies, mothers in the Neglect group were slightly older and had significantly more children. No other significant differences on major socio-demographic characteristics were found. Maternal age and number of children were controlled in the preliminary model testing done. The sample as a whole was extremely disadvantaged with most mothers on some form of government assistance (95%). As has been found in other studies, a higher proportion of the Neglect group had histories of self-reported childhood maltreatment and chaotic home lives than comparison mothers, and this was especially prominent among mothers with the lowest IQs across study groups. This is consistent with childhood studies suggesting higher maltreatment among children with disabilities (Sullivan & Knutsen, 2000).

A subgroup of the mothers was administered a more extensive set of measures that measured direct indicators of child neglect. This subgroup all had children within the preschool age range (3 to 5-years-old), allowing for an examination of mother-child interaction within a developmentally narrow group. (See Table 2 for demographic characteristics). Twenty-nine of these mothers had CPS neglect cases and 25 did not. As with the larger sample, sociodemographic differences were comparable. Also, as with the larger sample, the groups showed IQ differences, with the Neglect group having significantly lower IQ scores. The groups also showed educational differences which are inherent in the IQ findings. Mothers were not significantly different in age, but as with the larger sample, the Neglect group had significantly more children.

Procedure

Mothers were visited in their homes for three sessions. In the first session, they completed informed consent, provided background information, and across the sessions completed instruments and tests measuring SIP in parenting and a set of measures selected to provide direct indicators of the elements of neglect including: ratings of home cleanliness, supervision and injury attitudes, cognitive stimulation provided the child, and home sanitation, safety, availability of utilities, over-crowding, quality of home furnishings, and security of residence. All instruments were read to mothers and care was taken to insure understanding and use of Likert scales. Mothers also gave written consent for a record review of any existing cases of CPS involvement. Mothers were paid for participation.

Measures

Background information—Sociodemographic information was collected on maternal age, education, marital status, income, number of and ages and gender of children (Table 1 & 2).

Social information processing measures

Parent Opinion Questionnaire (POQ): The total score of this instrument measured parental level of unrealistic expectations regarding appropriate child behavior. It consists of 80 items in an agree-disagree format. In prior studies, it has been shown to differentiate maltreating and at-risk mothers (e.g., substance abusing) from comparison ones (Azar et al., 1984; Azar & Rohrbeck, 1986; Spieker et al., 2001). It has also been shown to have adequate test-retest reliability over a two-week period ($r = .85$) and good internal consistency ($\alpha = .87$).

Parent Problem Solving Inventory (PPSI): This instrument measures problem-solving ability in parenting situations (Wasik, Bryant, & Fishbein, 1981) and is modeled after a commonly used adult problem-solving test, the Means-Ends Problem Solving Test developed by Platt and Spivack (1975). It consists of 10 typical childrearing problems presented in story form (e.g., siblings fighting over a toy). The mothers were read the beginning of each story where a childrearing problem is outlined (e.g., a mother is in the grocery store and her child begins to throw a tantrum) and then are given the end of each story, where the problem has apparently been resolved (e.g., the child has quieted down). Mothers must then provide the middle (i.e., the solution[s] to the problem with multiple solutions possible for each story). Responses were recorded and scored later by raters blind to neglect status. Mothers' responses received three scores: (a) number of irrelevant solutions (responses that did not solve the problem as presented in the story); (b) the total number of categories of solutions used across the 10 stories (examples of categories in the tantrum story might be caretaking or leaving the store); (c) the total number of solutions given across the stories. This measure has been shown to distinguish maltreating from nonmaltreating parents (Azar et al., 1984). Inter-rater agreement of coders on this measure ranged from 94 to 100%.

Cognitive Vignettes (CV): This instrument measures mothers' attributions of negative child intentionality and use of punishment using 18 vignettes of hypothetical aversive child behavior (Plotkin, 1983). Mothers are asked to imagine that the child presented in each of the vignettes is their own and to rate how much they think the child did the behavior to annoy them. Ratings of negative intent attributions were on a scale of one to nine with a score of one representing "not at all" and a nine representing "very much." Three types of stories were presented including ones where the child intentionally misbehaved, ones where the situation was at fault (clearly unintentional child aversive behavior), and ones where the situation was ambiguous as to child intent (the aversive behavior is presented without any situational content). Total scores for each type of story were computed. To examine attributional bias, ambiguous intent and unintentional intent subscores were used. Cronbach alpha for intent to annoy on this measure is .90. Maltreating mothers have scored higher on this measure and maltreating mothers show higher attributions of negative intent under

conditions of ambiguity and in clearly unintentional situations, demonstrating the bias (Haskett et al., 2003; Plotkin, 1983).

Wisconsin Card Sorting Test (WCST): The Wisconsin Card Sorting Test (WCST) is a neuropsychological test of “set-shifting”, that is, the ability to display flexibility in the face of changing stimuli and rules (Berg, 1948; Heaton, 1981). Initially, a number of stimulus cards are presented to the participant. The shapes on the cards are different in color, quantity, and design. The person administering the test decides whether the cards are to be matched by color, design or quantity. The participant is then given a stack of additional cards and asked to match each one to one of the stimulus cards, thereby forming separate piles of cards for each. The participant is not told how to match the cards; however, he or she is told whether a particular match is right or wrong. During the course of the test, the matching rules are changed and the time taken for the participant to learn the new rules, and the mistakes made during this learning process are analyzed to arrive at a score. Of particular interest to this study, the number of times that a participant stayed on one categorization after repeatedly being told that they are incorrect was recorded (perseverative errors; Berg, 1948). High scores indicate low flexibility. The WCST has inter-scorer agreement ranging from .88 to .93 (Axelrod, Goldman, & Woodard, 1992).

Direct measures of neglect - psychological

The Early Childhood HOME Observation for Measurement of the Environment (EC HOME): The EC HOME (Caldwell & Bradley, 1984) was used to measure the quality and quantity of cognitive stimulation and support available to a preschool child (aged 3 to 6) in the home environment. These items reflect elements that are believed to be disturbed in neglectful homes (e.g., Dubowitz, Papas, Black & Starr, 2002). The focus is on the child in the environment as well as the child as a recipient of inputs from objects, events, and transactions occurring in connection with the family surroundings. The EC HOME is composed of 55 observations. It has nine subscales from which a total score of cognitive stimulation can be calculated. Of particular interest for assessing neglect was: the subscale of Physical Environment (examines the safety, cleanliness, and the degree to which the environment is conducive to child development) and the Responsivity subscale (examines the pride, affection, and warmth mothers display to their children), as well as the Total Score of cognitive stimulation. The measure has been shown to have adequate reliability (alphas above .90) and inter-rater agreement has reached 90% (Totsika & Sylva, 2004). In the present study, similar levels of reliability ($\alpha = .81$) and inter-rater agreement (92%) were evident.

Observation rating scales: Mother-child interactions were observed and rated in order to assess links between SIP factors and interactional behavior. The focus of attention in this interaction session is two-fold. The first is a rating of how much the mom allows the child to direct the interaction (responsiveness, a construct composed of ratings of maternal warmth and flexibility, each rated on 5-point likert-type scales; Landry, Smith, Swank, Assel, & Vellet, 2001). These two scales have demonstrated adequate reliability inter-rater reliability (Hammond, Landry, Swank, & Smith, 2000). The second is a dyadic measure that examines the amount of behavioral and affective matching between the mother and child related

(synchrony, rated on a 5-point likert-type scale) or the level of mismatch related to dyadic conflict (dyssynchrony, a construct composed of ratings of dyadic conflict, intrusiveness, and disengagement, each measured on a 4-point likert-type scale; Johnson & Azar, 1998). These ratings are collected during two 10-minute free play sessions and two 10-minute puzzle-solving sessions (of increasing difficulty). Inter-rater reliability was assessed using the procedure described by Landry, Smith, Miller-Loncar and Swank (1998). Generalizability coefficients were calculated (using G1.sps; Mushquash & O'Connor, 2006) for each of the six ratings, a method recommended for studies that use ratings of observational data on a continuous scale (Frick & Semmel, 1978; Lakes & Hoyt, 2009). Coefficients ranged from .52 – .79 (coefficients above .50 are indicative of adequate reliability; Mitchell, 1979).

Direct Measures of Neglect – Physical

Checklist for Living Environments to Assess Neglect (CLEAN): The Checklist for Living Environments to Assess Neglect is designed to assess home cleanliness issues associated with child neglect (Watson-Perczel, Lutzker, Greene & McGimpsey, 1988). Item areas in targeted places (e.g., sink, counter) are rated for cleanliness according to three dimensions: presence of dirt or organic matter, number of clothes or linens in contact with the item area, and the number of non-clothing items or other nonorganic matter in contact with the item area. A composite percentage score reflecting the condition of the home along the aforementioned dimensions is computed for analysis for three rooms (bathroom, kitchen and living room) as well as a total cleanliness score across those rooms. It has good face validity for quantifying unhealthy and inadequate environments and has shown adequate inter-rater agreement (Hansen & MacMillan, 1990). Inter-rater agreement in the present study was excellent (99%).

Child Well-Being Scales (CWBS): The Child Well-Being Scales were developed as an outcome measure of the qualities of child well-being to evaluate the impact of child welfare services (Magura & Moses, 1986). Six modules of this measure that reflect elements of potential neglect were utilized: Ratings (completed after home visits), included assessment of the adequacy of household furnishings, overcrowding, household sanitation, security of residence, availability of utilities, and physical safety. The modules chosen are ones relatively easy to rate by observers who are not familiar with the family. Ratings were then converted into Seriousness Scores (Magura & Moses, 1986) for each module, as well as a total score, for analysis. These scales have been used to measure neglect in prior studies (Dubowitz et al., 2004) and has significantly discriminated between neglectful and comparison parents (Gaudin & Polansky, 1992; Casady & Lee, 2002). In past work, inter-rater reliability was maintained at a greater than .90 level (Dubowitz et al., 2004). In the present study, inter-rater agreement was at 89%.

Injury Attitudes Questionnaire (IAQ): The IAQ was designed to assess parental beliefs that children “learn from” and “toughen up” as a result of experiencing minor injuries (Lewis, DiLillo & Peterson, 2004). The Toughening subscale of this measure was used. It includes 6 items consistent with the notion that injuries help children endure physical or emotional pain (e.g., Injuries can help my child learn to handle physical pain better). In past

work, the internal reliability has been .88 and test-retest reliability over a 2-week period has been .84. Internal reliability for the present study was very good ($\alpha = .90$).

Parental Supervision Attributes Profile Questionnaire (PSAPQ): The PSAPQ is used to assess injury risk in children 2 to 5 years of age due to inadequate supervision (Morrongiello & House, 2004). The focus of the PSAPQ is not only supervisory behaviors, but also caregiver beliefs and attitudes likely associated with injury related supervision. The PSAPQ consists of 29 statements and caregivers are asked rate their agreement with each statement on a five-point likert-type scale (from “never” to “all of the time”). Ratings assess the following dimensions; supervision vigilance, protectiveness, risk tolerance, and the belief that fate controls the health of their child. It has displayed adequate internal consistency in past studies (alphas from .65 to .70; .70 for the present study) and has been shown to relate to child injury levels and observed supervision level on the playground (Morrongiello & House, 2004).

Results

CPS Neglect Status and SIP Group Differences

To examine the SIP model's relevance to neglect, t-tests compared the CPS Neglect mothers with the comparison ones and significant group differences were found across all SIP variables (Table 3). The Neglect group showed significantly higher levels of SIP difficulties than Comparison mothers, including higher POQ scores, more irrelevant solutions, and fewer number and categories of solutions on the PPSI, and higher ratings of child negative intent when presented with ambiguous and unintentional aversive child behavior on the CV. They also showed more perseverative errors (cognitive inflexibility) on the WCST.

To further test the model's validity, SIP measures intercorrelations were examined and, as would be predicted, the SIP variables were significantly intercorrelated with each other (Table 4).

Direct Measures of Physical Neglect and SIP

To further examine, the model's validity for neglect, correlations were computed between SIP variables and direct measures of physical neglect (Table 5). SIP measures were significantly correlated in the predicted direction with five of the eight physical neglect indicators.

Examining the first element of SIP, as predicted higher POQ scores were significantly linked to a less stimulating physical environment (HOME subscale), lower home hygiene on the CLEAN, higher Risk Tolerance and Belief in Fate as the Cause of Child Injuries (PSAPQ), and a belief that injuries Toughen Children on the IAQ. A trend in the expected direction was also found with the Child Well Being Scales. No significant associations were found between the POQ and either the Protectiveness or Supervision Scales of the PSAPQ.

For the second element of SIP, relationships were more mixed, although at least one or more of the SIP active cognitive processes measures correlated significantly in the predicted direction with three of the eight indicators and some additional associations were in the

opposite direction to that expected. The number of irrelevant solutions on the PPSI was negatively associated with the Physical Environment subscale of the HOME and the Child Well Being Scales. Cognitive inflexibility (perseverative errors on the WCST), as predicted, was also significantly associated with one physical indicator, greater Belief in Fate as the Cause of Injuries to Children. Contrary to predictions, inflexibility was positively associated with more protectiveness on PSAPQ. For problem-solving, some findings were also opposite to what was predicted (in the opposite direction for Protectiveness and Supervision on the PSAPQ and toughening on the IAQ). All other correlations for this measure were non-significant.

Negative intent attributions under ambiguity, the third element of the SIP model, were significantly correlated with most of the direct physical neglect measures. Higher negative intent attributions under conditions of ambiguity were correlated significantly with providing a less stimulating physical environment, more serious concerns on the Child Well Being Scales, higher Risk Tolerance and Belief in Fate on the PSAPQ, and a greater belief that injuries Toughen Children on the IAQ; and trend for less clean home setting and belief in lower need for Supervision (PSAPQ). Only the protectiveness subscale did not show a significant relationship. Although effects for negative intent attributions might not be expected when the child's behavior was clearly presented as unintentional, one significant finding occurred with the Fate scale of the PSAPQ and a number of trends with other physical neglect scales. Only one of these was in the opposite direction to that predicted.

In sum, two the three elements of the SIP model showed predicted associations with the direct measures of neglect. The findings for the more "active" cognitive processing measures showed relationships with agency in injuries befalling children and more housing issues (physical environment) and global ratings of concerns that are a primary in the CPS system.

Direct Measures of Psychological Indicators of Neglect and SIP

Correlations were computed between SIP variables and the direct measures of psychological neglect. SIP measures were significantly associated with many of the direct psychological measures of neglect (Table 6).

Unrealistic expectations, the first element of the SIP model, as predicted, was significantly negatively correlated with warmth and significantly positively correlated with intrusiveness and with overall dyssynchrony in mother-child interactions. There was also a trend for a negative association with amount of responsivity and cognitive stimulation on the HOME.

For the second element of the SIP model, the active cognitive process measures showed consistent associations in the predicted direction with the psychological measures of neglect. Problem-solving (number of irrelevant solutions) and cognitive flexibility on the WCST were significantly negatively correlated with responsivity and cognitive stimulation provided the child on the HOME and warmth, flexibility, and synchrony in interactions, and negatively correlated with total dyssynchrony (with significant findings in the predicted direction for intrusiveness and disengagement). A significant relationship was not found with conflict. Number of categories and number of means on the PPSI were also both

positively associated with maternal flexibility in the observations and with responsivity and cognitive stimulation on the HOME.

The third element of the SIP model, negative intent attributions, as predicted, showed positive relationships with dyssynchrony total (with significant findings for higher ratings on intrusiveness and disengagement). Trends were also shown for negative attributions to be positively associated with the HOME responsivity and total score and with ratings on synchrony in the observations. Attributions of negative intent for unintentional situations was significantly negatively associated with responsivity on the HOME and significantly positively associated with intrusiveness, disengagement, and total dyssynchrony (with trends in the expected directions for synchrony and conflict and total HOME score).

In sum, SIP appeared to show many predicted associations with the psychological indicators of neglect. All three SIP elements were associated in the predicted direction with patterns of mother-child interactions and with ratings of cognitive stimulation provided the child.

CPS Neglect Status and Direct Indicators of Neglect: SIP and IQ

To examine, in a preliminary way, how SIP elements as a group link to direct measures of neglect, correlations between direct indicators and CPS Neglect status were computed (Tables 5 & 6).

Only four *physical indicators* showed an association with CPS Status (the total score on the CLEAN, Belief in Fate as the Causes of Children's Injuries sub-scale of the PSAPQ, the Physical Environment Subscale of the HOME and the CWBS). All the other direct physical measures of neglect were not linked to CPS Neglect Status. For the *psychological indicators*, correlations with CPS Status only showed three significant correlations: the HOME total score, the HOME responsivity subscale, and ratings of intrusiveness in mother child interaction. No other psychological indicators showed significant associations with CPS Neglect Status. These indicators were used to form a composite single direct measure of neglect that could be used along with CPS Neglect status to do some preliminary model testing.

To create the single composite direct measure of neglect, the seven measures were factor analyzed which resulted in only one factor with an eigenvalue greater than 1 (HOME Responsivity Subscale, HOME Physical Environment Subscale, HOME Total Score, Intrusiveness in Behavioral Observation, and the Fate Beliefs Subscale of the PSAPQ). A regression factor scoring procedure was conducted to yield a single factor score for each case. The factor score was reversed so that the higher the score, the greater the neglect propensity. Although only one factor emerged among these items, the coefficient alpha reliability of the construct was low ($\alpha = .55$) even though all the components contributed to the scale reliability. Given the small sample size, however, a composite measure has the advantage of reducing the large number of parameter estimates and multiple models that would be required with seven measures and prevents the loss of statistical power. Four mothers who were missing one or more of the direct measures of neglect were not included in the following regression analyses. Additionally, an outlier analysis was conducted with the regression models and one participant was found to have a inordinate influence on the

regression results as identified by Cook's D and the dfbeta coefficients. This case was also excluded from the regression models reported here.

Two regressions were then run using: (1) CPS Neglect Status as the outcome and (2) the direct neglect composite as the outcome. Because group differences were found on maternal age and number of children, for each regression these were entered as the first step. The SIP variables used were total POQ, irrelevant solutions on PPSI, cognitive inflexibility, attributions of negative intent to aversive child behavior that was ambiguous as to intent. For the regressions using the CPS Neglect Status as the outcome variable, when IQ was entered first, it was a significant predictor and the addition of SIP added to the predictive power marginally ($p = .075$). When SIP was entered first, it was a significant predictor, and the addition of IQ did not significantly add to that power (Table 7).

For the regressions using the composite of direct measures as the outcome variable, the pattern is that when IQ was entered first, it was a significant predictor and the addition of SIP created a significant increase in predictive power. When SIP was entered first, it was a significant predictor and the addition of IQ did not significantly add to the predictive power (Table 8).

In sum, in both regressions, IQ did not add significant predictive power once SIP was entered. SIP in one case added significant predictive power over IQ and in the other showed marginally significant predictive power.

Discussion

Parents with intellectual disabilities (PID), as defined by having lower IQs, appear to be over-represented in the CPS system and as seen in our sample, are likely to be labeled as neglectful. We have argued that IQ scores alone may not frame parenting risk in a nuanced enough manner. That is, they do not provide information as to the nature of cognitive disturbances that may be affecting parenting responses negatively. Using a more nuanced view of cognition based in social cognition research and recent work in neuroscience, this study set out to examine a social information processing (SIP) model of neglect in a disadvantaged sample with a high density of mothers whose IQs are in the lower ranges.

This paper reports preliminary data from an ongoing study testing the validity of a SIP model of child neglect. Along with examining neglect, this project is also designed to examine maternal IQ's influence as well. Mothers who had at least one identified CPS incident of neglect were compared with mothers who had no CPS histories and who also were not at-risk for maltreatment based on a risk screening instrument. The recruitment strategy includes efforts to over-sample low IQ mothers for both groups. This paper provides some preliminary findings which will be enlarged upon once the sample is complete.

The results, to date, support the validity of the SIP model's relevance for child neglect. The findings support the idea that mothers who have perpetrated child neglect when compared with mothers who have no such history show more difficulties across the SIP domains. They have greater evidence of disturbed schema regarding children, show more problems in active

cognitive processes (e.g., cognitive flexibility, interpersonal problem-solving), and make more negative mis-appraisals of child behavior in the form of hostile attributional biases compared to a demographically similar set of comparison mothers. Specifically, they showed more unrealistic expectations of children and poorer problem-solving capacities including, being less able to use means-ends thinking to form a solution to child caretaking problems and if they are able to provide a solution, show a more narrow breadth of strategies to solve problems and give fewer overall solutions than comparison mothers. Neglectful mothers also show more evidence of a negative attributional bias toward children. When presented with hypothetical child aversive behavior that was ambiguous as to child intent, they showed a greater tendency to judge the child as engaging in the behavior to annoy them. Most striking is that when presented with hypothetical child aversive behavior that was clearly unintentional, they also judged it as more intended to annoy them than comparison mothers. These findings are in line with a recent study with neglectful populations showing emotion information processing difficulties with neglectful mothers (Hildyard & Wolfe, 2007). Furthermore, as the model would predict, SIP factors were all significantly associated with each other. Together these findings lend support to this SIP model's validity for understanding neglect.

In addition, SIP factors were found to be significantly correlated with a number of direct measures of neglect in the psychological domain (e.g., cognitive stimulation provided to children, interaction patterns (intrusiveness, disengagement, synchrony, warmth, and flexibility). Neglect has pervasive negative effects on children's health, social, and academic outcomes (English et al., 2005; Hildyard & Wolfe, 2002; Shipman, Edwards, Brown, Swisher, & Jennings, 2005) that are felt throughout the lifespan. The psychological areas that were assessed in this study and found to be associated with SIP are ones that have been shown to produce poor child outcomes. This further suggests the utility of the SIP model.

SIP factors were also found to be associated with direct physical indicators of neglect, including the physical environment provided to children (e.g., neighborhood quality, home crowding), home cleanliness, beliefs children's injuries are due to fate, risk tolerance in supervision, and general concerns regarding the home environment (e.g., security of residence, sanitation). The findings on this domain varied depending upon which element of the SIP model was being examined. The findings on mothers' belief in child injury being due to fate are suggestive of mothers feeling a lack of efficacy in the face of parenting tasks. Neglect mothers reporting greater supervision, although not predicted, may also represent the parent's anxiety and fear leading them to too closely supervise their children or their doing impression management and trying to represent themselves as overly vigilant (especially given their vigilance has been questioned by CPS). SIP does appear to have relevance to the physical aspects of neglect. These too have implications for children's health and overall outcomes. Thus, the SIP model appears to have some utility for these elements of neglect.

In summary, SIP problems appear linked to neglectful parenting in a sample of mothers who are low in IQ. Findings with preliminary model testing also suggest that SIP may explain the IQ-Neglect link, in that IQ did not show predictive power above that shown by the SIP factors for either CPS neglect status or a composite of direct measures that were correlated

with neglect status. There were also hints in these findings that SIP factors may add information in predicting neglect. These results should be viewed very cautiously given the small size of the sample. When this project is complete, other factors' interaction with SIP (e.g., neighborhood qualities using perceptions and geographic information systems, social support, etc.) can be examined. Also, a larger sample size will allow testing of more complex relationships and shed further light on SIP's role in child neglect and the IQ-Neglect link. The fact that not all direct measure of neglect correlated with CPS Neglect designations is perplexing and will also be examined once the entire sample is complete.

The fact that direct neglect measure studied are linked to SIP suggest avenues for intervention that may reduce neglect's negative effects and may particularly benefit parents with intellectual disabilities. Indeed, maternal responsivity and cognitive stimulation have been targeted using behavioral approaches with both neglectful parents and parents with intellectual disabilities (e.g., language intervention; Feldman & Case, 1999). Most studied with PID have been behavioral approaches. These studies target behavioral change, but it might be argued also attempt to increase parents' parenting repertoire (improving problem-solving capacities) and focus on discrimination training. For example, Lutzker and Bigelow (2001) describe medical care training that targets elements of visual attention and discrimination (i.e., knowing when spots on a child's face warrant calling the doctor) and providing specificity in talking to the doctor's office (e.g., giving more detailed and useful information). In light of the findings from this study, an argument can be made that these successful interventions are simultaneously working on behavior and social cognitive capacities. The findings of the present study, therefore, suggest further cognitively-based enhancements to presently existing behavioral approaches may potentially increase their effectiveness. Targeting hostile attributions (re-attribution training) and challenging inappropriate expectations (cognitive restructuring) may be useful along with work on attentional skills, rule shifting, and updating. Cognitive enhancements to interventions with maltreating abusive parents (Azar, 1989; Kolko, 1996) and prevention programs with at risk parents have shown some effectiveness (Bugental et al., 2002; Sanders et al., 2004) and have been adapted in preliminary ways to PID (Heinz & Grant, 2003; Tymchuk, 2006). This would also extend newer work with ID adults attempting to use cognitive treatment strategies (e.g., dual diagnosis with anxiety, Dagnan & Jahoda, 2006; social skills, Loumidis & Hill, 1997; Rusch, Morgan, Martin, Riva & Agran, 1985; anger management, Taylor, Novaco, Gillmer, Robertson & Thorne, 2005).

One final word must be said about the origins of these SIP difficulties. In focusing on SIP, there may be an assumed constitutional origin for these problems. As seen in the present sample, parents who are neglectful often come into parenting with a history of maltreatment themselves which suggests they may have had less competent models for parenting themselves and, subsequently, less of the attentive care-giving needed to scaffold problem-solving skills, attentional skills and executive functioning capacities. Indeed, the stressful environments they often grew up in as children are beginning to be linked to diminished cognitive capacities (e.g., lower EF, Blair, 2010). We have preliminary evidence that adolescents with a history of maltreatment show deficits in parenting readiness as assessed by the SIP element examined in this study (Azar, Okado, & Robinson, 2009)

Taking a social learning approach to the origins of these SIP difficulties may be more useful at this point and as noted above, this may foster developing preventive interventions that start earlier on developing skills that may promote later parenting readiness. Indeed, longitudinal work is underway examining maternal scaffolding's role in EF development in toddlers and preschoolers SIP and prevention programs have targeted parental problem-solving to affect change in children's skills in this domain. School-based programs are also targeting SIP (e.g., targeting social reasoning capacities and EF in children at risk for developmental delays; e.g., Diamond, Barnett, Thomas, & Munro, 2007). Although these programs are aimed at improving academic achievement in delayed children, they may have a radiation effect of improving their social responding and affect later adult functioning in the role of parenting.

In conclusion, this study using data from an ongoing project attempted to provide evidence for a more fine-grained cognitively based model of parenting risk and that includes domains of cognitive problems that may more directly map onto parenting responses and competencies and thus, provide more refined indicators. Such refinement would allow a better "path" to service provision. It may also ultimately allow greater differentiation within parents with mild intellectual disabilities as to their level of parenting risk (e.g., validation of measures).

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FIGURE 1.
The social information processing model (adapted from Azar & Weinzierl, 2005).

Table 1**Background Information**

	Neglect Group n=42 Mean (SD)	Comparison Mothers n=30 Mean (SD)	t/ X²
Maternal Age (years)	30.64 (7.03)	28.14 (5.44)	$t(70) = 1.63^+$
Single vs. Dual Parent Family			
Single:	82.9% (n=34)	80.0% (n=24)	$X^2(1) = .099$
Dual:	17.1% (n=7)	20.0% (n=6)	
Education (years completed)	11.36 (1.30)	11.93 (.87)	$t(70) = -2.11^*$
Annual Income Level			
Below \$26,000:	81.0% (n=34)	90.0% (n=27)	$X^2(1) = 1.11$
Above \$26,000:	19.0% (n=8)	10.0% (n=3)	
Number of children	3.40 (1.48)	2.60 (1.33)	$t(70) = 2.37^*$
Child Age (years)	4.93 (2.87)	4.35 (1.04)	$t(70) = -1.08$
Gender of Child			
Female:	52.4% (n=22)	43.3% (n=13)	$X^2(1) = .573$
Male:	47.6% (n=20)	56.7% (n=17)	
IQ	73.45(11.70)	83.50(12.12)	$t(70) = 3.54^{**}$

⁺ $p < .10$,

^{*} $p < .05$,

^{**} $p < .01$, One-Tailed tests

Table 2

Background Information for Direct Measures Sample

	Neglect Group n=28 Mean (SD)	Comparison Mothers n=25 Mean (SD)	t/ χ^2
Maternal Age (years)	28.34 (5.31)	27.89 (5.17)	$t(51) = .755$
Single vs. Dual Parent Family			
Single:	77.8% (n=21)	84.0% (n=21)	$\chi^2(1) = .324$
Dual:	22.2% (n=6)	16.0% (n=4)	
Education (years completed)	11.29 (1.18)	11.88 (.83)	$t(51) = -2.09^*$
Annual Income Level			
Below \$26,000:	75.0% (n=21)	92.0% (n=23)	$\chi^2(1) = 2.71^+$
Above \$26,000:	25.0% (n=7)	8.0% (n=2)	
Number of children	3.46 (1.50)	2.28 (1.06)	$t(51) = 3.28^{**}$
Child Age (years)	4.08 (.79)	4.18 (.92)	$t(51) = -.424$
Gender of Child			
Female:	53.6% (n=15)	44.0% (n=11)	$\chi^2(1) = .484$
Male:	46.4% (n=13)	56.0% (n=14)	
IQ	75.04 (12.30)	84.92 (11.12)	$t(51) = 3.05^{**}$

⁺ $p < .10$;

^{*} $p < .05$;

^{**} $p < .01$, One-Tailed tests

Table 3

Neglect Status and Parent Domain SIP t-tests

	Neglect Group Mean (SD)	Comparison Mothers Mean (SD)	<i>t</i>
Unrealistic Expectations	11.39(7.95)	8.23(5.44)	<i>t</i> (70) = 1.88*
Cognitive Inflexibility	23.23(16.13)	16.38(10.20)	<i>t</i> (66) = 2.01*
Problem Solving:			
# Irrelevant solutions	2.95(2.20)	1.70(1.51)	<i>t</i> (70) = 2.70**
# of categories used	9.45(4.04)	11.57(3.56)	<i>t</i> (70) = -2.30*
# of total solutions	10.31(4.69)	12.30(3.58)	<i>t</i> (70) = -1.89*
Negative Intent Attributions			
Ambiguous situations	18.69(10.13)	12.90(8.29)	<i>t</i> (70) = 2.57**
Unintentional situations	12.93(7.44)	10.20(5.81)	<i>t</i> (70) = 1.68*

*
p < .05;**
p < .01, One-Tailed tests

Table 4

SIP Correlations

	1.	2.	3.	4.	5.	6.	7.
1. Unrealistic Expectations	--	.340**	.521**	-.398**	-.398**	.479**	.396**
2. Cognitive Inflexibility		--	.580**	-.379**	-.355**	.268*	.390**
Problem Solving							
3. # Irrelevant Solutions			--	-.790**	-.800**	.417**	.471**
4. # Categories Used				--	.976**	-.326**	-.349**
5. # Solutions Used					--	-.291**	-.343**
Negative Intent Attributions							
6. Ambiguous Situations						--	.799**
7. Unintentional Situations							--

+ $p < .10$;* $p < .05$;** $p < .01$, One-Tailed tests

Table 5

SIP and Physical Neglect Correlations

	HOME Physical Environment Subscale	Cleanliness	Child Well-Being Scales	Parental Supervision Attitudes				Injury Attitudes Toughening
				Protectiveness	Supervision	Risk Tolerance	Fate Beliefs	
Neglect Status	-.311*	-.272*	-.192 ⁺	-.123	-.019	-.019	.328**	.162
Unrealistic Expectations	-.262*	-.313*	-.192 ⁺	.107	-.006	.288*	.464**	.326**
Cognitive Inflexibility	-.114	-.035	-.024	.261*	.074	.132	.373**	-.050
Problem Solving								
# Irrelevant Solutions	-.282*	-.131	-.229*	.333**	.146	-.008	.299*	-.304*
# Categories Used	.209 ⁺	-.072	.090	-.231*	-.221 ⁺	.150	-.237*	.332**
# Solutions Used	.232 ⁺	-.045	.116	-.239*	-.237*	.153	-.228*	.322**
Negative Intent Attributions								
Ambiguous Situations	-.349**	-.211 ⁺	-.285*	-.102	-.180 ⁺	.276*	.490**	.365**
Unintentional Situations	-.201 ⁺	-.137	-.175	-.030	-.218 ⁺	.141	.350**	-.192 ⁺

⁺ $p < .10$;

* $p < .05$;

** $p < .01$, One-Tailed tests

Table 6

SIP and Psychological Neglect Correlations

	HOME Responsivity Subscale			Behavioral Observation				
	HOME Total Score	Warmth	Flexibility	Synchrony	Conflict	Intrusiveness	Disengagement	Dyssynchrony
Neglect Status	-.238*	-.047	.015	-.121	.026	.232*	.051	.142
Unrealistic Expectations	-.192+	-.230*	-.093	-.042	.016	.322**	.109	.204+
Cognitive Inflexibility	-.364**	-.281*	-.200+	-.315*	.278*	.362**	.283*	.401**
Problem Solving								
# Irrelevant Solutions	-.467**	-.355**	-.364**	-.409**	.180+	.304*	.366**	.364**
# Categories Used	.354**	.030	.255*	.123	.048	-.191+	-.046	-.090
# Solutions Used	.407**	.094	.328**	.147	.023	-.212+	-.104	-.133
Negative Intent Attributions								
Ambiguous Situations	-.225+	-.135	-.002	-.110	.144	.235*	.252*	.272*
Unintentional Situations	-.250*	-.169	-.079	-.193+	.223+	.245*	.280*	.320**

+ $p < .10$;* $p < .05$;** $p < .01$, One-Tailed tests

Table 7

Neglect regressed on four SIP variables and IQ controlling for mother age and number of children (IQ entered before SIP)

Neglect	b	s.e.	Beta	b	s.e.	Beta	b	s.e.	Beta
Maternal Age (years)	0.009	0.013	0.090	0.008	0.012	0.088	-0.02	0.012	-0.18
Number of Children	0.161	0.048***	0.457	0.141	0.048***	0.399	0.151	0.046***	0.428
IQ				0.011	0.005**	0.274	-0.01	0.006	-0.26
Unrealistic Expectations							-0.02	0.013*	-0.24
Problem Solving Irrelevant							-0.03	0.046	-0.13
Negative Intent - Ambiguous Situations							0.024	0.009***	0.363
Cognitive Inflexibility							0.004	0.006	0.111
Constant	0.288	0.363		1.219	0.565		1.21	0.719	
R-Square	0.200	***		0.268	***		0.402	***	
R-Square Change				0.072	**		0.134	*	

Neglect regressed on four SIP variables and IQ controlling for mother age and number of children (IQ entered after SIP)

Neglect	b	s.e.	Beta	b	s.e.	Beta	b	s.e.	Beta
Maternal Age (years)	0.009	0.013	0.090	-0.02	0.013	-0.17	-0.02	0.012	-0.18
Number of Children	0.161	0.048***	0.457	0.16	0.046***	0.455	0.151	0.046***	0.428
Unrealistic Expectations				-0.02	0.013	-0.2	-0.02	0.013*	-0.24
Problem Solving Irrelevant				-0.01	0.044	-0.02	-0.03	0.046	-0.13
Negative Intent - Ambiguous Situations				0.025	0.00699***	0.387	0.024	0.009***	0.363
Cognitive Inflexibility				0.006	0.006	0.154	0.004	0.006	0.111
IQ							-0.01	0.006	-0.26
Constant	0.288	0.363		0.217	0.373		1.21	0.719	
R-Square	0.200	***		0.364	***		0.402	***	
R-Square Change				0.168	**		0.038		

Notes:

N = 49

* p < .10

** p < .05

 $P < .01$ Two-tailed tests
 Notes:
 $N = 49$
 *
 $P < .10$
 *
 $P < .05$

 $P < .01$ Two-tailed tests

Table 8

Composite Neglect regressed on four SIP variables and IQ controlling for mother age and number of children (IQ entered before SIP)

Direct Neglect	b	s.e.	Beta	b	s.e.	Beta	Beta	s.e.	Beta
Maternal Age (years)	-0.05	0.023**	0.31	-0.05	0.02**	-0.31	-0.05	0.019***	-0.34
Number of Children	0.129	0.084	0.22	0.071	0.076	0.121	0.078	0.07	0.133
IQ				-0.03	0.008***	-0.48	-0.01	0.01	-0.16
Unrealistic Expectations							0.009	0.02	0.055
Problem Solving Irrelevant							0.085	0.071	0.185
Negative Intent - Ambiguous Situations							0.014	0.014	0.127
Cognitive Inflexibility							0.02	0.01*	0.292
Constant	1.009	0.634		3.691	0.898		1.343	1.1	
R-Square	0.112	**		0.329	***		0.492	***	
R-Square Change				0.217	***		0.163	**	

Composite Neglect regressed on four SIP variables and IQ controlling for mother age and number of children (IQ entered after SIP)

Direct Neglect	b	s.e.	Beta	b	s.e.	Beta	b	s.e.	Beta
Maternal Age (years)	-0.05	0.023**	0.31	-0.05	0.019**	-0.34	-0.05	0.019**	-0.34
Number of Children	0.129	0.084	0.22	0.088	0.07	0.149	0.078	0.07	0.133
Unrealistic Expectations				0.012	0.02	0.079	0.009	0.02	0.055
Problem Solving Irrelevant				0.114	0.066*	0.251	0.085	0.071	0.185
Negative Intent - Ambiguous Situations				0.015	0.014	0.142	0.014	0.014	0.127
Cognitive Inflexibility				0.021	0.01**	0.319	0.02	0.01*	0.292
IQ							-0.01	0.01	-0.16
Constant	1.009	0.634		0.314	0.561		1.343	1.1	
R-Square	0.112	**		0.477	***		0.492	***	
R-Square Change				0.365	***		0.015		

Notes:

N = 49

* P<.10

** p<.05

P<.01 Two-tailed tests

Notes:

N = 49

*
P<.10

**
p<.05

P<.01 Two-tailed tests