

MARRIAGE, PARENTING, AND CHILD SELF-CONTROL

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Submitted to the Graduate Faculty of

Arts and Sciences in partial fulfillment

of the requirements for the degree of  
Masters of Science

University of Pittsburgh

2003

UNIVERSITY OF PITTSBURGH

FACULTY OF ARTS AND SCIENCES

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Associations between marital intimacy and child self-control, as indexed by compliance, frustration tolerance, and fewer externalizing behaviors were investigated in 176 families taken from a subsample of the NICHD Study of Early Child Care when the children were 36 months old. Maternal and paternal sensitivity were examined as potential mediators of the proposed relationships between marital intimacy and child self-control. Parent gender differences in the association between marital intimacy and maternal and/or paternal sensitivity were also explored. Mothers' and fathers' reports of marital intimacy were obtained at 1, 6, 15, 24, and 36 months old. A composite score was created for each parent by averaging all available ratings. Child self-control outcomes at 36 months were assessed using both observational and maternal report measures. Finally, parental sensitivity was observed during mother-child and father-child semi-structured play interactions at 36 months. Associations were examined after controlling for maternal and paternal education, child gender, and parent personality. Results indicated that fathers' ratings of marital intimacy were not related to any of the child self-control variables, nor were mothers' ratings after controlling for parent personality. Maternal sensitivity was negatively correlated with two of the three child self-control outcomes: active time engaged with the forbidden toy (frustration tolerance) and child externalizing behavior. Paternal sensitivity, however, was unrelated to the child self-control measures. Proposed mediational hypotheses could not be tested due to the lack of significant associations between marital intimacy and child self-control and marital intimacy and parental sensitivity. Implications of these findings for understanding the relationships between marital intimacy, parental sensitivity, and child self-control are discussed.

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## 1. INTRODUCTION

During the past several decades, developmental psychology has expanded to include theoretical and conceptual models that utilize ecological (Bronfenbrenner, 1979) and family systems perspectives (Minuchin, 1974; Sameroff, 1983) with the primary goal of increasing our understanding of child development. These perspectives stress the importance of examining individuals within their larger contexts (i.e., the family, the community, the culture), which are thought to influence and interact with individual characteristics in important and distinct ways. For example, in the family systems approach the family is viewed as a complex, integrated whole, in which individuals within the family are seen as interdependent. Each family member continually and reciprocally influences all of the other members within the family. Therefore, from this perspective no single family member can be completely understood outside the context of his or her family system (Minuchin, 1985).

In addition to this interdependence, family composition and organization are also seen as unique aspects of the family environment that may contribute to child development (Cox & Paley, 1997, Hinde, 1989). Within the family system there are several hierarchically organized subsystems including the marital subsystem, the parent-child subsystem, and the sibling subsystem. These dyadic and triadic family relationships are thought of not only as components of the larger family system but also as smaller discrete systems that are posited to make unique contributions to child development. Specifically, these smaller subsystems are thought to provide boundaries within the family system which enable members to learn rules for how to relate to each other within and across these subsystems.

Investigators have sought to explore and understand these dyadic and triadic family relationships by examining their separate and interactive roles in development. For example, researchers have investigated the marital relationship and its potential effects on child development. Studies have repeatedly shown an association between the quality of the marital relationship and young children's adjustment. Positive dimensions of marital interaction have been found to be correlated with better socioemotional functioning in children (Belsky, 1984; Cowan, Cohn, Cowan, & Pearson, 1996; Frosch, Mangelsdorf, & McHale, 2000; Goldberg & Easterbrooks, 1984; Miller et al., 1993). Specifically, children from families with more harmonious marriages are defined as more secure, autonomous, and sociable (Frosch, Mangelsdorf, & McHale, 2000; Goldberg & Easterbrooks, 1984).

In addition, a longitudinal study conducted by Howes and Markman (1989) found that premarital relationship quality was predictive of later child attachment security. Specifically, premarital relationships described as high in satisfaction, low in conflict, and high in communication quality were found to be associated with later secure attachment in offspring. The longitudinal design employed in this study enabled the researchers to tease apart the effects of the marriage on the child from the effects of the child on the marriage, thus bolstering the evidence that marital relations may have an effect on child development. Despite the evidence to support the importance of positive marriages in child development, much of the research has focused on the relationship between discordant marriages and child outcomes.

An abundance of literature has demonstrated a relationship between marital conflict and poor child outcomes such as insecure attachment, internalizing and externalizing behavior problems, poor peer relations, academic difficulties, and impaired problem-solving skills (Davies & Cummings, 1994; Emery, 1982; Fincham, 1994; Fincham, Grych, & Osborne, 1994; Frosch,

Mangelsdorf, & McHale, 2000; Gable, Belsky, & Crnic, 1992; Grych & Fincham, 1990; Katz & Gottman, 1993; Owen & Cox, 1997). For example, Frosch and Mangelsdorf (2001) reported that couples who displayed more marital conflict and less positive engagement during videotaped interactions had children who exhibited more behavior problems as rated by an independent observer. Additionally, Frosch and colleagues (2000) found that higher levels of marital conflict in infancy predicted lower rates of mother-child attachment security at age three.

These and earlier empirical findings on marital conflict and poor child outcomes prompted several researchers to propose additional theoretical models to explain this relationship. Building on attachment theory and the family systems perspective, Davies and Cummings (1994) proposed the Emotional Security Hypothesis. This hypothesis extends earlier attachment theory by suggesting that emotional security, which is thought to influence children's ability to regulate and organize their emotions, is derived not only from parent-child interaction but also from experiences in the family, including marital interactions.

The authors contend that certain outcomes of marital conflict may bolster a child's emotional security while other outcomes of conflict may contribute to their insecurity. For example, marital disputes which are easily resolved are thought to promote emotional security because negative emotions dissipate and because resolution enables parents to be more emotionally available to the child. In contrast, however, repeated exposure to unresolved conflict is thought to contribute to emotional insecurity through increased experiences with behavioral distress and negative appraisals of the safety of the environment as well as the experience of reduced self-regulation. Finally, although Davies and Cummings do not directly address the role harmonious marriages may play in children's emotional security, it is logical to conclude that children who experience harmonious marital interactions may experience greater emotional security because parents in these households may provide a more stable



emotional environment and be more readily available to meet children's emotional needs. In addition, children may regularly witness how their parents effectively organize and regulate their own emotions during these positive marital exchanges.

This conceptual model as well as those discussed earlier emphasize the importance of investigating multiple family relationships in an effort to understand child development. Additionally, ample empirical evidence exists to substantiate the existence of a clear association between marital relations and children's developmental outcomes. Despite support for this association, researchers have only recently begun to investigate the causal mechanisms or mediating variables that may account for this relationship. The current study will investigate whether there is an association between marital intimacy and young children's self control, as indexed by compliance, frustration tolerance, and fewer externalizing behaviors. Secondly, in the interest of examining several family subsystems and expanding the existing literature on marital relations and parenting, the study will examine parental sensitivity in both mother and father-child interactions to investigate whether maternal and/or paternal sensitivity accounts for the association between marital intimacy and toddlers' self control. Previous research involving marital relations, parenting, and child development has largely excluded the father-child relationship. Finally, this study will seek to explore potential parent gender differences in the relationship between marital intimacy and maternal and /or paternal sensitivity.

The remainder of this introduction will concentrate on providing a conceptual and empirical review of the marital, parenting, and child outcome literature with the goal of establishing a rationale for the mediational hypothesis that parental sensitivity will account for the relationship between marital intimacy and children's self-control. First, I will explore further the association between marital relations and child outcomes by discussing mechanisms proposed to explain this relationship.

Specifically, there will be a brief summary of direct links between marital functioning and the child's self-control, followed by a review of two potential indirect processes, coparenting and parenting that may mediate these relations. The section on indirect processes will provide support for the proposed link between marital relations and parenting. In addition, there will be a brief commentary on the possibility that these relationships between marital intimacy and parenting styles will vary by parent gender. This will be followed by a summary of relevant child outcome literature and its link to parenting variables. A dearth of research exists on the relationship between parenting behavior in fathers and developmental outcomes in preschoolers. For this reason, the majority of the literature review will focus on studies involving parenting behavior in mothers and child outcomes. Next, having established clear associations between marital relations and child outcomes, marital relations and parenting, and between parenting and child outcomes, I will review the current empirical support for parenting as a potential mediator of the association between marital relations and child outcomes. Finally, I will conclude with a brief discussion of marriage as a heterogeneous construct.

### **Process Variables**

The aforementioned studies on marital relations and child development provide sufficient evidence to support a relationship between aspects of the marital subsystem and individual differences in children's development. In the interest of further elucidating this relationship researchers have postulated that the marital subsystem may affect child development through two possible sets of processes: direct and indirect (Emery, Fincham, & Cummings, 1992). Direct processes occur when a child witnesses a marital interaction (either positive or negative) and subsequently has cognitive, emotional, and/or social responses to the interaction. Most research, however, has focused on the emotional and physiological arousal that result from observing the interaction. Indirect processes take place when the marital relationship influences another aspect of family

functioning (e.g., parenting) and this consequently affects the child. Research on marital conflict and child outcomes has provided further clarification of the role that direct and indirect processes may play in explaining this association.

### **Direct Processes**

Research on direct links between marital interaction and children's behavior has focused on the physiological, emotional and cognitive reactions children have when exposed to spousal conflicts. Specifically, experimental studies conducted by Cummings and colleagues have indicated that children show significantly more physiological arousal and emotional distress when they observe interadult conflict in comparison to interactions without conflict (Cummings et al. 1981; El-Sheikh et al. 1989). These studies lend support to the hypothesis that merely witnessing a conflictual interaction between adults may directly influence a child's affective state. It is important to mention, however, that most research on direct processes has not investigated physiological responses in younger children. In addition, research by Cummings and colleagues often utilizes methodology that involves videotapes of simulated conflicts between adults who are unrelated to the study child. Despite these shortcomings, research in this area seems to suggest that direct effects of marital conflict on child development are likely. For younger children, however, indirect processes may be more relevant to certain aspects of development. For example, research on emotion regulation and self-control has shown that external or contextual factors such as parenting play a paramount role in the facilitation of regulation in infants and toddlers (Calkins, 1994; Kopp, 1989). For this reason, research conducted on direct processes has limited relevance to the current study and therefore will not be discussed further.

### **Indirect Processes**

In addition to direct effects, researchers have investigated the possibility that children are influenced by marital relations indirectly through other family roles and relationships, specifically

coparenting and parenting. Coparenting emphasizes how both parents work together to parent their children while parenting focuses exclusively on the individual parent-child relationship. Each of these specific parenting processes has been hypothesized to provide unique influences on child development (McHale & Cowan, 1997); therefore, coparenting and parenting will be discussed separately.

The concept of coparenting emphasizes the degree to which parents work together to parent their children. The coparenting relationship has been conceptualized as reflecting how spouses garner support from each other when challenged by the many frustrations of parenthood. In this respect, the coparenting union can be viewed as an extension of the marital relationship. Researchers have found an association between marital relations and coparenting styles. Specifically, spouses in marriages with greater harmony and intimacy have been shown to engage in more sensitive coparenting behaviors such as mutual involvement with their child (Frank et al, 1986). In addition, several researchers have reported more pronounced parenting disagreements in maritally distressed couples (Belsky & Volling, 1987; Katz & Gottman, 1997; McHale, 1995). For instance, parents from distressed marriages were found to engage in more hostile-competitive coparenting behaviors and to exhibit more inconsistent parenting (McHale, 1995).

Another way marital relations are thought to affect child development is through their effects on parenting. The spill-over hypothesis has been proposed to explain how marital relations may affect child outcomes via parenting (Engfer, 1988, Erel & Burman, 1995). According to this hypothesis, the affect experienced in the marital relationship may spill over into the parent-child relationship and subsequently manifest itself through parenting. Studies have provided a wealth of empirical support for the spill-over hypothesis. For instance, spouses in more harmonious marriages have been shown to be more sensitive, supportive, and responsive to their children (Belsky et al., 1991; Frosch & Manglesdorf, 2001; Goldberg & Easterbrooks, 1984; Howes & Markman, 1989).

In contrast, research has indicated that spouses who experience marital dissatisfaction and conflict within their marriage exhibit a more hostile, intrusive, and disrupted parenting style with their children (Frosch & Manglesdorf, 2001, Kitzmann, 2000). Furthermore, parents who are frustrated, tired, and dejected about their marriage have been shown to be less emotionally available to their children (Katz & Gottman, 1996; Volling & Belsky, 1991). Finally, a recent meta-analysis of the interrelatedness of marital relations and parent-child relations by Erel and Burman (1995) found a significant and positive association between the quality of the marital relationship and the quality of the parent-child relationship. These data provide additional empirical support for the idea that aspects of parenting may serve as a potential mediator to explain the association between marital relations and child outcomes.

Another example of how these subsystems may interact and subsequently influence each other is provided by Belsky's "process model of parenting" (1984). In his model, Belsky proposed a multi-determined, ecological process model of parenting in which the parent-child relationship is influenced by several factors including contextual sources of stress and support within the family. Within these sources of stress and/or support, the marital relationship is considered the first-order or paramount source of support with its intrinsic potential for exerting both positive and negative effects on parenting (Belsky, 1984). This model has received a great deal of empirical support in both the marital and parenting literatures. Studies have demonstrated a clear relationship between marital and parenting quality (Erel & Burman, 1995; Frosch & Manglesdorf, 2001; Goldberg & Easterbrooks, 1984). When marriages were described as harmonious, parents displayed more positive parenting attributes whereas parents in conflicted marriages were shown to utilize more negative parenting styles. These results provide evidence for Belsky's suggestion that the marital relationship offers support and/or stress which may subsequently affect parenting.

## **Gender Differences**

Researchers have posited that the relationship between marital quality and parenting behavior may vary by gender. Specifically, it has been hypothesized that mothers may be more invested in parenting than fathers and therefore paternal parenting may be more vulnerable to contextual factors such as marital quality (Thompson & Walker, 1989). Similarly, researchers have suggested that mothers may be better able to compartmentalize family relationships thus limiting the effects the marital relationship may have on the mother-child relationship (Belsky et al. 1991). Some empirical evidence exists to substantiate the claim that the association between marital quality and parenting behavior may vary by gender.

Studies have shown that fathers' parenting may be more sensitive to the effects of the marital relationship (Belsky, 1990, Frosch et al., 2000; Goldberg & Easterbrooks, 1984; Katz & Gottman, 1996, Kerig et al, 1993). For example, Goldberg and Easterbrooks (1984) found that fathers observed in harmonious marriages displayed more sensitivity with their children but they did not find this association with mothers. Additionally, Belsky and colleagues (1991) reported that declines in marital quality from infancy through the preschool years were related to intrusive parenting behavior in fathers but not mothers. Furthermore, a study by Kerig et al. (1993) found that fathers who reported poorer marital adjustment exhibited more negative behaviors toward their children as compared to mothers who reported equally poor adjustment.

Despite these findings, several recent studies have found no differences in the relationship between marital quality and parenting in mothers and fathers (Frosch & Manglesdorf, 2001; Webster-Stratton & Hammond, 1999). Specifically, Webster-Stratton and Hammond found that the parenting of both mothers and fathers was negatively associated with marital conflict. Similar results were reported

by Frosch and Manglesdorf. More research is needed to discern if the relationship between marital quality and parenting varies by gender.

### **Parenting and Child Self-Control**

One hallmark of the early development of self-control is the ability to regulate emotion. Specifically, scholars have posited that the processes involved in emotion regulation are antecedents central to later self-regulation (Kopp, 1982), and the development of conscience (Kochanska, 1993). The construct of emotion regulation has been defined in a variety of ways. For instance, Kopp (1989) describes emotion regulation as a combination of processes and characteristics in the child that are utilized in managing heightened levels of positive and negative emotions. Alternatively, Calkins (1994) emphasizes a process orientation and defines emotion regulation as a set of strategies employed to handle emotional arousal so that successful interpersonal functioning is possible. In addition to defining emotion regulation, Kopp has outlined principles that are thought to guide the development of the emotion regulation system. Specifically, within child mechanisms are believed to activate emotion reactivity while external or contextual factors are thought to facilitate emotion regulation (Kopp, 1989).

Researchers have hypothesized that the exact processes used by children to regulate their emotions and behavior vary as a function of age related competencies and contextual resources (Calkins, 1994; Kopp, 1989). Theoretically the developmental course of emotion regulation has been described as a transition from primarily external regulation of emotion by adults to more internal sources of control (Calkins, 1994; Kopp, 1989). Specifically, young infants rely on their caregivers to facilitate their emotion regulation during the early months of life. This is followed by the development of self-regulation and self-control beginning around 24 months of age. Self-regulation is thought to exist when the child goes along with the expectations of her caregivers in the absence of external monitors (Kopp, 1989). Researchers have suggested that there are several relevant indicators of child

self-regulation or self-control, including compliance with requests, frustration tolerance, and an absence of externalizing problems (Kopp, 1989; Thompson & Calkins, 1996; Vaughn et al., 1984). Compliance with caregivers' requests is considered a sign of self-control because it involves the ability to activate, discontinue, or amend one's behavior based on parental standards (Kopp, 1982). Kochanska (1995) has conceptualized two motivationally distinct forms of compliance, committed and situational. Committed compliance is defined as the child fully accepting the caregiver's agenda, acknowledging it as their own, and enthusiastically following the caregiver's directives in a self-regulated way. Alternatively, situational compliance describes situations when children, although fundamentally cooperative, do not seem to fully embrace the caregiver's agenda. Kochanska has suggested that committed compliance is more indicative of self-regulation and internalization or conscience because the child's motivation to comply is not solely driven by their caregiver's agenda but also by their own sense of internal obligation.

Research has established a clear association between child compliance and parenting. Greater levels of compliance have been associated with parental styles that are less controlling, more responsive, and utilize reasoning and guidance (Crockenberg & Litman, 1990; Kuczynski et al., 1987, Parpal & Maccoby, 1985) whereas noncompliance has been shown to be related to intrusive, controlling, and harsh parenting practices (Belsky et al., 1996). For example, a study by Kochanska and Aksan (1995) investigated the relationship between parental attributes and committed and situational compliance. Mother-child interactions high in mutual positive affect predicted higher levels of concurrent committed compliance. Additionally, committed and situational compliance were found to be negatively correlated. Finally, another study by Kochanska and colleagues (1998) examined compliance, internalization and restraint as indicators of emerging regulation of conduct. Results showed that children who exhibited the ability to refrain from reaching for an attractive toy also had



higher scores on committed compliance. These findings suggest that further investigation of self-restraint in addition to compliance may provide additional insight into the development of self-control in young children.

Frustration tolerance has been identified as a separate indicator of self-control (Vaughn et al, 1984). According to Kopp (1982), the concept of self-control stresses children's ability to willingly monitor and adjust their ongoing behavior. Self-restraint or delay of gratification studies tap into this element of self-control because they require children to voluntarily direct their behavior to meet the goals of either their parent or an experimenter despite their own divergent interests. Studies on frustration tolerance have reported that children's abilities to exercise self-control during delay of gratification tasks increase with age (Kochanska et al., 1996; Vaughn et al., 1984).

In addition, research investigating frustration tolerance has reported an association between parenting and this index of self-control. Specifically, Kochanska and Aksan (1995) reported that children who showed mature conduct while alone with forbidden objects had mother-child interactions that were described as high in mutually positive affect. Similarly, the NICHD Early Child Care Research Network (1998) reported that more responsive and positive mothering during the first three years was related to greater ability to resist temptation by children at age three. Just as these studies have highlighted the relationship between positive parenting styles and an increased ability to tolerate frustration, research has also shown that negative and controlling parenting styles are associated with more impulsivity and decreased frustration tolerance in children (Olson, Bates, & Bayles, 1990; Silverman & Ragusa, 1992). These results emphasize how less than optimal parenting may contribute to poor self-regulatory skills. Furthermore, diminished inhibitory control and increased impulsivity have been shown to be related to other indices of poor self-control such as aggressive conduct or externalizing behavior problems (Eisenberg et al., 2001, Eisenberg et al., 1994).

Researchers have argued that externalizing behaviors may be closely related to self-regulation and control (Block & Block, 1980; Eisenberg et al., 2001). Specifically, children with externalizing problems are seen as having a self-control deficit, explicitly undercontrolled behavior, while children with an absence of externalizing behavior problems are thought to possess greater regulatory abilities. This view is consistent with Thompson's functional definition of emotion regulation (1994), which emphasizes the processes of monitoring, maintaining, and heightening or inhibiting arousal as central in the development of self-regulation. Based on this description, children with externalizing problems are thought to have difficulty monitoring and regulating their emotional states and as a consequence, they act out behaviorally.

A number of researchers have speculated that the regulatory deficits children experience at later ages may be driven by earlier contextual experiences, particularly parent-child encounters (Kopp, 1989; Thompson & Calkins, 1996). Studies which have investigated behavior problems in young children have reported an association between parenting styles and later behavior problems (Belsky et al., 1996; Campbell et al., 1996; Shaw, Keenan, & Vondra, 1994). For example, maternal unresponsiveness, harsh parenting and punitive discipline practices have been linked with externalizing problems in young children (Campbell, 1995; Greenberg et al., 1993; Shaw et al., 1994). In addition to evidence of a concurrent relationship between negative parenting and behavior problems, a study by Campbell and colleagues (1994) found that early harsh parenting is related to continuing behavior problems in children. In particular, maternal negative control observed in the laboratory and maternal reports of child behaviors at age four were predictive of independent externalizing behavior ratings by the children's teachers when they were six. These results suggest that early negative parent-child experiences may contribute to prolonged problems with children's self-control. Alternatively, however, it is possible that the child's early behavior problems may have contributed to the early

negative parenting styles. Most theories of child development acknowledge that there are bi-directional influences between parents and children that are likely to contribute to their development (Rutter 1997; Sameroff, 2000). The correlational design employed by Campbell and colleagues does not allow for delineation of causal mechanisms; therefore, we must consider both parent and child effects in explaining the association between these variables.

### **Parenting as a Mediator**

As previously reviewed, research has demonstrated a clear association between marital relations and child outcomes. In particular, children from families with intimate and harmonious marriages were shown to have better socio-emotional functioning, while children from families with conflictual and discordant marriages were found to have more difficulties with self-regulation such as higher levels of externalizing problems and higher rates of noncompliance. Furthermore, marital relations were also shown to be associated with parenting practices. Specifically, spouses in more harmonious marriages were found to be more sensitive, responsive, and supportive to their children whereas couples with conflicted marital relations displayed more inconsistent and disrupted parenting styles. Finally, evidence for a relationship between parenting practices and child self-regulation was presented. Specifically, warm and sensitive parenting was associated with greater child compliance and frustration tolerance. In contrast, intrusive and controlling parenting styles were linked to poor child self-control.

In summary, the associations found between marital relations and child outcomes, marital relations and parenting, and parenting and child outcomes suggest that parenting may mediate the relationship between marital relations and child outcomes. Research investigating this mediational hypothesis has only recently emerged in the literature (Frosch et al., 2000; Frosch & Manglesdorf, 2001; Kitzmann, 2000; Webster-Stratton & Hammond, 1999). Results from these studies have been

mixed. Webster-Stratton and Hammond (1999) found that mothers' critical and unemotional parenting style mediated the relationship between marital conflict and child conduct problems. Additionally, Frosch and colleagues (2000) reported that the association between marital conflict and preschoolers' insecure attachment was mediated by less supportive and hostile maternal parenting behavior. In contrast, however, paternal parenting practices did not serve as a mediator of the relationship between marital conflict and child outcomes in either of these studies. Additionally, Frosch and Mangelsdorf (2001) reported that associations between marital behaviors and child behavior problems were not accounted for by maternal or paternal parenting behaviors.

A few limitations in the above research should be noted. First, the majority of these studies do not include measurement and analyses of positive or harmonious aspects of the marital relationship. These dimensions of the marriage are often overlooked and may have distinct associations with parenting and child outcomes. Future research should seek to incorporate measures of positive marital attributes instead of making the assumption that the absence of marital conflict is sufficient. Second, most of the literature on marriage, parenting, and child outcomes has focused primarily on mother-child relations and has not included fathers. In conclusion, results from the few studies investigating parenting behavior as a potential mediator of the relationship between marital relations and child outcomes have been equivocal. More research is needed to discern the role, if any, that parenting practices may play in explaining the link between marital relations and child outcomes as well as to clarify the relationship that positive aspects of the marriage and unique father-child interactions may have on this mediational hypothesis.

### **Marriage as a construct**

Marriage is a heterogeneous construct that has been measured in a variety of ways in the literature. Researchers have assessed the marital relationship via both global (i.e., satisfaction, and

adjustment) and specific (conflict, harmony, intimacy, and parental support) dimensions. While, by far, the most frequently studied aspect of marriage includes more global elements such as marital quality, recent research suggests that distinct elements of the marital relationship (i.e., conflict, harmony) may be important in explaining the association between marital relations and various parenting and child outcomes.

The present study extends earlier research on marital relations and child development by investigating positive marital dimensions as well as by examining both the mother-child and father-child relationships. The assessments conducted with mothers, fathers, and children allowed for the examination of the association between the parent-child relationship and marital relationship in both mothers and fathers. Also, in addition to self-report measures of marital intimacy and maternal reports of child noncompliance and externalizing behaviors, the study included observations of mother-child and father-child interactions as well as an independently rated child self-control procedure.

The following hypotheses were examined:

1. Marital intimacy composite scores for both mothers and fathers derived from a self-report measure completed at 1, 6, 15, 24, and 36 months will be associated with measures of child self-control at 36 months. These include: compliance during a laboratory clean-up task, engagement time with a forbidden toy during a frustration task conducted in the lab, and maternal reports of externalizing behavior problems. These associations will be apparent even after various demographic variables (e.g., maternal and paternal education, child gender, income-to-needs ratio, parent personality) are controlled. It is expected that children in families with greater marital intimacy will exhibit more self-control as reflected in increased compliance, lower ratings of externalizing behaviors, and less time engaged with the forbidden toy.

2. Maternal and paternal sensitivity observed during a parent-child play interaction at 36 months will be associated with marital intimacy composites for both mothers and fathers. Specifically, mothers and fathers who rate their marriages as more intimate will also be more sensitive when observed at play with their child.
3. Maternal and paternal sensitivity at 36 months also will be associated with measures of the child's self-control at 36 months. It is expected that children whose parents are more sensitive will be more compliant, engage in less time touching the forbidden toy, and have fewer externalizing behavior problems.
4. Maternal and paternal sensitivity at 36 months will mediate the association between marital intimacy and measures of child self-control at 36 months for both mothers and fathers.
5. Parental gender differences will be explored by examining the strength of the associations between marital intimacy and parental sensitivity for mothers and fathers.

## 2. METHOD

### *Participants*

The sample for this study is comprised of a subset of families from an on-going, multi-site study of child development, the NICHD Study of Early Child Care. Participants for the NICHD Study of Early Child Care were recruited throughout 1991 from hospitals located in or near Little Rock, AR; Irvine, CA; Lawrence, KS; Boston, MA; Philadelphia, PA; Pittsburgh, PA; Charlottesville, VA; Morganton, NC; Seattle, WA; and Madison, WI. Families were excluded from the sample if: (1) the mother was under 18 years of age, (2) the mother did not speak English, (3) the family had current plans to move from the area, (4) the mother had multiple births, (5) the child had an obvious disability or illness immediately following birth, or (6) the mother had a current history of substance abuse. Upon completion of the recruitment phase, a total of 1,364 families were enrolled into the study during an initial home visit conducted when the infants were one month old. The final sample was comprised of 24% ethnic minorities, 14% single mothers, and 11% mothers without a high school degree.

From the ten recruitment locations mentioned above, three of the research sites (Arkansas, Pittsburgh, and Wisconsin) obtained additional funding to collect observational and interview data with fathers at 36 months. Households were approached about participation in this additional protocol following initial enrollment if the husband or partner lived in the same household with the mother and the child at the time of recruitment.

Data from a subset of subjects who participated in the father protocol were analyzed. Families were included if: (a) mothers and/or fathers completed the Love and Relationships Part A: Personal Assessment of Intimacy in Relationships measure (PAIR) at least once during the first 36 months of the study and were married and/or living with their partner, (b) both mothers, fathers and their child participated in the relevant home and laboratory observations at 36 months, and (c) child outcome data were available on at least one of the measures of interest, namely the Child Behavior Checklist (CBCL), the Adaptive Social Behavior Inventory (ASBI), ratings from the Clean-Up Task (compliance), and the Self Control Procedure (frustration tolerance) conducted during the lab visit.

A total of 176 families (89 girls, 87 boys) from the three sites met the above criteria. The racial composition of the children in the final sample consisted of 92% Caucasian, 6% African American, and 2% other. Families included in this study represented a fairly broad range of socioeconomic and education levels. Approximately 33% of the families had very low incomes, as indicated by an income-to-needs ratio of less than 2.0. Education levels for mothers and fathers ranged from less than a high school diploma to postgraduate work. Demographic information on the final sample is available in Table 1.

Attrition analyses, comparing eligible households who did not participate in both the interview and observation components of the father protocol at 36 months ( $N = 228$ ), with those families who met the above study criteria ( $N = 176$ ) were conducted. Families included in the present study had a significantly higher average income-to-needs ratio ( $M = 3.14$  vs.  $2.17$ ,  $t(395) = 4.06$ ,  $p < .001$ ). In addition, families who participated in both the interviews and observations reported more education for mothers,  $M = 14.87$  vs.  $13.50$ ,  $t(401) = 5.80$ ,  $p < .001$ ; and for fathers  $M = 14.95$  vs.  $13.7$ ,  $t(353) = 4.62$ ,  $p < .001$ . Hence, this subsample is biased toward more education and financial resources.

### *Procedure*



Home visits were conducted when the study children were one and six months old. During the one-month visit, demographic information such as maternal education level, mother's partnered status, and family's income to needs ratio (total annual family income divided by the poverty threshold for the family's size) was collected. At the six month home visit, a personality inventory (the NEO Five Factor Inventory) was also completed by both mothers and fathers. Finally, marital intimacy was rated by both parents with a brief self-report measure, the Love and Relationship Part A: Personal Assessment of Intimacy in Relationships (PAIR), when the children were 1, 6, 15, 24, and 36 months old.

Within two months of the children's third birthday, each mother and child dyad was invited to come to the laboratory and take part in a series of assessments and structured activities. The entire laboratory visit with the mother and child was videotaped through a one-way mirror. Measures of child non-compliance and frustration tolerance as well as maternal sensitivity were obtained during observed mother-child interactions which included semi-structured play, a clean-up task, and a child self-control procedure. Moreover, mothers completed the Adaptive Social Behavior Inventory (ASBI, Hogan, Scott, & Bauer, 1992) to assess disruptive behavior and the Child Behavior Checklist (CBCL 2/3, Achenbach, Edelbrock, & Howell, 1987) to measure externalizing behavior. Finally, paternal sensitivity was assessed at 36 months during a videotaped father-child play activity in the child's home.

### *Measures*

#### *I. Demographics and Parent Personality (Control variables)*

Marital/partner status: The mother's marital or partnered status (either married or living with a domestic partner vs. all other) was determined during interviews at 1, 6, 15, 24, and 36 months. Only couples who remained married or living with a domestic partner from 1 to 36 months were included in

the final sample. Of the 176 families in the final sample, 94% were married and 6% were living with a partner.

Maternal education: The number of years in school completed at the time of recruitment was used as an index of maternal education.

Paternal education: The number of years in school completed at the time of the one-month home visit was used as an index of paternal education.

Average income-to-needs ratio: Family income and size was recorded during home visits conducted when the children were 1, 15, 24, and 36 months old. Total household income including government payments was divided by the appropriate poverty threshold for that year based on household size (U.S. Department of Labor, 1994; NICHD Early Child Care Research Network, 1999). Income-to-needs ratios were averaged across the two assessment periods (1 and 36 months) to create an index of the each family's economic status. Scores of  $\leq 2.0$  were indicative of poverty.

Parent Personality: Mothers and fathers completed three subscales of the NEO Five Factor Inventory, a short form of the NEO Personality Inventory (Costa & McCrae, 1989) at the 6 month home visit. The measure utilized 5-point ratings on a Likert scale (1 = strongly disagree, 5 = strongly agree) to assess Neuroticism (12 items), Extroversion (12 items), and Agreeableness (12 items). The subscale of neuroticism measures adjustment versus emotional instability and delineates individuals prone to psychological distress. The extraversion subscale assesses a person's quantity and intensity of interpersonal interaction and their capacity for joy. Finally, the agreeableness subscale measures how good-natured, trusting, helpful, and straightforward an individual may be. A positive personality composite was created for each parent by summing their extroversion and agreeableness scores and then subtracting their neuroticism score. The Cronbach alphas for the personality composite were .82 for fathers and .63 for mothers in the larger sample.

Previous research has found associations between psychological well-being and marital quality (Belsky & Pensky, 1988; Cox et al., 1989). Similarly, correlations have been reported between better psychological adjustment and sensitive, supportive, and positive parenting styles (for review see Belsky, 2002). Therefore, because psychological well-being has been shown to be related to both the predictor and mediator variables in this study, it will be included as a control variable in this study. By controlling for this potentially confounding variable, the results of this study will be more robust.

## *II. Marital measure (Predictor variable)*

Marital Intimacy: Mothers and fathers completed a self-report scale assessing marital intimacy; the Love and Relationship Part A: Personal Assessment of Intimacy in Relationships (PAIR) (M.T. Schaefer & Olson, 1981) at 1, 6, 15, 24, and 36 months. The measure contained 6 items (rated on a 1 to 5-point Likert scale) that were used to assess positive aspects of relationship quality such as emotional support. Higher scores reflected greater marital intimacy. Cronbach alpha scores ranged from .80 to .87 ( $M = .85$ ). The PAIR has been shown in previous research to be positively correlated with measures of marital satisfaction (Shaefer & Olson, 1981; Greeff & Malherbe, 2001). Marital Intimacy ratings were found to be moderately to highly correlated over time for spouses. Pearson correlation coefficients ranged from .46 to .69 for mothers and .50 to .70 for fathers.

A composite score was created for each spouse by taking the average of available marital intimacy ratings at 1,6,15,24, and 36 months. The majority of fathers ( $N = 136$ ) and mothers ( $N = 141$ ) completed the marital intimacy scale 3 or more times from 1 to 36 months. A subset of the sample ( $N = 33$  fathers), however, completed only one marital intimacy rating. This was due in part to budgetary constraints that limited the collection of marital data at specific sites. For example, the Arkansas site did not collect marital intimacy data with fathers at 36 months but did with mothers. In cases where a single rating of marital intimacy exists that score will serve as the marital composite for that spouse.

The Pearson correlation coefficients mentioned above suggest that a single intimacy score is moderately to highly related to intimacy ratings at other time points. This provides some rationale for using a single intimacy rating in place of the marital composite.

### *III. Maternal and Paternal Sensitivity (Mediator variables)*

Maternal sensitivity: In the current study, the 36-month mother-child interaction were examined to parallel the father-child interaction data collected at 36 months. During the 15 minute semi-structured play activity at the 36-month lab visit, mothers were instructed to have their toddlers play with each of the toys in three containers. The first box held a picture book, Barnyard Toys, by Deborah Duffy. The second container had a toy stove and related objects, and the third contained a toy house (Vandell, 1979). The interactions were recorded on videotape and sent to a central, non-data collection location for coding. The independent coders received extensive training and supervision throughout the entire coding process. Coders were blind to any information about the families and were randomly assigned tapes to review (NICHD Early Child Care Research Network, 1999).

Mothers' behavior during the 36-month interaction was rated on the following three scales: respect for autonomy, supportive presence and hostility (reversed). Respect for the child's autonomy was shown when the mother acknowledged the child's intentions and displayed respect for the child's individuality. High scores on supportive presence were indicative of emotional support, encouragement, and positive emotional regard. Finally, hostility toward the child signaled the expression of anger, discounting, or rejection of the child. Seven point ratings on the three scales were aggregated to form a composite score of maternal sensitivity during play. The intraclass correlation indicating inter-observer reliability for the maternal sensitivity composite at 36 months was .84. The Cronbach alpha was .78, (NICHD ECCRN, 1999).

Paternal sensitivity: During the 36-month home visit, fathers were instructed to have their toddlers play with each of the toys in three boxes during 15 minutes of semi-structured play. The first box contained a set of washable markers, stencils, and paper. Box 2 had a set of dress-up clothes and a cash register and box 3 held a set of Duplo building blocks with a picture of a model constructed from the blocks. The interactions were recorded on videotape and sent to the same, non-data collection location for coding as the mother-child tapes. Identical procedures for coding were followed. The same three aspects of fathers' sensitivity (supportive presence, respect for the child's autonomy, hostility toward the child) were evaluated using 7-point rating scales. A paternal sensitivity composite was created by averaging the three ratings after reversing hostility. Interrater agreement was .90, .83, and .89 for the ratings of supportiveness, respect for autonomy, and hostility, respectively. The Cronbach alpha for the 36 month paternal sensitivity composite was .75.

#### *IV. Child outcome measures*

Maternal reports of children's behavior problems: Maternal reports of children's externalizing behavior problems were assessed with the CBCL 2/3 (Achenbach, Edelbrock, & Howell, 1987) when the children were 36 months old. The mother rated how characteristic of the child each behavior was over the past 2 months; ratings were made on a 3-point scale (0 = not true, 1 = sometimes true, 2 = very true). The CBCL 2/3 was scored according to norms provided by Achenbach et al. (1987). 26 items reflecting aggressive and destructive behavior make up the Externalizing scale.

Maternal reports of children's disruptive behavior were obtained using the Disrupt scale of the Adaptive Social Behavior Inventory (ASBI, Hogan, Scott, & Bauer, 1992) at 36 months. The Disrupt scale is comprised of 7 items which measure agonistic and resistant behavior. Each item is rated on a 3-point scale for frequency of occurrence (1= rarely, 2= sometimes, and 3= almost always). The CBCL Externalizing scale and the ASBI disrupt scale were correlated .57

in the final sample at 36 months. A composite score for behavior problems was formed by averaging the standard scores on maternal reports of child behavior problems from the Externalizing scale of the CBCL (Achenbach et al., 1987) and the Disrupt Scale of the ASBI (Hogan et al., 1992) (see NICHD Early Child Care Research Network, 1998).

*Laboratory Assessments at 36 months:*

Compliance during the laboratory clean up task: At the end of the semi-structured mother-child play activities conducted in the lab at 36 months, the research assistant handed the mother the containers for the toys and instructed her to have the child participate in cleaning up the toys. No additional instructions were given to the mothers at this time. The child and his/her mother were videotaped for the next 5 minutes or until all the toys were put away (NICHD Early Child Care Research Network, 1998). Independent coders who were blind to the parent's sensitivity ratings and family information coded the videotapes for child compliance during the clean-up task. Child behavior was rated on 5-point global scales which were developed for the study (1 = not at all characteristic to 5 = very characteristic). Compliance and three forms of non-compliant behavior (assertive non-compliance, passive non-compliance, defiance) were rated in reference to general or explicit directions from the mother. Dyadic cooperation was also coded on a single 5-point scale to reflect the degree of mutuality, cooperation, reciprocity, and smoothness of interaction between the mother and child. Reliability estimates of these ratings at 36 months were determined using the procedures suggested by Winer (1971), and were .92 for compliance, .84 for assertive non-compliance, .86 for passive non-compliance, and .82 for defiance, and .91 for dyadic cooperation (NICHD Early Child Care Research Network, 1998). A composite score was created for the Lab Clean-up Compliance by summing the standard scores from the compliance, dyadic cooperation, assertive non-compliance (reversed), and

passive non-compliance (reversed) scales. The non-compliant behavior, defiance, was rarely observed and therefore was not included in the final compliance composite.

Self-control during the laboratory Forbidden Toy task: Approximately half way through the 36-month lab visit with each mother and child, the research assistant initiated the Forbidden Toy Task. The task was designed to assess the child's ability to resist temptation while interacting with someone other than their parent, namely the experimenter. While his/her mother worked on questionnaires, the child and the RA briefly played with a new attractive toy (Ski Boat Crocs by TOMY). This was followed by a waiting period in which the RA told the child that he could play with any of the other toys that were in the room but should not touch the Ski Boat Crocs until the RA said it was ok. The toy was then placed an arm's length away from the child while the RA did paperwork in the corner of the room. Videotapes of the forbidden toy task were scored by blind, independent coders at a non-data collection site. Active engagement time (scored whenever the child manipulated and played with the forbidden toy) was used in the current analyses. The reliability estimate for active engagement time was calculated using repeated measures formulations presented by Winer (1971) and was .98

### 3. RESULTS

Results are organized into four sections. First, preliminary analyses conducted on demographic, predictor, mediating, and outcome variables are presented. Second, to address the hypothesized associations between marital intimacy, parental sensitivity, and parent personality, descriptive statistics and correlations among parenting variables are discussed. In the third section, analyses of the proposed relations between marital intimacy, parental sensitivity, and child self-control are reported. Finally, the fourth section examines parental sensitivity as a potential factor mediating the association between marital intimacy and child self-control.

Since most of the parenting variables were negatively skewed (marital intimacy and parental sensitivity) and the majority of the child outcome variables were either positively or negatively skewed (active engagement time, lab cleanup compliance) logarithmic transformations were used to improve the distributions of these variables. The standard skewness score (skewness divided by its standard error) may be used to evaluate the assumption of normality for a given variable (Hopkins & Weeks, 1990). In smaller samples, a standard skewness score of less than 2.5 is generally accepted as having supported the normality assumption. Based on this criterion, logarithmic transformations produced normal distributions for all of the above-mentioned variables. For ease of interpretation, means and standard deviations are presented as untransformed numbers in the tables.

#### **Preliminary Analyses**

*Correlations between Demographics, Predictors, Mediators, and Outcomes*



Zero-order correlations were calculated to determine associations between demographic variables (education and income) and marital intimacy, child self-control, and parental sensitivity and are presented in Table 2. Maternal education was significantly correlated with observed maternal sensitivity, and negatively correlated with maternal report of child externalizing behavior and observed child engagement with a forbidden toy. In addition, a significant, positive correlation was found between maternal education and maternal self-reported personality. Similarly, paternal education was associated with observed father sensitivity and paternal self-reported personality and negatively related to maternal report of child externalizing behavior. Finally, maternal education was associated with father personality and sensitivity, and likewise, paternal education was correlated with maternal sensitivity and personality.

Overall, families with higher educational levels reported more positive marriages, greater psychological adjustment, and were more sensitive with their children. Since maternal and paternal education were related to several parenting, mediating, and child outcome variables, they were controlled in all regression analyses. Because the average income-to-needs ratio was correlated with the same predictor and outcome variables as the education variables, and it was moderately correlated with both maternal ( $r = .50, p < .00$ ) and paternal education ( $r = .58, p < .00$ ), only the education variables were controlled in regression analyses.

Girls differed from boys on two variables. First, t-tests revealed that mothers were significantly more sensitive with their daughters ( $M = 17.99$ ) than with their sons ( $M = 17.17$ ),  $t(174) = -2.27, p < .03$ . Second, girls ( $M = 30.86$ ) displayed significantly more ability to resist temptation on the delay of gratification task than boys ( $M = 51.90$ ),  $t(163) = 2.48, p < .01$ , as reflected in less time engaged with the forbidden toy. Subsequently, gender was controlled in all regression analyses involving these variables.

### *Correlations among Parenting Variables*

Descriptive statistics and zero-order correlations among the measures of marital intimacy, parental sensitivity, and parent personality are presented in Table 3. Marital intimacy was modestly but significantly related within couples,  $r(176) = .26, p < .01$ . Specifically, wives who reported greater marital intimacy were more likely to have husbands who also reported greater marital intimacy. A similar relationship was found between maternal and paternal sensitivity. Children who had mothers who were more sensitive during observed play, also had fathers who were rated as more sensitive during father-child play interactions,  $r(176) = .22, p < .01$ . Despite these within couple associations, no significant relationships were found between marital intimacy and parental sensitivity for either mothers or fathers. Thus, the hypothesis that mothers and fathers who rated their marriages as more intimate would also be more sensitive when observed at play with their children was not supported. Furthermore, because no relationship was found between measures of marital intimacy and parental sensitivity the examination of parent gender differences as a moderator of this association was not possible.

Relationships among measures of parent personality, marital intimacy, and parental sensitivity were also explored. As can be seen in Table 3, parent personality composite scores were significantly related within couples. Wives who described themselves as low in neuroticism but high in agreeableness and extraversion tended to have husbands who reported similar dispositions. Parent personality was also found to be significantly associated with marital intimacy scores for both spouses. Specifically, maternal personality (more positive and outgoing) was related to maternal report of greater marital intimacy, while paternal personality was similarly related to paternal report of marital intimacy. Although correlations were found between measures of parental personality and marital intimacy for both mothers and fathers, this was not the case for parental personality and observed

parental sensitivity. Only maternal personality scores and maternal sensitivity were significantly related,  $r (175) = .35, p < .01$ , with more positive mothers observed to be more sensitive with their children.

Finally, paired t-tests were conducted to determine if the means for each parenting variable significantly differed for mothers and fathers. No significant differences were found for either parental sensitivity or parent personality. However, t-tests revealed that mothers were significantly more likely to report their marriage as intimate ( $M = 4.43$ ) in comparison to fathers ( $M = 4.19$ ),  $t (176) = -3.39, p < .001$ .

#### *Associations between parenting variables and child self-control*

Descriptive statistics and zero-order correlations among the three child self-control variables are presented in Table 4. The externalizing behavior composite was modestly but significantly correlated ( $p < .05$ ) with both the lab clean-up compliance and the active time engaged with the forbidden toy. These findings lend validity to the argument that these child outcomes each measure some aspect of child self-control.

Further relations were examined between these child self-control variables and various predictor (marital intimacy), mediator (parental sensitivity), and control (parental personality) variables. Two primary hypotheses were proposed to explore these relationships. First, it was hypothesized that higher marital intimacy scores in both mothers and fathers would be associated with better child self-control at 36 months as reflected in increased compliance, less time engaged with the forbidden toy, and lower ratings of externalizing behaviors. The second hypothesis predicted that both maternal and paternal sensitivity at 36 months would be related to each measure of child self-control at 36 months. Pearson correlation coefficients were used to investigate these primary hypotheses. The results from these analyses are presented in Table 5 and discussed for each outcome measure below.

### *Lab Clean-up compliance*

The lab clean-up compliance measure was not significantly related to marital intimacy, parental sensitivity or parental personality in either mothers or fathers. Therefore, the proposed hypotheses for this index of self-control were not supported and this measure was not included in any further analyses.

### *Forbidden Toy Task*

Active engagement time with the forbidden toy at 36 months was not significantly related to reports of marital intimacy or personality in either mothers or fathers. In contrast, maternal sensitivity was significantly and negatively correlated with active time engaged with the forbidden toy,  $r(165) = -.36, p < .01$ , indicating that when mothers were more sensitive, their children were better able to resist the attractive toy. However paternal sensitivity and active engagement time were unrelated.

### *Externalizing Behavior*

Marital intimacy as reported by mothers was negatively related at a modest level to maternal reports of child externalizing behavior at 36 months,  $r(175) = -.17, p < .05$ . However, no significant correlation was found between father reported marital intimacy and child externalizing behavior at 36 months. A similar pattern was found for parental sensitivity and child externalizing behavior. Maternal sensitivity at 36 months was significantly and negatively associated with child externalizing behavior at 36 months,  $r(175) = -.31, p < .01$ , while paternal sensitivity at 36 months was not related to maternal reports of child externalizing behavior. Finally, significant negative correlations were found between both parent's self-reported personality characteristics and child externalizing behavior at 36 months as rated by mothers.

In summary, paternal marital intimacy was not related to any of the child self-control variables at 36 months and maternal marital intimacy was negatively related at a modest level ( $p < .05$ ) only to child externalizing behavior at 36 months. Similarly, paternal sensitivity at 36 months was not

associated with any of the child self-control variables at 36 months. Maternal sensitivity at 36 months, however, was moderately ( $r = -.31$  to  $-.36$ ) and negatively correlated with active time engaged with the forbidden toy and child externalizing behavior. These results suggest that mothers who are more sensitive during observed play with their children are more likely to have children who have better self-control at 36 months as indexed by greater restraint during the forbidden toy task and fewer mother-reported externalizing behaviors.

Lastly, parent personality was unrelated to either lab clean-up compliance or active engagement time with the forbidden toy, but both mothers' and fathers' personality scores were significantly and negatively associated with mother's rating of child externalizing behavior. This suggests that mothers and fathers who describe their personalities as less neurotic and more outgoing and congenial are more likely to have children who exhibit fewer externalizing behaviors according to maternal report.

### **Predictive Analyses**

Regression analyses were conducted only on significant correlations between family measures and child outcomes to determine if they continued to predict child self-control at 36 months after controlling for parents' educational level and parent personality.

#### *Predicting Child Self-Control from Marital Intimacy*

A hierarchical regression equation was used to examine whether maternal marital intimacy predicted child externalizing behavior at 36 months after controlling for education and maternal personality. The demographic variable of maternal education was entered first, followed by maternal personality in the second block, and maternal marital intimacy in the final block. Table 6 presents the results for this regression analysis, including beta weights for each variable entered, percentage of the variance explained by each block (cumulative  $R^2$ ) and the change in  $R^2$ . The results indicated that

maternal personality was a significant predictor of maternal reports of externalizing behavior,  $F(4, 169) = 8.52, p < .001$ , accounting for 7% of the variance, while maternal marital intimacy did not add to the prediction of maternal reported child externalizing behaviors. As already noted, mothers who rated themselves as less neurotic and more open and outgoing also rated their children as exhibiting fewer externalizing behaviors.

#### *Predicting Child Self-Control from Parental Sensitivity*

Regression analyses also were conducted to determine whether maternal sensitivity predicted child self-control at 36 months after controlling for demographics (including child gender), and parent personality. The first set of analyses explored the relationship between maternal sensitivity and child externalizing behavior. Demographics were entered first, followed by maternal personality and in the last block maternal sensitivity. Results are summarized in table 7. Maternal personality and maternal sensitivity were both significant predictors of maternal reports of child externalizing behavior,  $F(4, 169) = 8.03, p < .001$ , accounting for a total of 10% of the variance. Mothers who were more sensitive during mother-child interactions and who rated themselves as less neurotic and more extraverted and agreeable reported that their children had fewer externalizing behavior problems.

The second set of regression analyses examined the association between maternal sensitivity and child self-control as measured by the child's engagement with a forbidden toy. Variables were entered in the same order with demographics first, maternal personality second, and maternal sensitivity last. As shown in table 8, maternal sensitivity was a significant predictor of the active time a child spent engaged with the forbidden toy,  $F(4, 159) = 6.82, p < .00$ , but maternal personality was not. Specifically, mothers who were observed to be more sensitive with their children had children who exhibited more self-control as evidenced by their limited time engaged with the forbidden toy.

In summary, predictive analyses supported the hypothesis that higher maternal sensitivity is related to children's self-control as indexed by fewer externalizing behavior problems and better restraint during a forbidden toy task. However, the hypothesis that higher maternal marital intimacy would be related to fewer maternal reported child externalizing behaviors was not supported after demographics and maternal personality were controlled. Instead, maternal personality was found to predict to fewer child behavior problems as reported by mothers.

*Mediating effects of parental sensitivity in relations between marital intimacy and child self-control outcomes*

The original goal was to examine maternal and paternal sensitivity as potential mediators of the relationship between marital intimacy and child self control. However, because the relationships between marital intimacy and parental sensitivity were not significant, nor were there significant relationships between marital intimacy and two of the three child outcomes the mediational hypotheses could not be tested.

#### 4. DISCUSSION

The current study examined the relationships among marital intimacy and child self-control including compliance, frustration tolerance, and externalizing behaviors. Parental sensitivity was also examined as a potential mediator of these associations. Lastly, potential parent gender differences were explored in the relationship between marital intimacy and parental sensitivity. All relationships were examined before and after taking into account the effects of demographic and parent personality variables.

Greater marital intimacy as reported by mothers was associated with fewer maternal reported child externalizing behaviors. In addition, greater observed maternal sensitivity was related to decreased time engaged with the forbidden toy and fewer maternal reported child externalizing behaviors. Despite these findings, marital intimacy was not related to parental sensitivity in either mothers or fathers and therefore the mediational hypotheses could not be tested. Additionally, father reported marital intimacy and observed paternal sensitivity were not associated with any of the child self-control outcome variables.

The finding that greater marital intimacy reported by mothers was significantly and negatively related to fewer maternal reported child externalizing behaviors is consistent with previous literature on positive marital relations and child outcomes. Specifically, researchers have reported a relationship between positive affect in the marital relationship and fewer child



externalizing behavior problems (Cowan, Cohn, Cowan, & Pearson, 1996; Miller et al., 1993). Although a similar but modest correlation was reported in this study, it should be interpreted with caution, as shared method variance may account for the relationship. In particular, mothers who view their marital relationship as more intimate may also tend to view other aspects of their life in a more positive light, namely their child's behavior. In addition, because the association is rather weak it is possible that a potential third variable may explain the relationship. For example, parent personality may account for the above mentioned association and therefore was examined as a potential third variable in subsequent regression analyses.

Mother reported marital intimacy, however, was not related to the other two indices of child self-control (compliance and frustration tolerance). Similarly, father reported marital intimacy was not associated with any of the measures of child self-control. These results are contrary to previous research, which has shown that positive aspects of the marital relationship are associated with better socioemotional functioning in children (Belsky, 1984; Frosch, Mangelsdorf, & Mchale, 2000, Goldberg & Easterbrooks, 1984; Howes & Markman, 1989).

Several explanations may account for the disparate findings in this study. First, the self-report inventory utilized in this study to assess marital intimacy may have been a less robust measure of the marital relationship. Specifically, the scale was brief, containing only six items, which limited the ability to obtain information on multiple facets of the marital relationship. For example, other aspects of the marriage, such as a more global index like satisfaction or a more specific factor like co-parenting have been shown to be related to child outcomes in other studies (Howes & Markman, 1989; Mchale & Rasmussen, 1998) were not assessed in this study. In addition, many of the previous studies that reported a link between marital relations and child

outcomes have employed observational measures of the marital relationship. In general, observational measures are considered a more robust means of assessment.

In spite of these shortcomings, however, it is important to mention that the marital intimacy measure used in this investigation has been shown to be positively correlated with marital satisfaction (Greeff & Malherbe, 2001; Schaefer & Olson, 1981). This lends support to the notion that although the measure is tapping into one area of the couples' lives it is likely to be related to more global aspects of the relationship. Also, the moderate correlations found between marital intimacy scores for mothers and fathers suggests consistency across spouses and provides some convergent validity. Finally, it is important to mention that in a separate study which examined a subsample from the current study's participants, pair scores at 15 months for mothers and fathers were positively related (.36 - .40) to observed marital interactions (Matestic & Campbell, 2003).

In addition to the marital scale, the child outcome measures used in the study must also be considered when trying to explain the null relations between marital intimacy and child self-control. First, the lab clean-up task that assessed child compliance was conducted with the mother but not the father, was brief in duration, and had limited variability, that is most children were observed to be compliant. The restricted display of behaviors by the children during this task may have been due to the nature of the activity. Specifically, children received undivided attention from their mothers during the interaction, which may have produced a non-stressful environment thereby limiting the opportunity for negative behaviors.

Second the composite score used to assess the children's externalizing behaviors was comprised of two maternal-report measures (the ASBI disrupt scale, and the externalizing scale from the CBCL). As mentioned earlier, this may create the problem of shared method variance

since maternal report was also used to assess the predictor variable, marital intimacy. Additionally, although fathers were included in the assessment of marital intimacy and parental sensitivity they were not involved in any of the child outcome measurement. This may help to explain, in part, why no relationships were found between fathers reported marital intimacy and child self-control as well as observed father sensitivity and child self-control. Thus, these outcome measures provided an indirect opportunity to assess whether fathers' reported marital intimacy and/or observed sensitivity were related to child self-control.

Despite these limitations, there were some notable strengths associated with the child outcome measures. In particular, the forbidden toy task used to measure frustration tolerance was conducted with an experimenter and coded by independent observers. This eliminated the potential confounds of maternal report and maternal influence on the child's ability to resist temptation. In addition, the child externalizing behavior composite was modestly, but significantly correlated with both the lab clean-up compliance and the active time engaged with the forbidden toy, lending validity to the externalizing composite score. These correlations also suggest that the three outcome variables all measure some aspect of child self-control.

In addition to the examination of the associations between marital intimacy and child self-control, relationships between parental sensitivity and child self-control were explored. Maternal sensitivity was found to be associated with better resistance to temptation and fewer maternal reported child externalizing behaviors. These findings are in accordance with the existing literature on parenting and child self-control. For instance, several researchers (Kochanska et al., 1995; NICHD Child Care Network, 1998) have shown that more positive and responsive mothering is related to a child's higher level of frustration tolerance as measured by forbidden toy tasks. Additionally, studies have found associations between negative aspects of

parenting such as maternal unresponsiveness and more child externalizing behavior problems (Campbell, 1995; Greenberg et al., 1993), and positive aspects of parenting such as maternal sensitivity and fewer maternal reported child externalizing behavior problems (NICHD Child Care Network, 1998). It should be noted, however, that the current study sample was taken from the larger NICHD sample.

Although observed maternal sensitivity was related to two of the child self-control variables, observed paternal sensitivity was unrelated to the child self-control measures. Most of the literature on fathering and child outcomes tends to focus on aspects of parenting such as financial support, or absence or presence in the household (Doherty et al., 1998). The few studies that have investigated positive qualities of paternal parenting have found associations between fathering and desirable child outcomes such as secure attachment and fewer externalizing behaviors (Belsky et al., 1998; Marsiglio et al., 2000). Contrary to these findings, the current study found no significant relationships between paternal sensitivity and child outcomes. Issues of measurement may also help to explain these differences.

Parental sensitivity was measured the same way for both parents and was found to be moderately correlated between mothers and fathers. In addition, the amount of sensitivity displayed by mothers during the parent-child interaction was not found to be significantly different from the amount of sensitivity displayed by fathers during the same task. These results suggest that the parental sensitivity measure was consistent across couples and that when one parent was sensitive during play with their child the other was also likely to be sensitive. This highlights the possibility that the sensitivity measure may have missed some unique aspects of the father-child interaction that may be important to child development. In general, research has shown that fathers tend to engage in more physical, unpredictable rough and tumble play with

their children (Lamb & Oppenheim, 1989). These distinct aspects of father-child play may be important in the development of child self-control. Specifically, children who experience physical play with a parent may learn through modeling that more rambunctious behaviors are to be displayed only during times of play and therefore these children may exhibit fewer externalizing behaviors at inappropriate times. Also, the experience of heightened affect while engaged in a positive situation such as physical play may help the child to learn how to regulate their emotions during other heightened emotional experiences that are negative such as the forbidden toy task. The dearth of literature on distinctive elements of the father-child relationship underscores the need for additional research in this area.

In addition to limitations with the paternal sensitivity measure, paternal parenting may not be as relevant to the outcome measures utilized in the current study. A large body of evidence supports a relationship between maternal parenting and child self-control (Crockenberg & Litman, 1990; Eisenberg et al., 2001; Kochanska & Aksan, 1995), however few, if any, studies have looked at paternal parenting in relation to this index of child self-regulation. It is possible that fathers' behavior may relate to emotional development in children primarily indirectly through the parental support they offer their partners. Coparenting research, which examines both mutual parental support and parental involvement with the child, supports this idea. Studies on coparenting behaviors have found that infrequent parental support and greater hostility and competitiveness between spouses were related to higher child aggression (Jouriles et al., 1991; Mchale & Rasmussen, 1998). The current study did not include measures of parental support, and therefore, indirect relations between paternal parenting and child self-control could not be explored. Finally, research on parenting (both maternal and paternal) and child outcomes has reported that despite fathers' involvement with their children, overall

mothers spend more time in caregiving activities (Lamb, 1997). Attending to a child's needs may provide the mother with more of any opportunity to engage their child during times of emotional dysregulation and thereby allow them to play a more central role in their child's emotional development. Paternal parenting, meanwhile, may be more pertinent to other aspects of child development such as cognitive and social functioning. For example, recent research has found that paternal sensitivity and support for child autonomy are related to fewer behavior problems and improved social skills at school as rated by first grade teachers (NICHD Child Care Network, submitted).

Given that parental education, child gender, and parent personality were associated with most of the parenting variables including marital intimacy and parental sensitivity as well as the majority of child self-control measures, analyses were repeated controlling for all relevant demographic and personality variables. After controlling for maternal education and maternal personality, the relationship between maternal reported marital intimacy and maternal reported child externalizing behaviors was no longer significant. Instead, maternal self-reported personality significantly predicted maternal reports of externalizing behavior. This may be due to the fact that mothers who rate themselves as more agreeable, sociable, and less neurotic may generally have a more positive outlook and as such tend to view their children as exhibiting fewer externalizing behaviors.

The relationship between maternal sensitivity and maternal reported child externalizing behaviors remained significant even after controlling for maternal education and maternal personality. Likewise the association between observed maternal sensitivity and child frustration tolerance continued to be significant after maternal education, child gender, and maternal personality were controlled. These results suggest that maternal sensitivity may have a direct

effect on child self-control. Previous research on parenting and child self-regulation supports this assumption (Calkins, 1994; Kopp, 1989).

### **Limitations and Conclusions**

The two-parent families included in this study were primarily Caucasian and were biased toward better family functioning as indexed by more parental education and higher average income-to-needs ratios. Consequently, the results of this study may not generalize to samples of families where there is greater ethnic diversity and higher socio-economic risk. Future research investigating the relationships between marital relations, parenting, and child self-regulation should seek to employ a sample with greater ethnic, and socio-economic variability. This would enable the examination of combined effects of risk and protective factors in the development of child self-regulatory abilities.

Measurement limitations also appeared to be problematic in the current study. First, the predictor variable, marital intimacy, was assessed via a self-report measure which allowed for some shared method variance with one of the outcome measures, namely maternal report of child externalizing behaviors. Also, the marital intimacy measure was a brief inventory and therefore may not have been a robust or comprehensive enough measure of the marital relationship. Second, the parental sensitivity measures may have failed to capture some unique aspects of the father-child interaction that are relevant to child self-regulation. Third, the child self-control indices did not include fathers, were brief in duration, and may not have been directly related to father caregiving. Finally, child influences on parenting and marital intimacy were not examined in this study. Most researchers acknowledge that there are bi-directional influences between parents and children that are likely to contribute to child development (Rutter, 1997; Sameroff, 2000). Due to the correlational design employed in this study, it is not possible to tease apart

whether children's self-regulatory behaviors influence marital intimacy and parental sensitivity or vice-versa. Future studies should seek to simultaneously examine marital, parent, and child influences.

In conclusion, the results of this study found that marital intimacy as rated by both mothers and fathers was unrelated to child self-control measures at 36 months. These findings are inconsistent with previous literature, which has reported associations between positive dimensions of marital behavior and better socioemotional functioning in children (Frosch, Mangelsdorf, & McHale, 2000; Miller et al., 1993). Given this fact, additional research utilizing a more robust, observational measure of the marital relationship is warranted to discern the role marital relations may play in children's developing self-control.

Although marital intimacy was not related to child self-control, a different, more complex set of relationships emerged between parental sensitivity and child self-control. Greater observed maternal sensitivity was associated with increased frustration tolerance and fewer maternal reported externalizing behaviors in children, while greater paternal sensitivity was shown to be unrelated to child self-control. These results are in accordance with prior research on maternal parenting and child self-regulation and continue to support the notion that maternal sensitivity is an important factor in the development of child self-regulation. Subsequently, fathers' role in the development of child self-control is less clear. They may be more indirectly involved in the development of child self-control through parental support or may contribute to the development of self-control through other aspects of paternal parenting such as rough and tumble play. It is also possible that paternal parenting may be more relevant to other child outcomes such as cognitive development and social competence. More empirical work that



includes a broader array of paternal parenting behaviors and child outcomes is needed to elucidate the importance of fathering in child development.

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Table 1.  
Demographic Characteristics of the Final Sample\*

<b>Variables</b>	<b>36 months</b>	
	<b>n</b>	<b>%</b>
<b>Child Gender</b>		
Boys	87	49
Girls	89	51
<b>Child Ethnicity</b>		
White, Non-Hispanic	163	92
Black, Non-Hispanic	10	6
Other	3	2
<b>Maternal Education</b>		
< 12 years	6	3
High School or GED	31	18
Some College	60	34
Bachelor's Degree	48	27
Postgraduate Work	31	18
<b>Paternal Education</b>		
> 12 years	9	5
High School or GED	29	17
Some College	64	36
Bachelor's Degree	37	21
Postgraduate Work	37	21
<b>Income-to-Needs Ratio</b>		
0-2.0 (poor)	57	33
> 2.0 (nonpoor)	119	67

\* Data used in the final sample was collected at three sites: Arkansas, Pittsburgh, and Wisconsin.

Table 2.  
Intercorrelations among Demographic, Predictor, Mediating, and Outcome Variables

Demographic Variables

	<u>Income-to-Needs</u>	<u>Maternal Education</u>	<u>Paternal Education</u>
<u>Marital Intimacy</u>			
Maternal Composite	.13	.09	.13
Paternal Composite	.09	.14	.10
<u>Parental Sensitivity</u>			
Maternal Sensitivity	.32**	.34**	.34**
Paternal Sensitivity	.06	.21**	.19*
<u>Parent Personality</u>			
Maternal Composite (NEO)	.24**	.18*	.26**
Paternal Composite (NEO)	.21*	.20*	.26**
<u>Child Self-Control</u>			
Lab Clean-up Comply	-.01	.08	.03
Active Time Engaged	-.18*	-.18*	-.15
Externalizing Composite	-.21**	-.23**	-.21**

\*p<.05; \*\*p<.01

Table 3.  
Descriptive Statistics and Intercorrelations among Parenting Variables

	1	2	3	4	5	6
<b>Marital Intimacy</b>						
1. Maternal Composite	...					
2. Paternal Composite	.26**	...				
<b>Parental Sensitivity</b>						
3. Maternal Sensitivity	.06	.05	...			
4. Paternal Sensitivity	.03	.12	.22**	...		
<b>Parent Personality</b>						
5. Maternal Composite (NEO) <sup>1</sup>	.29**	.17*	.35**	.12	...	
6. Paternal Composite (NEO) <sup>1</sup>	.19*	.44**	.10	.05	.26**	...
<b>Descriptive Statistics</b>						
<i>n</i>	176	176	176	176	175	137
<i>M</i>	4.42	4.19	17.59	17.49	61.10	57.84
<i>SD</i>	.74	.80	2.42	2.12	13.86	12.72
<i>Range</i>	2.27 to 5.97	1.03 to 5.88	7 to 21	7 to 21	-6.39 to 5.75	-5.66 to 6.90

\* $p < .05$ ; \*\* $p < .01$

<sup>1</sup> NEO Personality Inventory = Extraversion + Agreeableness - Neuroticism

Table 4.  
Descriptive statistics and Intercorrelations among Child Self-Control Variables

	1	2	3
<b>Child Self-Control</b>			
1. Lab Cleanup Compliance <sup>1</sup>	...		
2. Active Time Engaged <sup>2</sup>	-.09	...	
3. Externalizing Composite <sup>3</sup>	-.18*	.20*	...
<b>Descriptive Statistics</b>			
<i>n</i>	175	164	174
<i>M</i>	4.33	41.58	.01
<i>SD</i>	.98	55.34	.90
<i>Range</i>	1 to 5	0 to 150	-1.73 to 3.72

\*p<.05

<sup>1.</sup> 5-Point Global Rating.    <sup>2.</sup> Time in seconds.    <sup>3.</sup> Mean of standard scores.

Table 5.  
Intercorrelations among Child Self-Control, Concurrent Predictor and Mediating Variables

**Self-Control Variables**

	<u>Lab Cleanup Comply</u>	<u>Active Time Engaged</u>	<u>Externalizing Composite</u>
<b>Marital Intimacy</b>			
Maternal Composite	.05	-.06	<b>-.17*</b>
Paternal Composite	-.07	.05	-.09
<b>Parental Sensitivity</b>			
Maternal Sensitivity	.03	<b>-.36**</b>	<b>-.31**</b>
Paternal Sensitivity	.08	-.07	-.07
<b>Parent Personality</b>			
Maternal Composite (NEO)	.13	-.12	<b>-.30**</b>
Paternal Composite (NEO)	.07	-.14	<b>-.21*</b>

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\*p<.05; \*\*p<.01

Table 6.  
Predictive Analysis of Child Externalizing Behavior from Maternal Marital Intimacy

<b>Predictors</b>	<b>36 Month Child Externalizing Behavior</b>			
	<i>B</i>	<i>t</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Maternal Education	-.17	-2.43*	.05	.05**
Maternal Personality	-.24	-3.23**	.12	.07***
Maternal Marital Intimacy	-.09	-1.21	.13	.01
<b>Overall <math>F(4, 169) =</math></b>	<b>8.52***</b>			

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Table 7.  
Predictive Analysis of Child Externalizing Behavior from Maternal Sensitivity

<b>Predictors</b>	<b>36 Month Child Externalizing Behavior</b>			
	<b><i>B</i></b>	<b><i>t</i></b>	<b><i>R</i><sup>2</sup></b>	<b><math>\Delta R^2</math></b>
<u>Demographics</u>			.06	.06**
Maternal Education	-.13	-1.68		
Child Gender	.09	1.21		
Maternal Personality	-.21	-2.77**	.13	.07***
Maternal Sensitivity	-.21	-2.59*	.16	.03*
<b>Overall <math>F(4, 159) =</math></b>	<b>8.03***</b>			

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$



Table 8.  
Predictive Analysis of Active Engagement with Forbidden Toy from Maternal Sensitivity

<b>Predictors</b>	<b>Active Engagement with Forbidden Toy</b>			
	<b><i>B</i></b>	<b><i>t</i></b>	<b><i>R</i><sup>2</sup></b>	<b><math>\Delta R^2</math></b>
<u>Demographics</u>			.06	.06**
Maternal Education	-.07	-.94		
Child Gender	-.10	-1.35		
Maternal Personality	-.01	-.17	.06	.01
Maternal Sensitivity	-.33	-3.92***	.15	.08***
<b>Overall <math>F(4, 159) =</math></b>	<b>6.82***</b>			

\*p<.05; \*\*p<.01; \*\*\*p<.001