LANGUAGE FUNCTIONING AMONG CHILDREN OF LATINA ADOLESCENT MOTHERS: THE ROLE OF PARENTING STRESS AND MATERNAL BEHAVIOR

A dissertation submitted to Kent State University in partial fulfillment of the requirements for the degree of Doctor of Philosophy

by

Petra A. Duran

August, 2014
Dissertation written by
Petra A. Duran
B.S, Brown University, 2004
M.A., Kent State University, 2010
Ph.D., Kent State University, 2014

Approved by
_____________________, Chair, Doctoral Dissertation Committee
Josefina M. Grau

_____________________, Members, Doctoral Dissertation Committee
Karla Anhalt

_____________________,
Manfred Van Dulmen

_____________________,
Beth G. Wildman

_____________________,
Sarah Rilling

Accepted by
_____________________, Chair, Department of Psychology
Maria Zaragoza

_____________________, Interim Dean, College of Arts and Sciences
James L. Blank
TABLE OF CONTENTS

LIST OF FIGURES .................................................................................................................. v

LIST OF TABLES ...................................................................................................................... vi

CHAPTER Page

I INTRODUCTION ......................................................................................................................... 1
  Parenting Stress ......................................................................................................................... 3
  Links between Parenting Stress and Child Language Outcomes .............................................. 6
  Links between Parenting Stress and Parenting Behaviors ....................................................... 8
  Links between Maternal Behavior and Child Outcomes ......................................................... 10
  Maternal Behavior as a Mediator ............................................................................................ 15
  Current Study .......................................................................................................................... 15

II METHOD ................................................................................................................................. 21
  Participants ............................................................................................................................... 21
  Procedure ............................................................................................................................... 22
  Measures .................................................................................................................................. 24
    Demographic Variables ........................................................................................................ 24
    Parenting Stress ................................................................................................................... 25
    Language Development ....................................................................................................... 25
    Maternal Behavior .............................................................................................................. 27
    Maternal Behavior Scales .................................................................................................... 27

III RESULTS ................................................................................................................................. 31
  Overview of Analyses ............................................................................................................. 31
    Control Variables ................................................................................................................ 31
    Derivation of Parenting Composite ...................................................................................... 32
    Associations among Study Variables .................................................................................... 32
  Path Analysis .......................................................................................................................... 33
    Overall Parenting Stress Model .......................................................................................... 35
    Comparing Pathways from the Parenting Stress Variables to Language Scores .................. 38
    Comparing Pathways from the Parenting Stress Variables to Maternal Behavior .................. 39
    Sensitivity Model ................................................................................................................ 39
    Cognitive-Growth Fostering Model ...................................................................................... 40
# TABLE OF CONTENTS (Continued)

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV DISCUSSION</td>
<td>45</td>
</tr>
<tr>
<td>The Role of Parenting Behavior</td>
<td>45</td>
</tr>
<tr>
<td>The Role of Parenting Stress</td>
<td>48</td>
</tr>
<tr>
<td>Limitations and Future Directions</td>
<td>51</td>
</tr>
<tr>
<td>Implications and Conclusion</td>
<td>53</td>
</tr>
</tbody>
</table>

APPENDICES | 56 |
| A CONSENT FORMS | 57 |
| B MATERNAL QUESTIONNAIRE DEMOGRAPHIC QUESTIONS | 68 |
| C PARENTING STRESS | 76 |
| D BAYLEY SCALES OF INFANT AND TODDLER DEVELOPMENT – THIRD EDITION | 78 |
| E BAYLEY-III LANGUAGE SCALE-RECEPTIVE | 80 |
| F BAYLEY-III LANGUAGE SCALE-EXPRESSIVE | 82 |
| G SOCIAL PLAY INSTRUCTIONS | 84 |
| H MATERNAL BEHAVIOR SCALES | 86 |
| I MATERNAL BEHAVIOR RATING SHEETS | 95 |
| J RELIABILITY SHEET | 97 |

REFERENCES | 99 |
LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Abidin's conceptualization and measurement components of parenting stress</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Overall Parenting Stress Model investigating the direct associations between</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>parenting stress domains, a parenting composite, and child language scores.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(standard errors within parentheses) (N=168)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sensitivity Model investigating the direct effects between the parenting</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>stress domains, child language scores, and a sensitivity composite (standard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>errors within parentheses) (N=168)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Cognitive-Growth Fostering Model investigating the direct effects between</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>parenting stress domains, child language functioning, and a cognitive-Growth</td>
<td></td>
</tr>
<tr>
<td></td>
<td>fostering composite (standard errors within parentheses) (N=168)</td>
<td></td>
</tr>
</tbody>
</table>
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Proposed Pathways by Abidin's Parenting Stress Model</td>
</tr>
<tr>
<td>2</td>
<td>Inter-rater Agreement: Intraclass coefficients of Maternal Behavior Variables within Task (n=46)</td>
</tr>
<tr>
<td>3</td>
<td>Mean, Standard Deviations, and Ranges for Maternal Behavior Scales</td>
</tr>
<tr>
<td>4</td>
<td>Correlations among Study Variables (N=168)</td>
</tr>
<tr>
<td>5</td>
<td>Fit Statistics of Tested Models (N=168)</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

In the United States, approximately half a million adolescents give birth each year (Martin, Hamilton, Osterman, Curtin, & Mathews, 2013). This high birth rate raises concern because adolescent childbearing is associated with adverse outcomes for young mothers and their children (Brooks-Gunn & Furstenberg, 1986; Moore & Brooks-Gunn, 2002). In particular, children of adolescent mothers are at an increased risk for lower verbal attainment (Dubow & Luster, 1990; Moore & Snyder, 1991). Given the importance of early language development for children’s overall functioning (Rhule, McMahon, Speiker, & Munson, 2006; Snow, Burns, & Griffin, 1998; Vernon-Feagans, 1996), it is imperative to examine the critical factors within the context of these young families that influence language development.

Research comparing adult and adolescent mothers has identified parenting stress and the quality of parenting behavior as two key areas of difficulty for adolescent mothers (Brooks-Gunn & Furstenberg, 1986; Crnic & Low, 2002; Deater-Deckard & Scarr, 1996; Field, Widmayer, Adler, & de Cubas, 1990). Adolescent mothers face a unique set of challenges, including an economically disadvantaged environment, an early transition to parenthood, and the dual developmental tasks of adolescence and adulthood (Contreras, Narang, Ikhlas, & Teichman, 2002; Mercer, 2004). These challenges place
adolescent mothers at an increased risk to experience high rates of parenting stress. (Ketterlinus, Lamb, & Nitz, 1991; Passino et al., 1993). Yet, research examining parenting stress among adolescent mothers is limited.

In regard to parenting behavior, research indicates that compared to adult childbearing, early childbearing is associated with less optimal parenting behaviors (Barratt & Roach, 1995; Berlin, Brady-Smith, & Brooks-Gunn, 2002). Specifically, results show that adolescent mothers are more detached and intrusive and less verbally stimulating and sensitive to children’s needs than adult mothers (Berlin, et al., 2002; Culp, Culp, Osofsky, & Osofsky, 1991; Field, Widmayer, Stringer, & Ignatoff, 1980; Osofsky, Hann, & Peebles, 1993; Sommer et al., 1993). These parenting characteristics have been related to compromised development in adult, and in some cases, adolescent families (Brooks-Gunn & Furstenberg, 1986; Field et al., 1990).

Yet, a majority of the research on the parenting behavior of adolescent mothers has been comparative in nature and has focused primarily on European American and African American mothers. Therefore, little is known about how parenting stress and specific parenting behaviors relate to each other or to child outcomes in adolescent families, especially in families of Latino origin. It is particularly important to examine parenting stress, maternal behavior, and child language functioning in samples of Latina adolescent mothers since they have the highest teen birth rate of all ethnic groups in the U.S. (Martin et al., 2013). In addition, Latina adolescent mothers are overrepresented among the poor (Cauce & Domenech-Rodriguez, 2002) and Latino children (regardless
of parent age) are at particular risk for poor language outcomes (Patterson, 1998; Rescorla & Achenbach, 2002).

The empirical literature indicates that parenting stress relates to child language functioning in the pre-school years (Bendell, Stone, Field, & Goldstein, 1989; Farver, Xu, Eppe, & Lonigan, 2006; Noel, Peterson, & Jesso 2008). Scholars propose that this relation is indirect, and that parenting stress affects child outcomes primarily through parenting behavior (Abidin, 1995; Belsky, 1984). However, few studies have included all three variables in the same study, and the mediating role of parenting behavior has not been adequately studied. Notably, Abidin’s parenting stress theory (1995; see Figure 1) proposes direct links between parenting stress, child language functioning and parenting behavior, as well as an indirect relation through parenting. Therefore, the goal of the current study is to examine if Abidin’s parenting stress model extends to a sample of Latina adolescent mothers. Examining the direct and indirect influences of parenting stress on child language outcomes among these families is critical in identifying prevention and intervention efforts for young Latina mothers and their children. Given that the language deficits shown by children of adolescent mothers begin to appear as early as the second year of life (Brooks-Gunn & Furstenberg, 1986; Field et al., 1990; Furstenberg, Brooks-Gunn, & Morgan, 1987; Hann, Osofsky, & Culp, 1996), the current study examined these associations in 18-month-old children.

**Parenting Stress**

The most widely used definition of parenting stress, and the definition that the current study adopts is described by Abidin (1992) as: “A specific form of stress
Abidin’s conceptualization and measurement components of parenting stress perceived by parents that results from the demands of being a parent.” In particular, Abidin proposed that parenting stress is created by a mismatch between the perceived demands of parenting and the resources available to meet those demands (1995). A key factor to this mismatch is a parent’s stress reaction to the demands of parenting. Accordingly, a parent’s series of appraisals made in the context of their parent role raises the need for the parent to tap into their resources that can support the parenting role demand. Abidin’s theory poses that a lack of resources to meet the demands of parenting may cause parents to have negative mental responses that are attributed to specific domains of parenting stress.

Abidin (1995) proposed that parenting stress is composed of three related domains: a parent domain, a child domain, and a parent-child relationship domain. The stress within the parent domain arises from parental distress. In particular, this domain refers to the parent’s feelings of poor parenting skills, the restrictions in aspects of the child's development, and the challenges in maintaining a positive relationship with the child.
parent’s life due to parenting, the lack of social support, and the presence of depression. Stress within the child domain strongly links with attributes of a difficult child, which include a child’s temperamental and behavioral characteristics. The characteristics of a difficult child, which include high irritability, difficulty with being soothed, as well as difficulty with compliance, increases a parent’s level of parenting stress. Lastly, the parent-child relationship domain is based on the interactions parents have with their children. This domain refers to the degree of conflicts in the parent-child interaction, as well as the parental perceptions and feelings about their children based on the interaction. In particular, these parental perceptions focus on how satisfied parents’ interactions with their children make them feel.

According to Abidin (1995), the three domains are interrelated and operate together as part of a stress and coping process. His theory states that stress in any of the three domains can lead to detrimental effects in the other domains. Thus, as stress in the parenting domain occur, the parental perceptions of child behavior problems would likely increase, as would difficulties in the parent-child relationship. Abidin’s theory further postulates that parenting stress within the three domains causes decrements in many aspects of the quality and effectiveness of parenting behavior. For instance, parents may demonstrate a decrease in expressions of love and affection, an increase in insensitive methods of discipline, less consistent parenting behavior, or a complete withdrawal from the parenting role. In turn, parenting behavior is considered the mechanism through which parenting stress may influence child developmental outcomes. The larger literature supports these notions, with findings that show that parenting stress negatively
affects parenting behaviors and that negative behaviors have an adverse effect on children’s developmental outcomes (Adams, 2006; Brooks-Gunn & Furstenberg, 1986; Calkins, Hungerford, & Dedmon, 2004; East, Matthews, & Felice, 1994; Field et al., 1990; Rodgers, 1998; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). However, most researchers examined samples of European American adult mothers and few tested associations among all three factors simultaneously.

**Links between Parenting Stress and Child Language Outcomes**

The empirical literature provides evidence that parenting stress relates to a range of negative child outcomes, including insecure attachments, behavior problems, and delayed cognitive and language attainment (Crnic & Low, 2002; Cumming, Davies, & Campbell, 2000; Jarvis & Creasy, 1991; Pett, Vaughncole, & Wampold, 1994). Studies examining the consequences of parenting stress on child language outcomes have primarily focused on adult mothers. The majority of these studies used the Parenting Stress Index (PSI), a measure developed by Abidin (1983, 1995) to assess the three proposed dimensions of parenting stress. Studies either have created a composite of all dimensions, or study stress in the parent and child domains separately by integrating the relevant perceptions of the parent-child relation into each of the two domains. Overall, studies consistently report that parents with high levels of parenting stress have children with poorer language functioning (Bendell et al., 1989; Noel et al., 2008). For instance, Noel and colleagues (2008) examined the relation between parenting stress and language development among 56 European American preschoolers and their adult mothers from economically disadvantage backgrounds. Results indicated that an overall parenting
stress composite related to children’s vocabulary. In particular, mothers reporting higher levels of parenting stress had children with poorer expressive and receptive vocabularies.

Similar results were obtained in a study with a sample of adult African American mothers and their school-aged children. Bendell and colleagues (1989) examined the relationship between parenting stress in the parent and child domains separately and child language functioning among 66 African American adult mothers and their school-aged children. Child language functioning was examined using the Peabody Picture Vocabulary Test- Revised (PPVT-R; Dunn & Dunn, 1981). Analyses indicated that only parenting stress in the child domain related to scores on the PPVT-R. Specifically, mothers with high levels of parenting stress in the child domain had children with poorer vocabularies.

Only one study has specifically examined parenting stress in relation to child language outcomes in a sample that included Latina mothers (Farver et al., 2006). This study investigated the relationship between parenting stress of 122 Latina adult mothers and their toddlers (39-49 months) vocabulary using an overall composite score of parenting stress (Abidin, 1995). Children’s vocabulary was assessed with the PPVT-R (Dunn & Dunn, 1981). Consistent with previous findings, mothers who reported higher levels of parenting stress had children with poorer vocabularies.

In addition, only one study has examined the role of parenting stress on child language functioning in a sample of adolescent mothers. Miller and colleagues (1996) investigated this relation among 70 adolescent mothers (50 AA, 18 EA, and 2 Latinas) and their children. Parenting stress was assessed with the PSI parent domain (Abidin,
and a child domain composite which included the PSI child domain scales (Abidin, 1983) and mothers’ report of child temperamental characteristics. Children’s language development was assessed with the PPVT-R (Dunn & Dunn, 1981). Correlational analysis showed that parenting stress in the child domain, which was assessed at 6 months, negatively related to child PPVT scores at age 3; however, stress in the parenting domain was not related to child language.

In summary, a majority of the research examining adult and adolescent mothers indicate a relation between parenting stress and the language functioning of pre-school-aged children. Although previous research has primarily examined preschool aged children, there is evidence that language development is prominent during toddlerhood (Clark, 2003; Tomasello, 2003). Therefore, assessing children at an early age can capture the language spurt and the parenting behaviors that foster early language development.

**Links between Parenting Stress and Parenting Behaviors**

Consistent with theory, there is some empirical evidence linking parenting stress to parenting behaviors (Adams, 2006; Calkins et al., 2004; East et al., 1994; Rodgers, 1998), however most studies have focused primarily on adult and European American mothers. Most of these studies also relied on self-reports of maternal behavior. These studies focused on maternal reports of sensitivity, intrusiveness, and physical stimulation, and report significant relations between parenting stress and specific maternal behaviors. However, the specific behaviors found to be associated with parenting stress varied across studies (Adams, 2006; Calkins et al., 2004; Crnic, Greenberg, Ragozin, Robinson, Basham, 1983). The only study that used observer ratings of maternal behaviors (Teti,
Nakagawa, Das, Wirth, 1991) showed that parenting stress related to two composite scores of coded maternal behaviors; higher parenting stress levels related to less maternal involvement (composite of sensitivity, flexibility, structuring) and more negative affect (composite of avoidance, irritability).

Only one study investigated the relation between parenting stress and maternal behavior in adolescent mothers. East and colleagues (1994) examined this relation among 119 adolescent mothers from predominantly poor, minority backgrounds (50% Hispanic, 27% African American, 17% non-Hispanic White) and their toddlers. To assess parenting stress the Parenting Daily Hassles scale (PDH; Crnic & Greenberg, 1990) was used. The instrument focuses on daily sources of parenting stress, including items related to the child’s behavior, the interference with the child’s and parent’s needs, and the care of the child. Results indicated that the frequency and intensity of parenting hassles correlated negatively with self-reported maternal behaviors. In particular, mothers who reported higher levels of parenting stress self-reported having lower empathy to their children’s needs and lower acceptance of their children. To our knowledge, no published research has examined the relation of parenting stress to parenting behavior in a sample of Latina adolescent mothers.

In summary, the parenting stress literature indicates that parenting stress relates to maternal behavior in samples of adult and adolescent mothers. These studies tend to use an overall composite of the stress experienced in the parenting role. Further, a majority of these studies relied on indirect indices of parenting, which is a concern given that the degree of association maybe overestimated. In contrast to the reliance on maternal self-
report of parenting, the current study assessed maternal behaviors through observer ratings of mother-child interactions.

**Links between Maternal Behavior and Child Outcomes**

The empirical literature provides evidence of the link between maternal behavior and child language outcomes. This literature has focused on key behaviors that have been identified by Attachment and Socio-Cultural theories as central components of parenting, as well as to the development of children’s language skills. Specifically, Attachment theory (Bowlby, 1958, 1969) highlights sensitivity and the affective quality of the parent-child interactions as promoters of attachment security. This security permits the child to comfortably explore their environment, learn skills, and develop competencies. Vygotsky’s Socio-Cultural theory (Vygotsky, 1978) emphasizes sensitivity, the affective quality, and teaching strategies as important contributors to maternal guidance and instruction. According to Vygotsky, children gain competency from relying on their parent to assist them in elevating their ability to accomplish tasks beyond their autonomous performance.

Consistent with these theories, aspects of maternal behavior have emerged as salient influences on children’s language functioning, including sensitive-positive-affective and cognitive-growth fostering behaviors used by a parent. Nonetheless, this literature has focused primarily on adult, middle class, and EA families. These studies report that maternal sensitivity and responsiveness consistently associate with young children’s speed of language acquisition (Landry, Smith, Swank, Assel, & Vellet, 2001; Landry, Smith, Swank, & Miller-Loncar, 2000; Tamis-LeMonda, Bornstein, &
Baumwell, 2001; Tamis-LeMonda et al., 2004). Further, mothers’ tendency to take over a task from their child inversely related to children’s preschool receptive vocabulary scores (Culp, Hubbs-Trait, Culp & Starost, 2000).

The research examining maternal behavior among minority and adolescent mothers is more limited. Four published research studies have examined the relation between maternal behavior and child language functioning in samples of adult Latina mothers. Two studies (Cabrera, West, Shannon, & Brooks-Gunn, 2006; Kolobe, 2004) examined variation in mother-infant interactions and infant cognitive and language development in a sample of Latinos (primarily Mexican American). Mother-child interactions during a teaching episode were assessed using the Nursing Child Assessment Teaching Scale (NCATS; Sumner & Spietz, 1994). The NCATS is a binary scale of 50 items, which assesses mother’s sensitivity to the child’s clues, responsiveness to the child’s distress, cognitive growth, and socio-emotional growth fostering behaviors and yields one overall interaction composite score. Infants’ development was assessed with the mental scale of the Bayley Scale of Infant development- Second Edition (BSID-II; Bayley, 1993). The mental scale is composed of both cognitive and language items and yields one overall score, the mental development index (MDI). Results showed that the overall NCATS score correlated positively with the infant’s development. Thus, higher maternal interaction scores associated with higher MDI score.

The additional two studies included some Latinas in their sample, however, separate analyses by ethnic groups were not provided. These two studies observed mother-child interactions and coded maternal behavior during a 10-minute parent-child
play session. The first study used an ethnically mixed sample of 25% Latino, 34.8% African American and 40.2% European American, to investigate the contributions of parenting quality to children’s cognitive and language development during the first three years (Lugo-Gil & Tamis-LeMonda. 2008). Parenting quality was based on a composite score of three dimensions of parenting; maternal sensitivity, positive regard, and cognitive stimulation. Results indicated that the parenting composite uniquely contributed to children’s performance on the mental scale of the BSID-II (Bayley, 1993) at 14, 24, and 36 months.

In the second study, Tamis-LeMonda and colleagues (2004) examined mother-child interactions longitudinally in relation to children’s language development at 24 and 36 months in a sample that included 183 European American, 58 African American, 36 Latina and 13 other. The quality of mother-child interactions was assessed for six parenting dimensions: sensitivity, positive regard, cognitive stimulation, detachment, intrusiveness, and negative regard. Children’s language was assessed with the Peabody Picture Vocabulary Test (PPVT-III; Dunn & Dunn, 1997). Correlations indicated that maternal sensitivity, positive regard, and cognitive stimulation at 24 months were associated to higher scores on the PPVT scores at 36 months. In contrast, detachment and negative regard at 24 months were not associated with PPVT scores at 36 months.

In addition, two studies investigated the relation between maternal behavior and child language outcomes in samples of adolescent mothers. The first study investigated the relation of maternal characteristics to child outcomes among 338 African American adolescent mothers (Cooley & Unger, 1991). The quality of the mother’s parenting and
home environment were assessed using the maternal responsiveness and cognitive stimulation indicators of the Home Observation for Measurement of the Environment-Short form (HOME-Short Form; Caldwell & Bradley, 1979). The PPVT-R (Dunn & Dunn, 1981) was used to assess child language outcomes. Results showed that maternal responsiveness and cognitive stimulation related to high scores on the PPVT-R.

In the second study, 69 adolescent mothers (57.4% European American and 42.6% non European American) and their children, language outcomes were evaluated in a longitudinal study. Maternal sensitivity, positive and negative affect, dyadic interactive fit, and dyadic verbal reciprocity were assessed. At 44 months, child receptive language was assessed with the PPVT-R (Dunn & Dunn, 1981). Results showed that indices of maternal positive affect, dyadic verbal reciprocity, and dyadic fit at 13 and 20 months related to later linguistic outcomes. However, maternal sensitivity and negative affect were not associated with linguistic outcomes (Hann et al., 1996).

Only one published research study has specifically examined maternal behavior in relation to children’s development in a sample that included a significant proportion of Latina adolescent mothers. This longitudinal study of 164 adolescent mothers (112 Cuban and 52 African American) investigated the relations between parenting and child outcomes (Field et al., 1990). Mother-infant interactions were observed during 10 minutes of free play and the mental scale of the Bayley Scales for Infant Development (1969) assessed child outcomes. During these interactions, the frequencies of maternal behaviors including playing, demonstrating toys, directing the infant’s play and ignoring the infant were coded. Results showed that for the whole sample, the decrease in
mothers’ play behavior from 12 to 18 months related to a decrease in the MDI scores from 18 to 24 months. Thus, less interaction with the child related to poorer development. Moreover, results indicated that specific types of maternal behaviors that related to child outcomes differed across the Cuban and African American subsamples. In particular, in the Cuban sub-sample, demonstrating toys at 12 months negatively related to the MDI scores at 24 months, while directing play and ignoring were not associated to child mental scores for this sub-sample. Further, in the sub-sample of African American mothers, ignoring the infants at 12 months negatively related to MDI scores at 24 months, while demonstrating toys and directing play were not associated with the child’s mental scores.

In summary, the adult literature provides clear support for the implication of maternal sensitive-positive-affective and cognitive-growth fostering behavior in promoting language functioning for middle class and EA families. Although there is some support for Latinas or adolescent mothers, this research is more limited. Therefore, consistent with theory and the empirical literature, the current study examined maternal behaviors that reflect sensitive-positive-affective and cognitive growth fostering behaviors. In particular, the study examined the relationship between key maternal behavior composites and child language outcomes among the families of young Latina mothers.
Maternal Behavior as a Mediator

The empirical literature provides some evidence that parenting behavior mediates the relation between parenting stress and children’s development. However, there are no available studies examining this indirect relationship with child language outcomes. Only three studies to-date examined this indirect relationship with child behavioral outcomes, all with samples of adult EA mothers and their preschool-aged children. Two of these studies found that maternal discipline mediated the link between parenting stress and child behavior problems (Conger, Patterson, & X, 1995; Deater-Deckard & Scarr, 1996). However, these studies relied on self-reports of parental discipline strategies and examined maternal physical punishment and reasoning rather than observing behaviors during parent-child interactions. Only one study (Crnic, Gaze, & Hoffman, 2005) observed and coded parent-child interactions to assess maternal behavior (i.e., maternal negativity, positivity, dyadic pleasure and conflict). Although results indicated that parenting stress was associated with child behavioral outcomes and with maternal behavior, there was no evidence of an indirect relation. Thus, while there is some support for the theory that parenting behavior mediates the relation between parenting stress and child behavioral outcomes (Abidin, 1992), more research is needed using observed maternal behavior to better understand the indirect role of parenting behavior.

Current Study

The literature indicates that parenting stress is associated with a multitude of adverse outcomes. In particular, it is necessary to understand the role of parenting stress as a risk factor for language development given the importance that early language holds
for future achievement (McGee, Feehan, & Williams, 1995), and it is a developmental challenge for children exposed to contextual risks (Dubow & Luster, 1990; Moore & Snyder, 1991), such as children of adolescent mothers. According to Abidin’s parenting stress theory (1995), parenting behavior is the mechanism through which parenting stress affects child outcomes. Therefore, it is imperative to examine if Abidin’s parenting stress model (see Figure 1) extends to a sample of Latina adolescent mothers given the increased risk of compromised functioning for these young mothers and their children.

Children’s language functioning was assessed when children were 18 months of age. As previously noted, a majority of studies examining language outcomes focused on pre-school aged children. Yet, children begin to make important strides in language development during toddlerhood (Clark, 2003; Tomasello, 2003), and children of adolescent mothers begin to show deficits during the second year of life (Furstenberg et al., 1987; Hann et al., 1996; Whitman, Borkowski, Keogh, & Weed, 2001). Therefore, assessing children at an early age can capture the language spurt and the parenting behaviors that foster or detract from language development. To assess early childhood language functioning, previous studies utilized the mental scale of the Bayley Scale of Infant Development- Second Edition (BSID-II; Bayley, 1993), despite the scale being comprised of both cognitive and language items. The mental scale yields one overall score, the mental development index (MDI), based on the assessment of memory, problem solving, early number concepts, generalization skills, vocalizations, language and social skills. With the development of a new edition of the Bayley (Bayley-III; Bayley, 2006), separate measurement of cognitive and language functioning is now
available. Therefore, the current study assessed children with the Language scale of the Bayley-III, thus advancing the literature by examining the toddler’s language functioning more specifically.

Based on the direct and indirect links proposed by Abidin’s parenting stress model, the current study examined the relations between parenting stress, child language functioning, and maternal behavior (see Table 1). First, it assessed how parenting stress relates to the language functioning of children of Latina adolescent mothers. The parenting stress literature tends to combine all scales of the PSI to create an overall parenting stress composite. However, the few studies (Bendell et al., 1989; Miller, Miceli, Whitman, & Borkowski, 1996) that examined the child and parent domains separately provide evidence that there is a stronger or a more consistent relation between the child domain stress and child language outcomes than there is for stress in the parent domain. These findings indicate a differential role of parenting stress in the child and parent domains on language scores. Therefore, to clarify the role of each parenting stress domain, the study examined the relative roles of the child and parent domains of the PSI. Given previous findings (Bendell et al., 1989; Miller et al., 1996), it was hypothesized that the child domain stress would negatively associate with language scores.

Second, this study expanded the current literature by examining the relation between the level of parenting stress in the parent and child domains for young Latina mothers and their maternal behavior. Previous studies examining these relations relied on composite scores of parenting stress. Although, the literature is limited as to whether parenting stress in the child and parent domains relate to maternal behavior, Abidin
Table 1: *Proposed Pathways by Abidin’s Parenting Stress Model*

<table>
<thead>
<tr>
<th>Pathway 1:</th>
<th>The direct link between parenting stress in the child domain to the stress in the parent domain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Parenting stress in the child and parent domains are positively correlated.</td>
</tr>
</tbody>
</table>

Pathway 2: The direct link between parenting stress and child outcomes

- Parenting stress levels will negatively associate with language scores on the Bayley Language Scale.
  1. Parenting stress levels in the child domain will negatively associate with language scores.

Pathway 3: The direct link between parenting stress and maternal behavior.

- Parenting stress levels in the child and parent domains will negatively associate with sensitive-positive affective (sensitivity, positive affect, detachment) and cognitive-growth fostering (repertoire and cognitive stimulation) behavior composites.

Pathway 4: The direct link between maternal behavior and child language functioning.

- Sensitive-positive affective (sensitivity, positive affect, detachment) and cognitive-growth fostering (repertoire, and cognitive stimulation) composites will positively associate with higher language outcomes.

Pathway 5: The indirect link between parenting stress and child language functioning

- The sensitive-positive affective (sensitivity, positive affect, detachment) and cognitive-growth fostering (repertoire, and cognitive stimulation) composites will mediate the relation between child domain stress and language functioning.
(1995) proposed that the domains of parenting stress are interrelated. Given this proposed relationship, it was hypothesized that the child and parent domains of stress would inversely relate to maternal behavior.

Third, the current study examined the association between maternal behavior and child language functioning. A majority of studies examining maternal behavior use the NCAST score, which is an overall composite score. In addition, the NCAST was not developed to assess the entire range of responsive parenting (Sumner & Spietz, 1994). Consistent with Attachment and Vygotsky’s Socio-Cultural theories, studies provide evidence for maternal sensitive-positive-affective and cognitive-growth fostering behaviors as the two central components to the development of children’s language skills. Therefore, the current study used behavioral observations of mother-child interactions to obtain indices of these two parenting components, following procedures from the larger parenting literature. Given previous findings, it was expected that the proposed maternal behaviors would relate to language functioning.

Lastly, the current study examined the indirect effect of these young mothers parenting stress to child language functioning through their maternal behaviors. Although there are no available studies examining if parenting behavior mediates the relation between parenting stress and child language outcomes, application of Abidin's theory (1995) suggested that aspects of maternal behavior would mediate the relation between parenting stress and language scores.

In sum, despite the consensus that parenting stress associates with adverse outcomes for parents and their children, little is known about the interrelations of
parenting stress, maternal behavior, and language functioning among adolescent mothers. This becomes increasingly important when including adolescent Latina mothers. Thus, the specific aim of the current study was to examine the direct and indirect links proposed by Abidin’s parenting stress model. As such, this investigation can inform prevention and intervention efforts for young Latina mothers and their children.
CHAPTER II

METHOD

Participants

Participants from the current study (N=168) were drawn from a larger sample (N=170) of adolescent Latina adolescent mothers and their children. The data from two participants (1.2%) were not included, due to overly brief or off task interactions with their children. Young Latina mothers and their targeted children participated in this study when children were 18 ± 2 months. Residing in a low-income Latino neighborhood, mothers were primarily of Puerto Rican origin (81.2%) and 45.3% were first generation in the mainland US. At the time of the interview, the mother’s mean age was 19.5 (SD = 1.34 range = 16-21). The targeted children’s (55% males) mean age was 18.21 months (SD = .96; age ranged from 16 to 21 months). Most of the children (92.3%) were born in the US mainland, with 69% described by their mothers as being of purely Latino origin. A majority of the children were the only child (72.6%), and 11.9% were the first child. In addition, a large portion of mothers (76.5%) reported that their children were not attending a daycare center or receiving care by a babysitter.

In terms of educational attainment, a majority of mothers did not complete high school (67.9 %), 19 % had a high school diploma and 13.1 % had some post graduation education or vocational training. At the time of the interview, 13.7% of mothers were
attending school full time, 12.5% part-time, and 73.8% were not attending school. Additionally, 70 (41.7%) mothers reported being employed and 88.7% of mothers reported receiving one or more forms of government assistance (i.e., food stamps, medical card, Temporary Assistance for Needy Families).

From the total sample, 125 mothers (73.5%) reported being involved in a romantic relationship (i.e., being married, having a boyfriend/partner) at the time of interview. Of these mothers, 95 (76%) reported that their partner was the father of the target child. In terms of living arrangements, a majority of mothers reported residing with a partner or child’s father (51.8%), 41 participants (24.1%) lived with their maternal figure, 20 (11.8%) lived alone with their child and 21 (12.4%) had other living arrangements.

**Procedure**

University Institutional Review Board Approval was received for the study. The participants were recruited at two health centers and other agencies that serve the Latino community in a large Midwestern city. The inclusion criteria for the study were: (1) a Latina mother under 20 years of age at the time of birth of the participating child, (2) with a child between 16 and 18 months with no current disabilities or a history of birth complications or prematurity. Most participants (78.2%) were recruited through face-to-face contact in waiting rooms of pediatric clinics. Participants were also referred by friends/relatives (15.3%) or by professionals or others in the community (6.47%). At the time of recruitment, mothers were contacted to participate in the study regardless of child
The only information obtained at initial contact was the age of mother and child, and the gender of child. Mothers were then followed until the child met age criteria.

Over the three year recruitment period, 253 eligible mothers were contacted. On first contact, 12 of these eligible mothers did not agree to be considered for the study (4.7%). Of the remaining 241 followed mothers, 170 (70.54%) participated in the study. A total of seventy-one mothers were lost because they moved away (18.5%), could not be located after first contact (28%), refused to participate when contacted (8.5%), or scheduling problems prevented them from participating while their children met the age criteria (45%).

An appointment for a home visit was made at each participant’s convenience. Two females, at least one that was bilingual, conducted home visits. During each home visit, informed consent was obtained from the participant (and a parent or guardian if she was under 18 years of age). Prior to beginning the research procedures, researchers built rapport with the mother and target child. At that time, mothers confirmed the target child’s dominant language, and the researchers noted Spanish and English words the child vocalized and comprehended. The duration of home visits was approximately 3 hours, depending on necessary breaks and unexpected interruptions. During the home visit, the child was administered a cognitive and language test, and five mother-child interaction tasks were videotaped. Children were tested using their dominant language(s), but assessors also incorporated words used by the child in the other language, as well as adjusted testing language based on their observations and the child’s language preference. In addition, semi-structured interviews were administered to the
mother in the participant’s language of choice. All questionnaire measures were read aloud to the mothers and responses were recorded using a computer assisted interview procedure. At the end of the visit, mothers were provided with a list of community resources available to them. For their participation, mothers received $70, a copy of the home visit video and a small gift for her child.

Measures

All questionnaire measures used in this study were available in Spanish and English. The only measure that required translation was the Bayley Scales of Mental Development- 3rd Edition (BSID; Bayley, 2006). Following procedures recommended by Brislin (1970), prior to data collection, the Bayley was first translated, and then back translated by bilingual members of the research team. Both the English and Spanish versions of the Bayley were evaluated and adjusted to achieve language equivalence. The internal consistency of all questionnaire measures was tested separately for English (70.6%) and Spanish (29.4%) respondents in order to assess the equivalence of the two language versions.

Demographic Variables

A set of fixed format questions were used to gather the following demographic information: child age, gender, ethnicity, parity (only child vs. first, second, or third child), and utilization of daycare or babysitter; mother’s age, school status, work status, educational level, receipt of TANF, partner/marital status, residence with partner or child’s father; child’s father’s educational level.
Parenting Stress

Four scales of the PSI (Abidin, 1995; See Appendix C) were used to assess two aspects of parenting stress: (1) Child domain and (2) Parent domain. The Child domain stress reflects child focused characteristics that lead to stress in the parent. It was computed using the items of the Reinforces Parent (i.e., My child rarely does things for me that makes me feel good) and Acceptability (i.e., My child looks a little different than I expected and it bothers me at times) scales of the PSI (Abidin, 1995). The Parent domain reflects perceptions of greater restriction and isolation because of the parenting role. It was computed using the items of the Restriction of Role (i.e., I feel trapped by my responsibilities as a parent) and Social Isolation (i.e., I often have the feeling that other people my age don’t particularly like my company) scales of the PSI (Abidin, 1995). The parenting stress scales were rated on a 5-point scale ranging from (1) Strongly agree, (2) Agree, (3) Uncertain, (4) Disagree, and (5) Strongly disagree. Scores were appropriately recoded so that higher scores indicated higher levels of parenting stress. Adequate reliability was found for the child domain stress (α = .82), and parenting domain stress (α = .84). Consistent with a previous study including Latina mothers (Contreras, López, Rivera-Mosquera, Raymond-Smith, & Rothstein, 1999), adequate reliabilities were found for English (PSIPD: α = .81; PSICD: α = .83) and Spanish (PSIPD: α = .85; PSICD: α = .81) respondents.

Language Development

The language scale of the Bayley Scale of Infant and Toddler Development- 3rd Edition (Bayley III; Bayley, 2006) was administered to obtain an index of the children’s
language functioning (See Appendix D). The Language Scale assesses both receptive and expressive communication. The Receptive Communication (RC) subscale examines how well the child recognizes sounds and how much the child understands spoken words and directions. This scale requires children to identify pictures and objects, follow simple directions, and perform social routines such as wave bye-bye or play peek-a-boo (See Appendix E). The Expressive Communication (EC) subscale examines how well children communicate using sounds, gestures, or words. This scale provides children with opportunities to use words by naming objects or pictures and answering questions (see Appendix F). The current study will use an index of language outcome that is composed of the mean of the raw expressive and receptive scores.

The Bayley Scale of Mental Development- 3rd Edition (Bayley, 2006) is the most recent version of the scales. The current norms are based on scores of 1,700 children, ages 1 to 42 months. The Bayley III is similar to the BSID-II, which has been the most widely used measure of cognitive and language development for this age range and has been successfully used with children of different ethnic backgrounds, including Latinos (Bayley, 1993). The BSID-II mental scale items that were identified as assessing language were moved to the appropriate subtest in the language scale of the Bayley III. Additional language items were adapted from the Preschool Language Scale-Fourth Edition (PLS; Zimmerman, Steiner, & Pond, 2002). While certain aspects of the BSID-II have been altered or new material added, the Bayley III maintains the original nature and purpose of the Bayley scales (Bayley, 2006).
A licensed psychologist, with experience in bilingual psychological testing, trained and supervised the administration of this scale. Prior to each administration, researchers confirmed the child’s primary language and instructed mothers to sit their child on their lap. The administrators advised the mothers to provide support and encouragement during the testing without showing or telling their child how to complete the items. Most children (43.5%) were administered the Bayley in English, 42.8% in Spanish, and 13.7% in a mixture of English and Spanish. Language of administration was not related to language scores ($F(2,165) = 1.42, p = .24$).

**Maternal Behavior**

Maternal behavior was assessed during a social play task. The social play task required mothers to play with their child as they normally would when playing without toys for five minutes. The English and Spanish versions of the standardized instructions for this task can be found in Appendix G. Previous studies with Latina adolescent (Contreras, 2004; Contreras, Mangelsdorf, Rhodes, Diener, & Brunson, 1999) and adult mothers (Harwood, Schoelmerich, Schulze, Gonzalez, 1999) of various countries of origin, indicate that this task captures adequately the variability in behavior present in this population.

**Maternal Behavior Scales**

Maternal behavior was assessed with rating scales derived from scales constructed by Isabella (1993) and the NICHD Study of Early Child Care (NICHD Early Child Care Research Network). In prior research, these scales were adapted to assess the behavior of
young Latina mothers (Contreras, 2004; Contreras, Mangelsdorf et al., 1999), and showed conceptually meaningful relations with predictors of maternal competence (e.g., social support variables) and with child behavior (Contreras, 2004; Contreras, Mangelsdorf et al., 1999).

The task was coded using five, 9-point scales: Sensitivity, Positive Affect, Detachment, Cognitive Stimulation, and Repertoire of Behaviors. The following is a brief description of the maternal behaviors scales (Refer to Appendix H for full scale actually used by coders.)

Sensitivity: The timing and appropriateness of the mother’s response to their children’s signals.

Positive Affect: The frequency and intensity of the positive affect (e.g. smiling, kissing, positive vocal tone) displayed by the mother.

Detachment: The extent to which the mother appears emotionally and/or behaviorally uninvolved and disengaged.

Repertoire of Behaviors: The range of stimulation the mother provides to her child.

Cognitive Stimulation: The extent to which the mother demonstrates effortful teaching and engages in growth fostering behaviors.

Coding. Three coders, who were blind to other participant data, were trained to reliably code the five scales of maternal behavior. Coders were trained to code for the maternal behavior scales using a recording sheet to write notes and scores (See Appendix
I). Once coders were trained using these training tapes, which involved five-minute mother-child interactions from another study, the current study began.

*Inter-rater Reliability.* As soon as coding began for the current study, coders were assigned a selection of DVDs to code each week, while remaining blind to the DVDs that other coders received. Coders overlapped in approximately 25% of the observations (n=46) to assess agreement. These raters met every week in order to compare scores for overlapping DVDs, resolve discrepancies, and determine a consensus score. Interrater reliability was calculated for each scale using intra-class coefficients (ICC; Shrout & Fleiss, 1979). Coders achieved sufficient reliability for the five scales (see Table 2).

*Derivation of Composites.* Descriptive information for the maternal behavior scales appears in Table 3. First, to ensure that higher scores reflected more positive behaviors, detachment scores were re-coded. Next, following procedures from the larger parenting literature, two parenting composites were created. To reflect more sensitive, involved, and affectively positive maternal behaviors, the sensitivity, detachment (recoded), and positive affect scales were standardized and averaged (r’s .49 to .69; Alpha = .82 ). This composite was labeled maternal sensitivity. To reflect cognitive-growth fostering behaviors, the repertoire of behaviors and cognitive stimulation scales were standardized and average (r = .83; Alpha = .90).
Table 2.

*Inter-rater Agreement: Intraclass Coefficients of Maternal Behavior Variables within Task (n=46).*

<table>
<thead>
<tr>
<th>Maternal Behavior</th>
<th>Intraclass Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>.70</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>.69</td>
</tr>
<tr>
<td>Detachment</td>
<td>.67</td>
</tr>
<tr>
<td>Repertoire</td>
<td>.81</td>
</tr>
<tr>
<td>Cognitive Stimulation</td>
<td>.80</td>
</tr>
</tbody>
</table>

Table 3.

*Mean, Standard Deviations, and Ranges for Maternal Behavior Scales.*

<table>
<thead>
<tr>
<th>Maternal Behavior</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>4.93</td>
<td>1.15</td>
<td>3-8</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>5.35</td>
<td>1.03</td>
<td>3-8</td>
</tr>
<tr>
<td>Detachment</td>
<td>1.33</td>
<td>.62</td>
<td>1-4</td>
</tr>
<tr>
<td>Repertoire</td>
<td>3.53</td>
<td>1.08</td>
<td>1-8</td>
</tr>
<tr>
<td>Cognitive Stimulation</td>
<td>3.14</td>
<td>1.06</td>
<td>1-7</td>
</tr>
</tbody>
</table>
CHAPTER III

RESULTS

Overview of Analyses

Preliminary analyses included correlations to determine the need to use control variables in the main analysis. Next, an overview regarding the computation of the maternal behavior composite is presented, followed by correlations between variables computed in IBM SPSS Statistics 20 (2011). To address the goals of the study, a series of path analysis models using maximum likelihood estimation were conducted in MPlus 5 (Muthén & Muthén, 2007). An integrated model examined the direct and indirect effects proposed in Abidin’s parenting stress model. As some relations were expected to differ based on type of parenting stress, further analysis examined the differential role of child and parent domain stress. Next, to explore the relative roles of the sensitivity and cognitive-growth fostering composites, models were run separately for each maternal behavior composite.

Preliminary Analyses

Control Variables

Correlations were computed among child age, gender, and language scores. Findings showed significant correlations between child age (r=.17, p<.05) and gender
(r=.16, p<.05) with language scores. As expected, older children in the sample earned higher language scores than younger children. Additionally, females earned higher language scores than males. Thus, these child variables are controlled for in all subsequent analyses that include child outcomes.

**Derivation of Parenting Composite**

Bivariate correlations were computed between the sensitivity and cognitive growth-fostering composites prior to running path analyses. Examination of results indicated that the scales were highly inter-correlated (r = .60). Although the initial goal was to examine the scales separately in the models, given the high level of inter-correlation a parenting composite better allowed for testing each parenting stress domain. Therefore, it was opted to standardize and average the two composites to create an overall positive parenting composite, reflecting higher levels of sensitive, affectively positive, and cognitively stimulating behaviors.

**Associations among Study Variables**

Correlations among each parenting stress variable, the parenting composites, and language scores appear in Table 4. Child age and gender are controlled for in analyses that include child outcomes. Results indicated the child and parent domain stress were interrelated (r = -.51, p<.05). While the child domain stress (r= -.19, p<.05) related to language scores, the parent domain stress (r= -.12, p=.12) was not correlated. Thus, mothers who reported higher levels of child domain stress had children who earned lower language scores. In addition, only child domain stress correlated with the sensitivity (r= -
.24, \( p < .05 \) and cognitive-growth fostering (\( r = -.24, \ p < .05 \)) composites. As expected, mothers who reported greater child domain stress demonstrated less sensitivity and cognitive-growth fostering behavior. Both sensitivity (\( r = .17, \ p < .05 \)) and cognitive-growth fostering (\( r = .20, \ p < .05 \)) composites were significantly related to language scores. Thus, mothers that demonstrated more sensitivity had children that earned higher language scores. Similarly, mothers that demonstrated more cognitive-growth fostering behavior had children that earned higher language scores.

Table 4.

*Correlations among Study Variables (N=168)*

<table>
<thead>
<tr>
<th></th>
<th>M (SD)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Child Domain Stress</td>
<td>1.78(.55)</td>
<td>1</td>
<td>-.51***</td>
<td>-.24**</td>
<td>-.24**</td>
<td>-.19*</td>
</tr>
<tr>
<td>2. Parent Domain Stress</td>
<td>2.69(.66)</td>
<td>1</td>
<td>-.10</td>
<td>-.06</td>
<td>-.12</td>
<td></td>
</tr>
<tr>
<td>3. Sensitivity</td>
<td>4.65(.81)</td>
<td>1</td>
<td>1</td>
<td>.60***</td>
<td>.17*</td>
<td></td>
</tr>
<tr>
<td>4. Cognitive-Growth Fostering</td>
<td>3.35(.98)</td>
<td>1</td>
<td>1</td>
<td>.20*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Language Scores</td>
<td>9.70(10.17)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: † \( p < .10 \); * \( p < .05 \); ** \( p < .01 \); *** \( p < .001 \).

Child age and gender are controlled for in correlations that include child outcomes.

**Path Analysis**

A series of path analysis in MPlus (Version 5.1) examined the associations linking parenting stress, parenting, and child language scores, as well as indirect links
between parenting stress and language scores (see Figure 1). First, a model testing the relations between the parenting stress variables, the positive parenting composite and child language scores are presented. Path analysis allowed evaluation of the overall fit of the model illustrated in Figure 1, which simultaneously included the hypothesized direct and indirect effects of the variables under study. Secondly, results of the path analysis models with equality constraints are described in order to examine the differential roles of each parenting stress variable. The equality constraints that examine the pathways from parenting stress domains to language scores are presented first, followed by those that examine the pathways from the stress domains to the positive parenting composite. By understanding the role of each domain of parenting stress, we can better grasp the complexity and importance of factors affected by parental stress. Lastly, to explore the effect of parenting indices within the parenting stress model, results of the path analysis models examining each parenting composite independently are presented. Results are first reported for the sensitivity composite and then for the cognitive-growth fostering composite.

The data were evaluated with regard to the major assumptions necessary for path modeling. The sample population of 168 met the suggested sample size of 5-10 times the number of estimated parameters (Kline, 2005). For each model, fit indices are reviewed (see Table 5). To evaluate model fit, the root mean square error of approximation (RMSEA) and confirmatory fit index (CFI) were used. CFI values between .9 and 1 indicate an acceptable model fit (Hu & Bentler, 1999). RMSEA values between .05 and .08 suggest reasonable model fit, and values below .05 suggest good fit (Browne &
Additionally, the results of the models $\chi^2$ tests were evaluated because a non-significant $\chi^2$ test suggests that a model fits the data well (Kline, 2005). Next, the results of all direct and indirect pathways of each model are presented individually.

Table 5.

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$\chi^2$/df</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Parenting Stress</td>
<td>9.40</td>
<td>6</td>
<td>1.60</td>
<td>.88</td>
<td>.06</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>7.80</td>
<td>6</td>
<td>1.30</td>
<td>.92</td>
<td>.04</td>
</tr>
<tr>
<td>Cognitive-Growth Fostering</td>
<td>11.73</td>
<td>6</td>
<td>1.96</td>
<td>.80</td>
<td>.08</td>
</tr>
</tbody>
</table>

To examine the differential role of child and parent domain stress, a chi-square difference test (Bentler & Bonett, 1980) and a change in CFI test (Cheung and Rensvold, 2002) are reviewed. To evaluate the chi-square difference test, a model with constrained pathways set to equality is compared to a model where the pathways are unconstrained, and allowed to be freely estimated. A statistically significant change in chi-square from the model with no constraints indicates that the pathway coefficients are statistically different from each other. A difference in CFI ($\Delta$CFI) greater than .01 is indicative of significant differences between pathway coefficients.

**Overall Parenting Stress Model**

*Model Fit.* Results of the path analysis indicated mixed evidence for a good fit. Specifically, the results of the models $\chi^2$ was non-significant, CFI = 0.88, and RMSEA =
Figure 2 depicts the results of this path analysis model. The pathways specified in this model explained 41.2% of the variance on the positive parenting composite and 33.5% of the variance on language scores. Thus, the model was retained and interpreted.

**Direct Pathways.** Consistent with Abidin’s parenting stress model, findings showed that the child and parent domain stress were significantly inter-correlated (r = .51, p < .00). While results of the path analysis indicated no significant pathways linking parenting stress in the parent (β = -.05; p = .58) and child domains (β = -.12; p = .17) to child language scores, there was a significant direct relation between parenting stress and the positive parenting composite. In particular, results showed that the child domain stress significantly related to parenting (β = -.31; p < .00). Thus, mothers who reported greater child domain stress demonstrated less positive parenting behavior. In comparison, the parent domain stress was not significantly related (β = .07; p = .42) to parenting. Furthermore, results indicated that positive parenting related to language scores (β = .17; p < .05). Therefore, mothers that demonstrated more positive behavior had children with higher language functioning. Notably, child age and gender continued to relate to language outcomes when parenting stress and parenting variables were in the model.

**Indirect Pathways.** Findings from the indirect pathways analysis indicated that there was a marginally significant indirect effect of the child domain stress on language scores through parenting behavior (β = -.05; p = .06). In particular, results provided some support for the idea that stress, specifically in the child domain indirectly affects language
Figure 2. Overall Parenting Stress Model investigating the direct associations between parenting stress domains, a parenting composite, and child language scores. (standard errors within parentheses) (N=168).

Note: †p < .10; *p < .05; **p < .01; ***p < .001.

PSICD = Child Domain Stress; PSIPD = Parent Domain Stress
scores through its negative effect of parenting. On the other hand, the indirect effect from the parent domain stress to child language scores was not significant ($\beta = .01; p = .45$).

To summarize, results of the overall parenting stress model indicated significant relations between child domain stress and the positive parenting composite, as well as between the parenting composite and language functioning. Although the stress domains did not directly relate to language scores, the child domain stress indirectly related to language scores through the parenting composite. These results are suggestive of potential differential roles of child and parent domain stress on the positive parenting composite and language functioning. Therefore, further analyses investigating the differential roles of child and parent domain stress are necessary to qualify the findings.

**Comparing Pathways from the Parenting Stress Variables to Language Scores**

To examine differences between child and parent domain stress, the pathways from each parenting stress variable to language scores were fixed to equality. This constrained model was compared to the overall parenting stress model (the non-constrained model described above). Results of the chi-square difference test indicated that the coefficients from the child and parent stress domains to language scores are not significantly different from one another ($\Delta \chi^2 = .25, p = .61$). On the other hand, the results of the change in CFI test indicated that the pathway coefficients to language scores were significantly different between child and parent stress domains ($\Delta \text{CFI} > .01$). Given that the chi-square difference test is more stringent and has greater power to reject
the null hypothesis (Chen, Sousa, & West, 2005), the results of the chi-square difference test are retained. Therefore, the path coefficients from child and parent stress domains to language scores in the overall parenting stress model are not statistically different from one another.

**Comparing Pathways from the Parenting Stress Variables to Maternal Behavior**

Similarly, a model with constrained pathways from each parenting stress variable to the positive parenting composite was compared to the overall parenting stress model. Results of both the chi-square difference test ($\Delta \chi^2 = 6.2, p = .01$) and the $\Delta$CFI test ($\Delta$CFI > .01) indicated that the coefficients from the child and parent stress domains to the parenting composite are significantly different from one another. Therefore, the path coefficients from child and parent stress domains to parenting in the overall parenting stress model are statistically different from one another.

In sum, additional analysis of the overall parenting stress model indicated differential roles of the child and parent stress domains to parenting behavior. Results highlighted that child domain stress had a unique effect on parenting behavior that is significantly different from the effect of parent domain stress. On the other hand, the pathways from the stress domains to language functioning were not statistically different from each other.

**Sensitivity Model**

*Model Fit.* Results of the path analysis suggest that the sensitivity model was a good fit for the data (non-significant $\chi^2$ test, CFI = .92, RMSEA = .04; see Table 5).
Figure 3 depicts the results of this path analysis model. The sensitivity model explained 31.4% of the variance on the sensitivity composite and 32.8% of the variance on language scores.

**Direct Pathways.** Consistent with Abidin’s parenting stress model, findings showed that the child and parent domain stress were significantly inter-correlated ($r = .51$, $p < .00$). Results also indicated no significant pathways linking the parent ($\beta = -.04; p = .64$) and child domain ($\beta = -.14; p = .12$) stress to language scores. On the other hand, findings showed that the child domain stress negatively related to sensitivity ($\beta = -.26; p < .05$), although parenting stress in the parent domain was not significantly related ($\beta = .04; p = .68$). Thus, mothers who reported greater child domain stress demonstrated less sensitivity behavior. Furthermore, results indicated that sensitivity marginally related to language scores ($\beta = .13; p = .08$). Therefore, there is some support that mothers who demonstrated more sensitivity had children with higher language functioning. Notably, child age and gender continued to relate to language outcomes when parenting stress and parenting variables were in the model.

**Indirect Pathways.** Findings from the indirect pathways analysis indicated non-significant effects from parenting stress in the parent domain ($\beta = .01; p = .68$) and child domain ($\beta = -.03; p = .14$) to child language scores.

**Cognitive-Growth Fostering Model**

**Model Fit.** Results of the cognitive-growth fostering model suggested mixed evidence for a good fit (non-significant $\chi^2$ test, CFI = .80, RMSEA = .08; see Table 5). Figure 4 depicts the results of this path analysis model. The model explained 16%
Note: †p < .10; *p < .05; **p < .01; ***p < .001.

PSICD= Child Domain Stress; PSIPD=Parent Domain Stress

Figure 3. Sensitivity Model investigating the direct effects between the parenting stress domains, child language scores, and a sensitivity composite (standard errors within parentheses) (N=168)
of the variance on the cognitive-growth fostering composite and 34% of the variance on language scores.

**Direct Pathways.** While results of the path analysis indicated no significant pathways linking the parenting stress in parent ($\beta = -.05; p = .54$) and child domains ($\beta = -.13; p = .16$) to child language scores, there was a significant direct relation between parenting stress and the cognitive-growth fostering composite. Results showed that the child domain stress negatively related to cognitive-growth fostering behavior ($\beta = -.30; p < .00$). Thus, mothers who reported greater child domain stress demonstrated less cognitive-growth fostering. In comparison, the parent domain stress was not significantly related ($\beta = .10; p = .27$). Furthermore, results indicated that cognitive-growth fostering behavior related to language scores ($\beta = .17; p < .05$). Therefore, mothers that demonstrated more cognitive-growth fostering behavior had children with higher language functioning. Notably, child age and gender continued to relate to language outcomes when parenting stress and parenting variables were in the model.

**Indirect Pathways.** Findings from the indirect pathways analysis indicated that there was a marginally significant indirect effect of the child domain stress on language scores through cognitive-growth fostering behavior ($\beta = -.08; p = .06$). More specifically, results provided some support for the idea that increases the child domain stress indirectly affect language scores through its effects on cognitive-growth fostering parenting. On the other hand, the indirect effect from parenting stress in the parent domain to child language scores was not significant ($\beta = .03; p = .32$).
Note: †p < .10; *p < .05; **p < .01; ***p < .001.

PSICD = Child Domain Stress; PSIPD = Parent Domain Stress

Figure 4. Cognitive-Growth Fostering Model investigating the direct effects between parenting stress domains, child language functioning, and a cognitive-growth fostering composite (standard errors within parentheses) (N=168)
To summarize, the sensitivity and cognitive-growth fostering path models explained similar proportions of the variance on language scores. As demonstrated in Table 5, the sensitivity path model exhibited somewhat stronger fit indices. More importantly, the cognitive-growth fostering model provided some support for the indirect effect of child domain stress on language functioning.
CHAPTER IV

DISCUSSION

To this author’s knowledge, the current study was the first to examine Abidin’s parenting stress model with a sample of Latina adolescent mothers and their toddlers. Specifically, this study provided much needed examination of the relations between the parenting stress and parenting behaviors of these young Latina mothers, and their toddlers’ language functioning. It also expanded the literature by being the first to investigate these relations simultaneously in an overall model as proposed by Abidin (1995). The current study also explored the differential roles of child and parent domain stress, as well as the relative roles of sensitivity and cognitive-growth fostering parenting behavior. Findings showed some support for the generalizability of Abidin’s parenting stress model to a sample of young Latina mothers and their toddlers. In particular, results indicated an indirect effect between parenting stress and language functioning through cognitive-growth fostering behavior. Furthermore, results highlighted the importance of parenting for children’s language functioning, as well as the impact of child domain stress on parenting behavior.

The Role of Parenting Behavior

The current study examined mediation between the parenting stress domains and child language functioning through parenting behaviors. Results revealed that child
domain stress marginally related to language scores through cognitive-growth fostering behavior, providing some support for Abidin’s parenting stress model that proposes an indirect relation between parenting stress and child outcomes through parenting behavior. The mediation effect through cognitive-growth fostering behavior may be due to the detrimental impact of mothers perceiving their children’s characteristics as unpleasant, in that the mother’s negative perceptions hinders their willingness or ability to provide a rich stimulating environment with vocalizations and repeated opportunities for language input. The social play task coded in the current study provided mothers the opportunity to vocalize as they teach, to adapt to their children’s interests, and to initiate activities. As such, mothers with increased levels of child domain stress may be less likely to demonstrate, count, and identify objects to their children. In addition, child domain stress may interfere with these young mothers’ efforts to find new approaches to engage and interact with their child. Consequently, the reduced teaching and stimulating environment available to the child may limit language acquisition, practice, and mastery. The indirect role of parenting stress as a potential risk factor for language functioning highlights the need for intervention efforts targeting the parenting behaviors of Latina adolescent mothers as the mechanism of change.

The study also examined the relative roles of sensitivity and cognitive-growth fostering parenting behavior to language functioning. Consistent with the existent literature on European American and adolescent mothers (Landry et al., 2001; Cooley & Unger, 1991), as well as Latina mothers (Cabrera et al., 2006; Field et al., 1990), this study found support for the association of cognitive-growth fostering behavior on
language scores. Contrary to the parenting literature (Pungello, Iruka, Dotterer, Mills-Koonce, & Reznick, 2009; Tamis Le-Monda et al., 2004) that has found maternal sensitivity and positive affect to associate with language functioning, only a marginal relation was found between the sensitivity composite and language functioning. While the results are in line with Attachment (1969) and Socio-Cultural (1978) theories suggesting that maternal sensitivity, and cognitive-growth fostering behaviors are central components to the language development of toddlers, the mother’s ability to teach, to find new ways to engage, and to adapt to her child’s interest may further act to promote language functioning. Therefore, consistent with the parenting literature, maternal sensitivity and cognitive stimulation have unique and comparable effects on child outcomes (Page, Wilhelm, Gamble, Card, 2010). The significance level of cognitive-growth fostering behavior relative to sensitivity may be due to the age of the children in this study, in that sensitivity may be more strongly related to language at older ages. A longitudinal study with toddlers suggested that maternal cognitive stimulation is a concurrent predictor of children’s language scores at 14 and 24 months, while sensitivity at 14 months predicts language development at 24 months (Vallotton, Mastergeorge, & Ayoub, 2010). Furthermore, prior research has shown changes in maternal sensitivity over time based on a child’s age (Kemppinen, Kumpulainen, Raita-Hasu, Moilanen, Ebeling, 2006). It may be that based on age, mothers may fluctuate the frequency of the sensitivity they display, as well as modify the manner in which they demonstrate sensitivity to their children. Perhaps, mothers are more likely to express sensitivity through nonverbal actions, especially among adolescent mothers or mothers of children
with low language competence. The lack of vocalizations in turn may provide children with less exposure to language and limited opportunities to engage in reciprocal language exchanges. As such, the limited vocalization during parent-child interactions could lead to a reduced amount of language development. While, both components of parenting related to language functioning, the mediation effect between stress in the child domain and language functioning was primarily through cognitive- growth fostering behavior. However, sensitivity behaviors likely affect other areas of functioning. Therefore, targeting interventions to include sensitivity behaviors would likely have positive implications beyond language functioning. Further longitudinal investigations focusing on the maternal behaviors of young mothers are needed to better understand how sensitivity and cognitive-growth fostering behaviors promote the language development of children of Latina adolescent mothers at different times in development.

**The Role of Parenting Stress**

Consistent with Abidin’s propositions, child and parent domain stress were moderately and significantly inter-correlated ($r=.51$). Nonetheless, stress in these two domains had differential relations to parenting. Examination of the relative effect of child and parent domain stress on the parenting behaviors of young Latina mothers provided support for the relation between child domain stress and positive parenting. Mothers who reported higher levels of child domain stress displayed less sensitive and cognitively stimulating behaviors during play interactions with their children. Findings are in line with Abidin’s theory (1995) suggesting that mothers who perceive their children’s behaviors and characteristics as unpleasant demonstrate less positive parenting.
The effect of the child domain stress may be due to the age of the children in this study, in that as toddlers they are beginning to seek autonomy, and actively explore their environment (i.e., walking, running). The advancement of gross motor skills during toddlerhood may be difficult for adolescent mothers to manage as they too are dealing with their own need for autonomy. Therefore, the conflict between the autonomy needs of mothers and their children may lead to an increased parenting stress level in the child domain. As a result, the strain level in the parent-child interaction increases causing the quality of her parenting to deteriorate, and leading to subsequent increases in child difficulties. Given the impact of child domain stress on parenting, future research should examine factors that reduce child domain stress in order to inform the development of effective interventions that promote positive parenting.

Contrary to expectations, stress in the parent domain did not relate to maternal behavior. Although the reasons for these findings are unclear, the role of social support may account for this non-significant relation, in that social support influences the effects of mothers’ perceptions of parental demands and social isolation due to the parenting role. The literature suggests the importance of social support for Latina adolescent mothers, particularly from the adolescents’ mother (grandmother) and partner (Cuellar, Arnold, Gonzalez, 1995; Grau, Wilson, Weller, Castellanos, Duran, 2010). Consistent with previous findings that Latina adolescent mothers are likely to be involved in romantic relationships, a majority (73.5%) of mothers in the sample reported having a partner (Contreras, López et al., 1999; Wasserman, Brunelli, Rauh, & Alvarado, 1994). Furthermore, a substantial percentage of mothers reported living with their partner
(51.8%) or their maternal figure (24.1%). It may be that the mothers in the current sample share child-care responsibilities with their mother or partner. The shared parenting responsibilities may then provide the young mothers with the opportunity to have less parental demands, and to socialize with peers. Therefore, social support may contribute to the parent domain stress that relates to parenting behavior. Further investigations examining the role of social support on the interrelations between the stress in the parent domain and parenting behavior are needed to better understand how parent domain stress impacts the parenting of Latina adolescent mothers and their children’s language development.

Additionally, the current study examined the relative effect of the parenting stress in the child and parent domains on language functioning. Findings indicated that the pathways from the parenting stress domains to language functioning are not significantly different, which is consistent with Abidin’s theory that proposes that the parenting stress domains operate together as part of a stress and coping process. Therefore, future research examining the role of parenting stress on child outcomes should examine each stress domain simultaneously in an integrated model. Although the existent literature on adult African American and ethnically mixed samples of adolescent mothers (Bendell et al., 1989; Miller et al., 1996) have found a consistent relation between child domain stress and language outcomes than stress in the parent domain, the results of the current study suggest no direct relation between the stress domains and language functioning. However, the current study highlighted the indirect effects of parenting stress on language functioning through parenting behavior. In general, results raise concern for
parenting stress in the child domain on language functioning. Nonetheless, longitudinal research is needed to better understand how child and parent domain stress promote the language development of children of Latina adolescent mothers at different times in development. Future research should also examine the role of intervention on the pathways from child and parent stress domains to language functioning.

Taken together, the results suggest that child and parent domains are unique aspects of parenting stress when examining parenting behavior. Findings highlight the need to examine stress domains separately in order to better understand the impact of parenting stress on young Latina mothers, and their toddlers functioning. Future research should examine the relative role of child and parent stress for children’s outcomes across different domains of functioning (e.g., cognitive and social functioning) to inform interventions aimed at enhancing mothers’ skills, and in turn, enrich the children’s learning experiences.

**Limitations and Future Directions**

Given the preliminary nature of the current study, the results need to be examined in light of its limitations. First, the current study is cross sectional and not longitudinal. While cross sectional data are used to test mediation, longitudinal data are preferred given the quality of the results from a mediation model using cross sectional data (Cole & Maxwell, 2003; Maxwell & Cole, 2007). In particular, the paths in the mediation model may be over-estimated relative to their true values when a cross-sectional design is used. In addition, it is not known whether parenting stress or maternal behavior predicts change in child language functioning, or if child language functioning predicts change in
parenting stress or maternal behaviors. Longitudinal data can help improve statistical inference and clarify the direction of the observed associations. Given that the current study was the first to examine Abidin’s parenting stress model among Latina adolescent mothers, replication is needed in order to confirm and expand current findings. Furthermore, results cannot be generalized to non-Puerto Rican Latinas or to other samples of parenting adolescents. Thus, future studies should test whether these results also extend to Latina adolescent mothers of different countries of origin.

Additional limitations include that the current study assessed a composite of language skills rather than individual indices of receptive and expressive communication skills. It may be that parenting stress may affect each aspect of language differently. Further, different parenting behaviors may be associated with the two aspects of language. Future studies could be strengthened by examining children’s receptive and expressive language functioning independently. Child language functioning was assessed in a sample including monolingual and bilingual children with scales from an instrument that has not been officially translated. Therefore, results may not be directly comparable to those of other studies, as the translations may not exactly match that of the current study. It is important to note, however that the current translations were conducted by bicultural and bilingual members of the research team following recommended procedures that emphasize the semantics and technical aspects of translation during the forward and back translation process (Erkut, Alarcon, Garcia-Coll, Tropp, Garcia, 1999). In addition, mean scores did not differ by language of administration, providing some support for the equivalence of the language versions.
Another limitation of the current study is that it did not explore the influences of acculturation. Given that members of cultures hold shared beliefs, goals, and strategies that guide their actions (Cole, 1996; Valsiner & Litvinoci, 1996), acculturation and family values may play a role in how mothers interact with their children. Thus, future research can advance the literature by examining the effect of acculturation on parenting stress, maternal behavior, and child language outcomes. Such studies can compare the impact of high and low acculturation on maternal behavior and outcomes. Following the current study, future research should maintain a within-group design to better understand these relations within this population and their cultural and ecological context.

**Implications and Conclusion**

The findings from the current investigation inform prevention and intervention efforts for young Latina mothers. Specifically, the current study suggests that parenting stress relates to children’s language functioning through their mother’s use of cognitive-growth fostering behaviors. As such, prevention and intervention efforts should aim to provide parenting programs for adolescent Latina mothers that focus on increased level of engagement, repertoire of behaviors, and cognitive stimulation. Consistent with evidence based parent training programs, interventions should provide education, training, and support to these young mothers. Moreover, interventions targeting Latina mothers should take into consideration Latino values. Additionally, such interventions should be tailored specifically to examine the effects of teaching cognitive-growth fostering behaviors on the language functioning of the children of these young mothers. Although most programs are developed under the assumption that by aiding adolescent mothers they will
in turn aid the outcomes of their children, very few programs, or evaluations directly assess the effects on children (Quint, Musick & Ladner, 1994).

Given the negative influence of parenting stress in the child domain on maternal behavior and language functioning, intervention programs should also focus on teaching effective strategies to reduce child domain stress. One possible avenue for these efforts could include teaching child development to young Latina mothers. Adolescent mothers generally appear to have limited knowledge of child development (Elfenbein & Felice, 2003), which interferes with their ability to interpret correctly their children’s behavior (Field et al., 1980). Thus, it is critical that interventions teach this missing information to help increase the parents’ core knowledge. Furthermore, the experience of stress in the child domain may cause mothers to experience psychological issues including depressive symptomology. Therefore, programs focused on Latina adolescent mothers should also include regular screening for maternal depressive symptoms. Moreover, prevention and intervention efforts should work to reduce child domain stress by increasing community support for these young mothers.

In sum, the current study is the first to test Abidin’s (1995) parenting stress model in a sample of adolescent Latina mothers and their toddlers. Previous researchers have demonstrated that there are strong links between parental stress, child language, and maternal behavior; however, the current study provides insight into how the three factors are specifically related. Results indicated that parenting stress in the child domain is relevant to Latina adolescent mothers and their toddlers. Specifically, child domain stress
indirectly related to language functioning through cognitive-growth fostering behaviors.

Further research on these relations using a longitudinal design is indicated.
APPENDIX A

CONSENT FORMS
APPENDIX A

CONSENT FORMS

METROHEALTHMEDICAL CENTER

Human Investigation Consent Form

Project Title: Latina Adolescent Parenting Project

Investigator: Dr. Josefina Grau, Kent State University

Dear Participants and Parents:

Kent State University in collaboration with MetroHealth Medical Center is conducting a study of the factors influencing the well being of young Latina mothers and their children. We would like you to take part in this study. If you decide to participate, you will be asked to complete two home visits, one in the near future when your child is approximately 1 and ½ years old, and the other, six months later. The home visits will be scheduled at a time that is convenient to you and will be conducted by two female researchers. During each of the visits, one of the researchers will videotape your child while he/she is administered a developmental test. The researcher will then videotape you while you play with and teach your child. Finally, you will be interviewed individually about your own functioning (e.g., social and personal adjustment, relationships with family members) and your child’s behavior. The visit will take approximately 2 and ½ hours to complete. For your participation, you will receive $70.00, a copy of the videotape, and a small toy for your child at the end of each of the home visits.
All the information gathered through this study will remain strictly confidential within the limits of the law. This means that we are required by law to break confidentiality and report to local authorities if we find evidence of child (including you, if you are less than 18 years old) or elder abuse, or if we learn that you have suicidal or homicidal feelings. To maintain confidentiality, the information you provide to us will be identified only by a participant number (not your name) and will be examined only by Dr. Grau and qualified members of her research team at Kent State University. We will schedule the home visit at a time that is convenient to you, so that you can be videotaped and interviewed privately. Also, you will have the choice of responding to interview questions either aloud or by pointing to response options that will be printed in response cards. However, if you have confidentiality concerns because of the presence of a family member or someone else in your home while you are being videotaped or interviewed, we can interrupt the procedures or reschedule the home visit.

Personnel at MetroHealth Medical Center will not have access to the information you provide us. Similarly, Dr. Grau and her research team will not have access to medical or any other information that MetroHealth Medical Center may have about you. You may experience some discomfort when asked to answer personal questions, but our experience is that this discomfort is, at most, slight and short lived. If you experience more than mild discomfort, we encourage you to contact the Center for Behavioral Health, Child and Adolescent Services at MetroHealth Medical Center (216 - 778-3745). Alternatively, if you prefer, the interviewer can assist you with the referral.

You are under no obligation to complete this study even if you sign this consent form. You may skip questions or discontinue your participation at any time. You will be presented with another consent form for the second home visit. Participation is completely voluntary and refusing to participate will not affect in any way the services you receive at MetroHealth Medical Center.

If you have any questions regarding the study, please feel free to call Dr. Josefina Grau at (330) 672 3106 or (216) 212-9188. This project has been approved by Kent State University and MetroHealth Medical Center. If you have any questions about Kent State University's rules for research, please call Dr. John L. West at (330) 672-3012. If you have any questions about your rights as a research participant, contact the MetroHealth Medical Center’s Institutional Review Board (which is a group of people who review the research to protect your rights) at (216) 778-2077.

By signing this form I acknowledge that I have read and understand this form, and have had any questions regarding this study satisfactorily answered, and I am voluntarily consenting to participate in this study.

________________________________________
Participant's signature Date
Parent/Guardian Consent: I give my daughter permission to participate in this study.

_________________________________________________
Parent or Guardian's Signature

______________________________
Date

Researcher Signature
(Person obtaining consent)

______________________________
Date

THIS SIDE — IRB OFFICE USE ONLY

Latina Adolescent Parenting Project – Consent Form

IRB #: IRB06-00047/CR00002903
HUMAN INVESTIGATION CONSENT FORM

The MetroHealth System
2500 MetroHealth Drive, Cleveland, Ohio 44109-1998

CONSENT FOR PHOTOGRAPHY,
AUDIO OR VIDEOTAPING (medical)

ATTACHMENT A
Patient Addressograph Label

Request Type: [ ] Photography [ ] Audiotape [ ] Videotape [ ] Other: ______________

Photographs of the subjects(s) will be: [ ] Clothed [ ] Partially clothed [ ] Undressed

Permission is hereby given to photograph, audiotape, or videotape the following named
person(s) ______________________________ with the understanding that such
photographs, audiotapes or videotapes may be used for the following stated purposes:

[ ] Medical Necessity/Diagnostic Purposes: Explain:________________________________________

[ ] Education: Explain intended purpose:____________________________________________________

[ ] Publication in medical and/or scientific journals: ____________________________

[ ] Inclusion in Research Paper(s): Latina Adolescent Parenting Project

[ ] Other:__________________________________________ Please Specify

The department requesting photos, videos, etc will be responsible for proper storage of
the media as established by The MetroHealth System medical record retention
requirements. Photographs, etc are not to be placed in the patient medical record. The
department requesting photographs, video, etc is _______ Research ________:

Description of media requested: Videotaping of 1) mother while she teaches and plays
with her child; 2) child while he/she is administered a developmental test.

Purpose of Request (describe how photographs, audiovisual or videotaped will be used):
Learn about factors influencing the well being of young Latina mothers and their children.

I, the undersigned, understand that this authorization is valid for a period of 60 days from the date of
completion of this authorization, and may be revoked by me or my legal representative in writing at any
time. However, I understand that if I do so, it will not have any effect on any actions that were taken
before the revocation was received. I understand that for the revocation to be effective, I must do so in
writing and send it to department who originally requested the photographs, etc. The revocation
notices will be filed in the patient medical record after review by the originating department.
I further understand that once the media has been released, re-disclosure of my information by the recipient which may include protected health information may no longer be protected by law.

Signature of Participant ___________________________ Date/Time ____________

Signature of parent/guardian ___________________________ Date/Time ____________

Name of Photographer ___________________________ Date/Time ____________ Witness ____________

For non-medical photographs, videotapes or audiotapes for non-medical purposes for use by The MetroHealth Foundation, Marketing or Media Relations, please refer to the form in Attachment B.

MHS FORM 031047901 4/05
Título del Proyecto: Latina Adolescent Parenting Project

Investigadora: Dra. Josefina Grau, Kent State University

Estimadas Participantes y Padres:

En colaboración con MetroHealth Medical Center, Kent State University está conduciendo un estudio acerca de los factores que influyen en el bienestar de madres Latinas jóvenes y sus hijos/as. Nos gustaría que participes en este estudio. Si decides participar, te visitaremos en tu casa dos veces, una vez en el futuro cercano cuando tu hijo/a tenga aproximadamente 1 año y medio, y la otra vez, seis meses más tarde. Las visitas serán fijadas para el día y la hora que a ti te convenga, y serán conducidas por dos investigadoras mujeres. Durante cada una de las visitas, una de las investigadoras filmará a tu hijo/a mientras le administra una prueba de su desarrollo. Después de eso, la investigadora te filmará mientras le enseñas y juegos con tu hijo/a. Finalmente, te entrevistaremos individualmente acerca de tu propio bienestar (por ejemplo, tu adaptación social y personal, tus relaciones con tu familia y amigos) y acerca del comportamiento de tu hijo/hija. La visita tomará aproximadamente 2 horas y 1/2. Al terminar cada visita, recibirás $70.00, una copia del video, y un juguete pequeño para tu hijo/a.

Toda la información que obtengamos a través de este estudio se mantendrá confidencial dentro de los límites de la ley. Esto significa que no podremos mantener confidencialidad y tendremos que reportar a las autoridades si encontramos evidencia de abuso de menores (incluyendo a ti, si es que eres menor de 18 años) o de ancianos, o si notamos que tienes deseos de cometer suicidio u homicidio. Para mantener la confidencialidad, la información que nos des será identificada solamente mediante un número (no tu nombre) y será examinada solo por la Dra. Grau y miembros calificados de su grupo de investigación en Kent State University. Para que seas filmada y entrevistada privadamente, las visitas serán fijadas para el día y la hora que sean convenientes para ti. También tendrás la opción de responder a las preguntas de la entrevista en voz alta o
señalando las respuestas que estarán escritas en tarjetas al frente de ti. De todos modos, si cuando estás siendo filmada o entrevistada, hay alguien en tu casa que prefieres que no te escuche o vea, podemos interrumpir la filmación o entrevista por un rato, o hacer una cita para continuar la visita en otro momento.

El personal de MetroHealth no tendrá acceso a la información que nos des. Tampoco tendrá la Dra. Grau y su grupo de investigación acceso a cualquier información que MetroHealth Medical Center pueda tener acerca de ti.

Puede que te sientas incomoda cuando te hagamos preguntas acerca de cosas personales, pero nuestra experiencia es que esta incomodidad es, a lo más, leve y breve. Si tu sientes más que incomodidad leve, te recomendamos que llames al Center for Behavioral Health, Child and Adolescent Services en el MetroHealth Medical Center (216 778-3745). Si prefieres, la entrevistadora te puede ayudar a hacer una cita.

Tú no estás obligada a completar el estudio aunque firmes este consentimiento. Puedes saltarte preguntas o dejar de participar en cualquier momento. Te pediremos que firmes otro consentimiento cuando te visitemos la segunda vez. Tu participación es completamente voluntaria y los servicios que puedas estar recibiendo en MetroHealth Medical Center no van a ser afectados si te niegas a participar.

Si tiene preguntas acerca del estudio, por favor llama a la Doctora Josefina Grau al (330) 672-3106 or (216) 212-9188. Este estudio ha sido aprobado por Kent State University y MetroHealth Medical Center. Si tienes preguntas acerca de los reglamentos de investigación de Kent State University, por favor llama al Dr. John L. West al (330) 672 3012. Si tienes preguntas acerca de tus derechos como participante, por favor llama al Institutional Review Board del MetroHealth Medical Center (que es un grupo de personas que revisa las investigaciones para proteger tus derechos) al (216) 778-2077.

Mi firma indica que yo leí y entiendo este formulario, que mis preguntas acerca del estudio han sido contestadas satisfactoriamente, y he decidido participar voluntariamente en este estudio.

______________________________
Firma de la Participante Fecha

Autorización del padre/madre: Le doy permiso a mi hija para participar en el estudio.

______________________________
Firma del Padre/Madre Fecha

____________________________________________________
Firma de la investigadora Fecha
(Individuo que obtuvo el consentimiento)
Latina Adolescent Parenting Project  IRB #: 06-00047
Consent Form
HUMAN INVESTIGATION CONSENT FORM
The MetroHealth System
2500 MetroHealth Drive, Cleveland, Ohio 44109-1998

ATTACHMENT A
Patient Addressograph Label

CONSENTIMIENTO DE FILMACION

Tipo: ☐ Fotografía ☐ Grabación de voz/sonido □ Video tape ☐ Otro: ____________
Las fotografías de las participantes se tomaran: □ Vestida ☐ Parcialmente Vestida
☐ Desnuda

Doy permiso para que mi hijo/a y yo, __________________________ seamos filmados
con el entendimiento que el video tape puede ser usado para los siguientes propósitos

☐ Necesidad médica/diagnostico: ________________________________

☐ Educación: Explique: __________________________________________

☐ Publicación en revistas profesionales: ____________

☐ Para reportes de investigación: Latina Adolescent Parenting Project ____________

☐ Otro: _________________________________________________________

El departamento que esta pidiendo el video va ha ser responsable de salvaguardarlo de
acuerdo a los requisitos de MetroHealth System. Estos no serán puestos en la ficha
médica del paciente. El departamento que esta pidiendo el video es _____________

Descripción del video que se solicita: Filmación de 1) la madre mientras le enseña y
juega con su hijo/a; el/la hijo/a mientras se le administra una prueba de su desarrollo.

Razón para la solicitud: El video será usado para aprender acerca de los factores que
influyen en el bienestar de madres Latinas jóvenes y sus hijos/as.

Mi firma indica que yo entiendo que esta autorización es válida por 60 días, y puede ser revocada por mi o
mi representante legal por escrito en cualquier momento. Entiendo que si revoco el permiso esto no tendrá
ningún efecto en las acciones que se tomaron antes de recibir el pedido de revocación. Entiendo que para
que la revocación sea efectiva, yo debo hacerlo por escrito y mandarla al departamento que pidió el video.
La nota de revocación será puesta en la ficha médica después de ser evaluada por el departamento.
También entiendo que una vez difundida, puede que nuevas revelaciones de mi información, que puede incluir información médica que es protegida, ya no sea protegida por la ley.

_________________________  _______________________  _______________________
Firma de la participante  Fecha

_________________________  _______________________  _______________________
Firma del Padre/Madre de la participante  Fecha

_________________________  _______________________  _______________________
Nombre de la persona tomando el video  Fecha  Testigo
MHS FORM 031047901
4/05
APPENDIX B

MATERNAL QUESTIONNAIRE DEMOGRAPHIC QUESTIONS.
APPENDIX B

MATERNAL QUESTIONNAIRE DEMOGRAPHIC QUESTIONS.

8. With whom do you currently live?
   □ 1. 1. Live with child
   □ 2. 2. Live with child's father
   □ 3. 3. Live with boyfriend/husband (not the child's father)
   □ 4. 4. Live with mother
   □ 5. 5. Live with father
   □ 6. 6. Live with siblings
   □ 7. 7. Live with paternal grandparents
   □ 8. 8. Live with maternal grandparents
   □ 9. 9. Live with boyfriend/husband's parents
   □ 10. 10. Live with members of the boyfriend/husbands' family
   □ 11. 11. Live with friends
   □ 12. 12. Other <SPECIFY> (GO TO QUESTION 9)
   □ 13. 13. DON'T KNOW
   □ 14. 14. REFUSED

14. How far have you gotten in school?
   □ 1. 1. Less than seventh grade
2. Seventh grade
3. Eighth grade
4. Ninth grade
5. Tenth grade
6. Eleventh grade
7. Twelfth grade
8. High school diploma/GED
9. Partial college
10. College graduate
11. Other <SPECIFY> (GO TO QUESTION 15)
12. DON'T KNOW
13. REFUSED

17. Are you in school now?
1. No (GO TO QUESTION 18)
2. Yes, part time/night school
3. Yes, full time
4. DON'T KNOW
5. REFUSED

22. Now, I'd like to find out a little bit about how you support yourself. Are YOU working at a job right now?
1. Yes, full time
2. Yes, part time
25. Do you receive any welfare benefits?

☐ 1. 1. No
☐ 2. 2. Food stamps only
☐ 3. 3. Medical card only
☐ 4. 4. Monthly check
☐ 5. 5. Money for day care
☐ 6. 6. Two or more of the above
☐ 7. 7. DON'T KNOW
☐ 8. 8. REFUSED

51. What is your marital or relationship status?

☐ 1. 1. Never married / no current partner
☐ 2. 2. Never married / has a current partner
☐ 3. 3. Married, live with husband / child's bio father
☐ 4. 4. Married, live with husband / not child's bio father
☐ 5. 5. Married, separated from husband / no current partner
☐ 6. 6. Married, separated from husband / has partner who is not husband
☐ 7. 7. Divorced / no current partner
☐ 8. 8. Divorced / has current partner
☐ 9. 9. Widowed / no current partner
10. Widowed / has current partner

11. DON'T KNOW

12. REFUSED

56. What is the ethnicity of the father of your child?

1. Hispanic / Latino

2. European American

3. African American

4. Native American

5. Asian American

6. Other <SPECIFY> (GO TO QUESTION 57)

7. DON'T KNOW

8. REFUSED

58. Where was the father of your child born?

1. Mainland USA

2. Puerto Rico

3. Dominican Republic

4. Mexico

5. Other <SPECIFY> (GO TO QUESTION 59)

6. DON'T KNOW

7. REFUSED

60. How old is your child's father?

___ | ___ | ___ | ___ | ___ | ___
61. How far has the father of your child gotten in school?

[ ] 1. Less than seventh grade
[ ] 2. Seventh grade
[ ] 3. Eighth grade
[ ] 4. Ninth grade
[ ] 5. Tenth grade
[ ] 6. Eleventh grade
[ ] 7. Twelfth grade
[ ] 8. High school diploma/GED
[ ] 9. Partial college
[ ] 10. College graduate
[ ] 11. Other <SPECIFY> (GO TO QUESTION 62)
[ ] 12. DON'T KNOW
[ ] 13. REFUSED

63. Is the father of your child in school now?

[ ] 1. No
[ ] 2. Yes, part time/night school
[ ] 3. Yes, full time
[ ] 4. DON'T KNOW
[ ] 5. REFUSED

64. Is the father of your child working at a job right now?

[ ] 1. No
2. 2. Yes, part time
3. 3. Yes, full time
4. 4. DON’T KNOW
5. 5. REFUSED

65. Is the father of your child also your current partner/boyfriend/husband?
1. 1. No (GO TO QUESTION 66)
2. 2. Boyfriend/partner
3. 3. Husband
4. 4. DON’T KNOW
5. 5. REFUSED

66. Do you currently have a boyfriend/partner/husband?
1. 1. No (GO TO QUESTION 98)
2. 2. Boyfriend/partner
3. 3. Husband
4. 4. DON’T KNOW
5. 5. REFUSED
5. 5. REFUSED
5. 5. OTHER <SPECIFY> (GO TO QUESTION 74)
6. 6. DON’T KNOW
7. 7. REFUSED

76. How long have you been together with your current boyfriend/husband?
1. 1. 1 month or less
<table>
<thead>
<tr>
<th></th>
<th>2. 2. 1 to 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3. 3. 6 months to 1 year</td>
</tr>
<tr>
<td></td>
<td>4. 4. 1 year to 2 years</td>
</tr>
<tr>
<td></td>
<td>5. 5. 2 years to 3 years</td>
</tr>
<tr>
<td></td>
<td>6. 6. 3 years to 5 years</td>
</tr>
<tr>
<td></td>
<td>7. 7. 5 or more years</td>
</tr>
<tr>
<td></td>
<td>8. 8. DON'T KNOW</td>
</tr>
<tr>
<td></td>
<td>9. 9. REFUSED</td>
</tr>
</tbody>
</table>
APPENDIX C

PARENTING STRESS
APPENDIX C

PARENTING STRESS

Information regarding the Parenting Stress Index is available at www.parinc.com or on the author’s website (www.people.virginia.edu/~rra/).
APPENDIX D

BAYLEY SCALES OF INFANT AND TODDLER DEVELOPMENT - THIRD EDITION
APPENDIX D

BAYLEY SCALES OF INFANT AND TODDLER DEVELOPMENT
- THIRD EDITION

Administration:

The Bayley-III is an individually administered instrument that assesses the developmental functioning of infants and young children between 1 month and 42 months of age (Bayley III Administration and Scoring Manual). Prior to administrations, testing date and child’s date of birth are used to calculate child’s age and establish the start point. Children are administered items in order, beginning with child’s established start point. For all scales the following rules need to be followed:

**Reversal Rule:** The child must obtain scores of 1 on the first three consecutive items at the start point of any age to go forward. If the child obtains a score of zero on any of the first three items, the administrator must go back to the start point for the previous age and administer those items (Bayley III Record Form).

**Discontinue Rule:** Administration is stopped when the child obtains scores of zeros on five consecutive items.
APPENDIX E

BAYLEY-III LANGUAGE SCALE- RECEPTIVE
APPENDIX E

BAYLEY-III LANGUAGE SCALE - RECEPTIVE

The Receptive subtest includes items that assess preverbal behaviors; vocabulary development, such as being able to identify objects and pictures that are referenced; vocabulary related to morphological development, such as pronouns, and prepositions (Bayley III Administration and scoring manual).

Age: 16 months 16 days to 19 months and 15 days

Responds to request of social routines- Ask the child to perform a social routine. Avoid using any movement or gesture with the request.

1 point: Child responds in an appropriate manner to at least one spoken request.
0 points: Child does not respond in an appropriate manner to at least one spoken request.

Age: 19 months 16 days to 22 months and 15 days

Identifies Object Series - Place the objects (story book, cup, spoon, small ball, doll) in a line in front of the child. Ask the child to identify each object. (i.e., Where is the book?, Show me the book)

1 point: Child correctly identifies at least one object.
0 points: Child does not identify any objects named.

Identify Picture - Open the Picture book to page 1 and place it on the table, directly in front of the child. As the child to point to the pictures of the baby and the dog. Then administer the test items (pgs 2-5).

1 point: Child correctly identifies at least one of the test item pictures.
0 points: Child does not identify any objects named.
APPENDIX F

BAYLEY-III LANGUAGE SCALE- EXPRESSIVE
The Expressive subtest includes items that assess preverbal communication, such as babbling, turn taking; vocabulary development, such as naming objects pictures.

**Age: 16 months 16 days to 19 months and 15 days**

Uses one-word approximations: word approximations usually appear as consistent sound combinations for specific objects.

1 point: Child produces at least one word approximation.
0 points: Child does not produce one word approximations.

**Age: 19 months 16 days to 22 months and 15 days**

**Name Object**- As the child picks up an object (book, ball, cup, spoon, doll) ask him to name it by asking, What do you have? What is that?

1 point: Correctly names at least one object.
0 point: Child uses words that are names of the objects.

**Uses words appropriately**- 8 words
1 point: Child uses at least 8 different words appropriately.
0 points: Child only imitates words.
APPENDIX G

SOCIAL PLAY INSTRUCTIONS
Play without Toys (5 Minutes)

Now we would like to videotape your child playing with you for 5 minutes. Play with him/her as you normally would when playing WITHOUT TOYS.

Ahora queremos grabar a tu niño/a jugando contigo por cinco minutos. Juega con él/ella como lo haces normalmente SIN JUGUETES.

Allow mother to decide where she will be videotaped. If there are toys or other items that can be used as toys in that area, ask the mother to take them away. If she starts using something as a toy, remind her that we would like to see how the child plays without toys and that later she will have a chance to play with toys. She can start wherever she wants.

After 5 minutes, say: Good, let’s move to the next thing now. [Bien, continuemos con lo siguiente.] If they are in the middle of something (e.g., singing a song, talking about something), allow them to finish but don’t let it last too long.
APPENDIX H

MATERNAL BEHAVIOR SCALES
APPENDIX H

MATERNAL BEHAVIOR SCALES

Maternal Sensitivity

1. **HIGHLY INSENSITIVE**
   *Responses are characteristically inappropriate to child’s signals*
   - Mom acts according to her own wishes, moods, and wants
   - Only responds to child’s signals if they are intense, prolonged, or repeated
     - Delayed response shows lack of sensitivity
     - Responses are inappropriate
   
   Examples:
   - rarely interacting with child, just sitting there and not playing or teaching child
   - doesn’t notice or react when child is enjoying something or having difficulty with something (e.g. if child is crying, Mom doesn’t try to comfort or pick the child up)
   - does not make eye contact, emotionally disengaged
   - overstimulates child (ex: overtickling – child screams and is irrelevant)
   - Transitions too quickly from one activity to the next

2. *Characteristically insensitive*
   - 1 demonstration of convenient sensitivity

   **Scoring note:** If more than 1 time of convenient sensitivity, bump up to score of 3

3. **INSENSITIVE/CONVENIENT SENSITIVITY**
   *Characteristically insensitive, may on occasion demonstrate sensitivity or react promptly because child’s needs/wishes/mood are not too different from Mom’s*
   - Inability to see things from her child's perspective, take cues from her child, and then respond appropriately.
   - Can on occasion show some sensitivity if it only calls for slight adjustment of her own behaviors and goals

   **Scoring note:** Insensitivity is not as pervasive as a score of 1, demonstrates more “convenient sensitivity” than score of 2
Examples of “convenient sensitivity”:
  o Mom stops an activity, not when child is distressed, but because she is becoming annoyed with child’s distress
  o Delayed response that is no longer appropriate to child’s state
  o Once child’s immediate need has been met, Mom disengages or switches activity

Examples of insensitivity:
  o Mom is preoccupied or distracted by her environment
  o Overstimulation

4. *More insensitive than sensitive *
  o At least one instance of nonconvenient sensitivity in the context of:
    1) a base level of low-sensitivity (global)
    2) more than a few instances of convenient sensitivity (slightly more specific), and/or
    3) the nonconvenient sensitivity is highly sensitive (specific).
  o Mom could be a little more prompt in her response to child’s cues, but this is not consistent throughout the interaction

Scoring note: If there is no instance of nonconvenient sensitivity, bump down to score of 3. If demonstrates combined convenient/nonconvenient sensitivity about as much as sensitivity, bump up to score of 5.

5. INCONSISTENTLY SENSITIVE
*Switches between sensitive and nonsensitive behavior – one does not seem to outweigh the other*
  o Sometimes prompt and appropriate to child’s cues
  o Sometimes slow or disengaged
  o The intensity of sensitive behaviors balances out the intensity of insensitive behaviors

Examples:
  o Sometimes engaged, playful, and responsive to child’s cues
  o Overstimulation – tickling, chasing child around room until child’s laughter starts to have an edge/sob/scream
  o Once immediate need is met or crisis is resolved, Mom disengages
  o Sometimes doesn’t notice or respond when child is upset, having difficulty, or demonstrates a want
6. *More sensitive than insensitive, demonstrates some obvious inappropriate responses to child’s cues*
   - Mom mostly responds appropriately to child, is emotionally engaged and aware
   - There are moments where Mom’s response is delayed or incomplete

   **Example:**
   - Overstimulation
   - Sometimes if child does express a need or a wish to play a game, Mom doesn’t listen or respond but acts according to her own agenda
   - Latent response to child being upset

   **Scoring Note:** If moments of insensitivity seem more subtle (infrequent, little mismatches with child’s cues), bump up to a score of 7.

7. **SENSITIVE**
   *Characteristically sensitive, mother responds to child’s cues promptly and appropriately, with some subtle mismatches*
   - Mom responds to all of child’s cues
   - Mom is engaged and makes sure child is in a state to engage
   - Mom gives child time to respond before stimulating child further (turn-taking)
   - Infrequently, Mom misreads child’s cues or has a delayed response

   **Examples:**
   - Mom “checks in” with child after initiating activities
   - If child doesn’t like a game or activity, Mom transitions quickly to a different activity
   - Sometimes it may take her a few moments to figure out what the child wants, (e.g. if the child whimper and it takes Mom a few seconds to realize the child wants to be put down)
   - “Po-po” Mom

   **Scoring note:** If Mom does not check in with child, or if Mom misreads cues more frequently, bump down to score of 6. If there are no little mismatches or misreading of child’s cues, bump up to score of 8.

8. *Characteristically sensitive, with no inappropriate responses*
   - Mom is completely engaged and playful, encourages turn-taking
   - Mom ensures the child is in a state to engage and checks in with child
   - All of Mom’s responses are appropriate and prompt, but Mom does need to be prompted by a cue before she responds

   **Examples:**
   - Ring-Around-A-Rosie Mom

   **Scoring note:** If there are any instances of latent or mismatched responses, bump down to a score of 7. If Mom is so in tune with child’s needs that she appears to predict them before the child’s cue, bump up to a score of 9.
9. HIGHLY SENSITIVE

*All of Mom’s responses are highly appropriate, prompt and sensitive to child’s needs*

- Mom attempts to prevent problems by predicting child’s moods and behaviors
- When she is not able to grant the child’s wishes (the child wants something he shouldn’t have), she acknowledges what he wants and offers an alternative
- Is able to settle child into activities so both child and mother are absorbed in their interaction

Examples:
- Mother changes the activity immediately when she starts to notice child getting distracted, before he has a chance to get upset
- Both mother and child are satisfied with interaction

---

Scoring note: Insensitivity vs directiveness

If Mom introduces an activity that is not in line with what the child wants, assess if she appears to be trying to structure the interaction (directive). Is she aware of the child’s distress/distraction?

- If not aware, this action is insensitive.
- If she is aware, how appropriate is the activity she is introducing to the child’s abilities/level of development/interests?
  - If appropriate activity that engages the child – sensitive.
  - If appropriate activity that does not engage the child, and Mom switches activities – sensitive.
  - If appropriate activity that does not engage the child, and Mom does not switch activity – less sensitive.
- If inappropriate activity that engages the child – less sensitive
- If inappropriate activity that does not engage the child, and Mom switches activities – less sensitive.
- If inappropriate activity that does not engage the child, and Mom does not switch activities – insensitive.

---

Positive Affect

This scale assesses the degree to which mother expresses warmth, nurturance, and positive affection towards her child and enjoys interacting with her child, with degree defined in terms of frequency and intensity. Behaviors that evidence such an orientation include hugging and kissing the child; touching, rubbing and/or patting child in an affectionate manner, smiling and laughing with child; being enthusiastically involved in what child is doing. More subtle examples would include obvious affectionate and/or soothing handling of child during times of close bodily contact, as well as positively affective tone of voice directed toward child. Expressions of positive affect that are in context of close bodily contact should be considered of greater intensity than those that are without contact. Look for the following behaviors: smiles, laughing, hugs, kisses,
positive vocal tones, affectionate caresses or pats; obvious enjoyment in interacting with child; notice whether this type of interaction is characteristic of the whole episode or if it only happens occasionally.

<table>
<thead>
<tr>
<th>Score</th>
<th>Positive Affect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>Medium</td>
</tr>
<tr>
<td>5</td>
<td>High</td>
</tr>
</tbody>
</table>

1. No instances of warmth, affection, or enjoyment are observed. Mother is matter-of-fact, mechanical, and/or uninvolved.

2. **Only 1 instance of warmth (e.g. smile or encouraging tone) with no bodily contact**

3. Mother expresses positive affect, but such expressions are relatively infrequent and/or not very intense. Examples would include 1-3 smiles or positively affective tones that are **not in the context of “affectionate” close bodily contact**. Overall, the coder should be comfortable in determining that there was little expression of positive affect during the episode. If mother expresses slight positive affect (not intense), but this affect is not consistent throughout the episode, a “3” is a reasonable score.

4. **3 or more smiles or positively affective tones that may be reserved or subtle, with some touching that does not include hugging, kissing, or caressing.**

5. Mother displays positive affect sufficiently frequently (smile or laughs **3 or more times**; expresses warmth to child), or with enough intensity to warrant a higher rating than "4" (for example, if there are 2 positive behaviors which are more intense than her previous affective behavior, she could get a “5”). However, a rating of “5” does not require that positive affect characterizes mother’s behavior throughout the episode. The rater should use this rating when maternal communication of positive affect is **obvious**, though not necessarily consistent throughout the episode, and/or involved **little bodily contact** that indicates the communication of warmth, **although there may be some affectionate touching**.

6. (a) More frequent and intense positive affect, with affectionate bodily contact (hugs/kisses), but not enthusiastic (may not be characteristic of entire interaction). Or (b) A very involved, enthusiastic mother with affectionate touching but NO hugging or kissing.

7. Mother is involved and **enthusiastic**; she hugs or kisses her child, affectionately talks to and/or touches child. Such expressions of positive affect are frequent and/or intense enough to be judged as **characteristic of mother’s behavior** during the 5-minute period. Usually this rating will involve close bodily contact or caressing of some sort. It is possible that expressions of positive affect may be frequent enough to warrant a 6 without contact, but positive affect in the context of close contact would be recognized as more intense and warranted of a rating of “7”. Mother shows positive affect at all opportunities, **possibly with one or two breaks in affect**.

8. Characteristically and exuberantly positive, with 1 or 2 pauses or breaks in intensity of affect, or Mom has several instances of exuberant affect. Positive at all opportunities.
9. Instances of warmth, affection, and enjoyment are very frequent (almost continuous), and at least some instance of intense/exuberant behavior. A “9” rating requires that expression of positive affect dominates mothers’ behavior. Mother shows positive affect in a manner that shows extra effort, going above and beyond the situation.

**Mother’s Inventiveness-Repertoire of Behaviors**

This scale estimates the range of stimulation the mother is able to provide to her child. For instance, the number of different approaches, and types of interactions, her ability to find different manners to interest the child, different ways of playing, and inventing games. The coder’s attention should focus on the invention directed toward the child and the effectiveness in maintaining the child’s involvement in the situation. Therefore, invention directed toward the mother’s own purpose and not the child should not be considered and not counted. For example, if the child is not showing any interest and the mother begins to play for her own interest. Coder’s should also keep in mind how the mother uses herself to enrich the task. *(If the child is not engaged and Mom does not elaborate on the task, counts LESS towards cognitive stimulation)*

1. Very small repertoire: mother is able to do almost nothing with her child. She seems at loss for ideas, stumbles around, and is unsure of what to do. Her actions are simple, stereo typed, and repetitive.

3. Small repertoire: mother does find a few ways to engage the child in the activity, but these are of limited number and tend to be repeated frequently, possibly with long periods of inactivity. The mother introduces activities in 1-2 standard ways, but does not seem to explore the activities fully. **Only physical activities.**

5. Medium repertoire: mother has available to her the normal playing behaviors of motherhood and the usual means of play. Using this variety of approach she is able to engage the child more frequently and without long periods of inactivity. There may be some short periods of inactivity. Mother engages child with physical and non-physical activities.

7. Large repertoire: mother has available to her and shows ability to use all the usual playing behaviors of motherhood, but in addition is able to find a few uses which are especially appropriate/creative to the situation and her child’s momentary needs. Examples are counting items, identifying colors, grouping by color, show me your nose, labeling parts of the body, ring around the rosie.

9. Very large repertoire: mother is consistently finding new ways to engage child, and use her own actions to play with the child. She shows both standard play and many unusual but appropriate play and continually is able to change her behavior in response to the child’s need and state.
Detachment

1 = Not at all characteristic. **This rating should be given to mothers who display no signs of detachment or underinvolvement.** When interacting with the child, the mother is clearly emotionally involved. And when not interacting with the child these mothers are aware of what the child is doing. These mothers can be sensitive or intrusive.

2 = Minimal emotional disengagement and uninvolvement (e.g., lack of interest in child’s activities, doesn’t know how to appropriately comfort child in distress – only holds without touching, kissing, or talking to child)

3 = Minimally characteristic. This rating should be given to mothers who display minimal detachment. While the mother is sometimes noninvolved, she is clearly more involved than not. **1-3 instances of minimal to moderately detached behavior, including obvious emotional disengagement, and some physical lack of awareness of child with lack of joining in child’s activities**

4= Mom is more involved than detached

5 = Inconsistently characteristic. This rating should be given to mothers who can be detached on occasion, with **some periods in which she is involved** with her child. She is as frequently detached as she is engaged. The outcome is that the mother seems to be out of step in regards to dealing with her child. Inconsistently detached mothers may be provided opportunities to demonstrate involvement, but she doesn’t respond either because she doesn’t want to or she doesn’t pick up on child’s signals. **(e.g. Mom is inconsistently involved or aware of child, doesn’t monitor child when potentially dangerous situations arise or adult discipline/control is needed, ignores child’s distress/difficulties)**

6= Mom is more detached than involved

7 = Moderately characteristic. This rating should be given to mothers who are **mostly detached.** The mother is unaware of what the child is doing and where he/she is at fairly often. **Disengagement is characteristic of the interaction,** and although there may be periods of **minimal engagement,** they are infrequent.

8= Highly detached, with only 1 or 2 instances of engagement

9 = Highly characteristic. This rating should be given to mothers who are highly detached. The child spends virtually all of his/her time without mother attention, or at best only visual attention. In the minimal instances of involvement, the mother’s behaviors are simple, mechanical, stereotyped, repetitive, and perfunctory. The mother is clearly not emotionally involved with the child, and appears to be “just going through the motions.”

Stimulation of Cognitive Development

1 = Not at all characteristic. **The mother makes almost no attempts to teach the child anything or provide any stimulation.** She may provide routine care but does not use it as an opportunity for learning. The mother may ignore the child’s activities or interact perfunctorily, providing no stimulation.
2 = One instance of non-purposeful teaching, such as labeling

3 = Minimally characteristic. This rating should be given to mothers who provide infrequent or weak stimulation. The mother’s conscious and purposeful attempts to engage in development-fostering experiences are limited. She may label or demonstrate materials, but does so perfunctorily and/or with minimal elaboration.

4 = Stimulation is not the main agenda, limited teaching activities with elaboration (e.g. Mom goes through all the parts of the body with the child, but this is the only instance of cog stimulation)

5 = Inconsistently characteristic. This rating should be given to mothers who provide adequate stimulation but could reasonably be expected to provide more and higher-quality stimulation. The mother does make some effort to provide stimulation, but does not consistently take advantage of opportunities to do so. Stimulation is not the main agenda. The mother may find some new ways to engage the child, but these ways are limited in number. Actions are likely to be simply repeated rather than thoughtfully varied. Mothers who provide a rich linguistic environment but do not demonstrate the potential of the physical world would receive this rating.

6 = Stimulation is main agenda, teaching episodes are both linguistic and physical, but there are several opportunities that Mom does not take advantage of or attempt to teach child.

7 = Moderately characteristic. This rating should be given to mothers who provide consistent and appropriate stimulation. Stimulation is the main agenda, and is varied and creative. The mother takes every opportunity to engage the child, although there may be one or two instances that she does not take advantage of. Mothers provide rich language and physical stimulation.

8 = Mom takes every opportunity to teach/initiate activities for stimulation.

9 = Very characteristic. This rating should be given to the mother who is consistently stimulating and takes advantage of many activities as opportunities for stimulation. The mother provides frequent stimulation through “lessons,” explanations, or activities. Teaching or fostering development is a primary intent of the mother’s frequent interactions with the child. The mother thoughtfully varies and elaborates on these activities, providing numerous opportunities which are exceptionally advantageous to the child. She provides rich stimulation in terms of language, and embellishment of the potential of the physical world. (Creative, able to adapt to child’s distractions/interests/attempts to initiate activities)
APPENDIX I

MATERNAL BEHAVIOR RATING SHEETS
APPENDIX I

MATERNAL BEHAVIOR RATING SHEETS

Latina Mother’s Project

Social Play

Maternal Behavior Coding Sheet

Coder’s Name: __________________________ Date Coded: ______________

ID #: _________________________

HV #: 1 2 HV Date: ______________

Language: English ____ Mostly English ___ Mixed____ Mostly Spanish____ Spanish____

Sensitivity: ______ Notes:

Positive Affect: ______

Repertoire: ______

Detachment: ______

Cognitive Stimulation: ______
APPENDIX J

RELIABILITY SHEET
APPENDIX J

RELIABILITY SHEET

Latina Mother’s Project

Reliability Social Play
Maternal Behavior Coding Sheet

<table>
<thead>
<tr>
<th>Subject #: __________________________</th>
<th>Date Coded: ______________</th>
</tr>
</thead>
<tbody>
<tr>
<td>HV #: 1 2</td>
<td>HV Date: ______________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Play without Toy:</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity:</td>
<td></td>
</tr>
<tr>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>Positive Affect:</td>
<td></td>
</tr>
<tr>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>Detachment:</td>
<td></td>
</tr>
<tr>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>Cog Stimulation:</td>
<td></td>
</tr>
<tr>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>Repertoire:</td>
<td></td>
</tr>
<tr>
<td>_____</td>
<td>_____</td>
</tr>
</tbody>
</table>
REFERENCES


preschoolers. *Journal of Child Language*, 38, 823-843. doi: 10.1017/S0305000908008805


