MATERNAL BEHAVIOR OF LATINA ADOLESCENT MOTHERS
AND THEIR TODDLERS’ COGNITIVE
AND LANGUAGE FUNCTIONING

A thesis submitted
to Kent State University in partial
fulfillment of the requirements for the
degree of Master of Arts

by

Petra A. Duran

December, 2010
Thesis written by
Petra A. Duran
B.S., Brown University, 2004
M.A., Kent State University, 2010

Approved by

_________________________________, Advisor
Josefina Grau

_________________________________, Chair, Department of Psychology
Maria Zaragoza

_________________________________, Dean, College of Arts and Sciences
John R. Stalvey
# TABLE OF CONTENTS

**LIST OF TABLES** ............................................................................................................................................. v

**CHAPTER**

I. **INTRODUCTION** ........................................................................................................................................ 1

   Maternal Behavior and Child Outcomes ................................................................................................. 3
   Current Study ........................................................................................................................................ 11

II. **METHOD** .................................................................................................................................................. 15

   Participants .............................................................................................................................................. 15
   Procedure ................................................................................................................................................ 16
   Measures .................................................................................................................................................. 18

III. **RESULTS** .................................................................................................................................................. 27

   Overview of Analysis .............................................................................................................................. 27
   Study Aim I: Child Cognitive and Language Outcomes ......................................................................... 28
   Study Aim II: Relationship between Individual Maternal Behaviors and Child Outcome Variables .......................................................... 32
   Study Aim III: Rule of Maternal Behavior Above and Beyond Significant Risk Factors ....................... 34

IV. **DISCUSSION** ......................................................................................................................................... 48

**REFERENCES** ............................................................................................................................................ 60

**APPENDICES** ........................................................................................................................................... 71

A. **CONSENT FORMS** ............................................................................................................................... 72
B. **MATERNAL QUESTIONNAIRE DEMOGRAPHIC QUESTIONS** .............................................................. 81
C. **ECONOMIC STRAIN** ............................................................................................................................. 86
**TABLE OF CONTENTS (Continued)**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D.</td>
<td>BAYLEY SCALES OF INFANT AND TODDLER DEVELOPMENT</td>
<td>89</td>
</tr>
<tr>
<td>E.</td>
<td>BAYLEY – III COGNITIVE SCALE</td>
<td>91</td>
</tr>
<tr>
<td>F.</td>
<td>BAYLEY – III LANGUAGE SCALE-RECEPTIVE</td>
<td>94</td>
</tr>
<tr>
<td>G.</td>
<td>BAYLEY – III LANGUAGE SCALE-EXPRESSIVE</td>
<td>96</td>
</tr>
<tr>
<td>H.</td>
<td>TEACHING TASK INSTRUCTIONS</td>
<td>98</td>
</tr>
<tr>
<td>I.</td>
<td>FREE PLAY TASK INSTRUCTIONS</td>
<td>100</td>
</tr>
<tr>
<td>J.</td>
<td>MATERNAL BEHAVIOR SCALES</td>
<td>102</td>
</tr>
<tr>
<td>K.</td>
<td>MATERNAL BEHAVIOR RATING SHEETS</td>
<td>113</td>
</tr>
<tr>
<td>L.</td>
<td>RELIABILITY SHEET</td>
<td>116</td>
</tr>
</tbody>
</table>
LIST OF TABLES

1. Inter-Rater Agreement: Intraclass Coefficients of Maternal Behavior Variables within task .................................................................25

2. Correlations of Maternal Behavior Variables Across 2 Free Play Segments ..........25

3. Mean, Standard Deviation and Ranges for Maternal Behaviors Scales during Teaching and Free Play Scales .................................................................26

4. Outcome Scores Gender Differences and Comparison of Scores with Relevant Groups ...........................................................................................................30

5. Partial Correlations Between Teaching Maternal Behavior Variables and Child Outcome Variables while Controlling for Child’s Age and Gender ..........33

6. Partial Correlations between Free Play Maternal Behavior Variables and Child Outcome Variables while Controlling for Child’s Age and Gender ..........34

7. Correlations of Maternal Behavior Variables within Teaching Task Episode ........35

8. Correlations of Maternal Behavior Variables within Free Play Episode ...............35

9. Correlations of Maternal Behavior Variables Across Task ................................37

10. Partial Correlations between Risk Factors and Child Outcome Variables while Controlling for Child’s Age and Gender .........................................................38

11. Bivariate Correlations between Risk Factors and Maternal Behavior Variables .....39

12. Partial Correlations between Maternal Behavior Aggregates and Child Outcome Variables while Controlling for Child’s Gender and Age........................................41

13. Hierarchal Linear Regression: Relationship between Maternal Sensitivity-Nonintrusiveness and Child Language Functioning ..............................................43

14. Hierarchal Linear Regression: Relationship between Maternal Positive Affect Aggregate and Child Language Functioning .................................................44
LIST OF TABLES (Continued)

15. Hierarchical Linear Regression: Relationships between Maternal Repertoire and Child Language Functioning .................................................................46

16. Hierarchical Linear Regression: Relationships between Maternal Vocalizations and Child Language Functioning ..............................................................47
CHAPTER I

INTRODUCTION

Latinos are the largest and fastest growing minority group in the United States. The adolescent Latino population is expected to grow even more rapidly, as it is projected to increase by 50 percent by 2025 (U.S. Census, 2008). This rapid increase raises concern because Latinas have the highest teen birth rate of all ethnic groups in the U.S. (Hamilton, Martin, & Ventura, 2007) and adolescent childbearing is associated with adverse outcomes for young mothers and their children (Moore & Brooks-Gunn, 2002). Children of adolescent mothers are at risk for lower cognitive and verbal attainment (Dubow & Luster, 1990; Moore & Snyder, 1991). Such deficits begin to appear in these children in their second year of life and increase in severity throughout their development (Brooks-Gunn & Furstenberg, 1986; Field, Widmayer, Adler, & de Cubas, 1990; Furstenberg, Brooks-Gunn, & Morgan, 1987; Hann, Osofsky, & Culp, 1996).

Despite the elevated risk for cognitive and language deficits, little research addresses these outcomes in toddlers of Latina adolescent mothers. Thus, one goal of the current study was to examine these outcome scores and compare them to scores of other relevant groups. Moreover, research indicates that maternal behavior relates to the delays encountered by children of adolescent mothers (Brooks-Gunn & Furstenberg, 1986; Field, et al., 1990). Therefore, the central aim of the study was to examine the
association between maternal behavior of Latina adolescent mothers and their toddlers’ cognitive and language development.

Studies examining maternal behavior among adolescent and Latina mothers tend to rely on indirect indices of parenting (e.g., self-reported parenting attitudes) rather than behavioral observations. However, mother-child interactions provide a vast amount of information and provide the opportunity to obtain a measure of maternal behavior that is not affected by social desirability (Cohen & Kasen, 1999). Therefore, the current study assessed maternal behaviors through observer ratings of mother-child interactions during a teaching and a play episode that were videotaped in the mothers’ home. Directly examining the maternal behavior of Latina adolescent mothers allows for prevention and intervention efforts to be tailored specifically to the parenting of these young mothers.

To better understand the role of maternal behavior on child cognitive and language outcomes in this population, it is important to examine these relations considering the risk factors of young Latina mothers. According to the literature, socioeconomic status (SES) is a prominent risk factor for adolescent parents. Adolescent mothers tend to come from lower SES backgrounds, have lower intellectual ability, and perform more poorly in school than their peers who do not have children (Flick, 1986; Klerman, 1993). Furthermore, adolescent mothers are more likely than adult mothers to live with their children in impoverished households in neighborhoods that lack beneficial resources (Klerman, 1993; Moore, Hofferth, Wertheimer, Waite, & Caldwell, 1981). Given the complex context of adolescent mothers and their children, the current study
examined whether maternal behavior related to these child outcomes when considering the risks that are common in this population.

**Maternal Behavior and Child Outcomes**

Researchers have had a long history of interest in how parent-child interactions contribute to the development of competence in young children. This literature has focused on key aspects of these interactions, which are thought to play a role in the development of children’s’ cognitive and language skills. Specifically, the literature has examined maternal sensitivity and intrusiveness, the affective quality of the interactions, and the verbal stimulation and teaching strategies that are used by a parent.

Although the literature has disregarded the theoretical underpinnings of the expected relations between these behaviors and child functioning, the focus on these behaviors is consistent with predictions from Attachment and Vygotsky’s Socio-Cultural theories. 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 competency. Furthermore, Vygotsky’s Socio-Cultural theory (Vygotsky, 1978) emphasizes sensitivity, the affective quality and teaching strategies as important contributors to the child’s “zone of proximal development” (ZPD). With maternal guidance and instruction, children develop a more mature approach to tasks (Rogoff, 1998), thus engaging them in learning experiences. Therefore, children gain competency from relying on their parent to assist them in elevating their ability to accomplish tasks, beyond their autonomous performance.
The empirical literature, which has focused primarily on middle class and European American (EA) families, provides evidence of the predictive power of these behaviors. In terms of sensitivity, sensitive mothers respond promptly, contingently, and have appropriate reactions to their children (Ainsworth, Bell & Stayton, 1974). Research indicates that sensitive and responsive maternal behaviors consistently associate with young children’s cognitive development and speed of language acquisition (Landry, Smith, Swank, Assel, & Vellet, 2001; Landry, Smith, Swank, & Miller-Loncar, 2000; Tamis-LeMonda, Bornstein, & Baumwell, 2001; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004).

Evidence of the influence of maternal behavior also exists in the literature regarding mother intrusiveness. Intrusive mothers interrupt, control, or redirect their children’s activities. Although early studies report mixed findings regarding the relation of intrusive behavior with language outcomes (Della Corte, Benedict, & Klein, 1983; Snow, 1989), more recent literature suggests that maternal intrusive behavior inversely relates to children’s cognitive and linguistic functioning. Egeland and colleagues (1993) found that children of intrusive mothers scored lower on academic achievement than children of nonintrusive mothers. In addition, mothers’ tendency to take over a task from their child inversely related to children’s preschool receptive vocabulary scores (Culp, Hubbs-Trait, & Stavost, 2000).

Research examining the affective quality of the mother-child interaction focuses on maternal warmth, nurturance, and positive affection (e.g., hugging, kissing, touching and smiling). Positive affect during mother-child interactions functions to promote
learning by increasing the child’s attention to his mother and by fostering enthusiasm in the child (Ratner & Stettner, 1991). Literature shows that maternal positive affect coded from videotapes of mother-child free play relates to children’s later receptive vocabulary (Hann, et al., 1996) and concurrent cognitive test scores (Kirsh, Crnic, & Greenberg, 1995). Hart and Risley (1995) found that statements of approval and other affirmations (tone of voice) by parents to their 13 to 36 month old children positively correlated with children’s Stanford Binet IQ scores and measures of vocabulary used at 3 years of age.

Regarding verbal stimulation, research indicates that mothers who engage in more verbal interactions have children with greater cognitive skills (Lazare & Darlington 1982; Royce, J. M., Darlington, R. B., & Murray, H. W., 1983). Moreover, research shows that children’s school readiness relates to the frequency and content of mothers’ verbalizations (i.e., complexity of syntax, frequency of abstract words uttered; Price, Hess, & Dickson, 1981).

A majority of the research examining teaching strategies focuses on growth fostering behaviors (e.g., approaches to interest the child, effectiveness in maintaining the child’s involvement, and how mothers use themselves to enrich the task). These behaviors encompass the learning experiences the caregiver make available for the child. Studies indicate that growth fostering behaviors significantly relate to child cognitive abilities (Caruso, 1996). In addition, growth fostering behaviors associate to receptive and expressive language scores (Luster & Vandenbelt, 1999).

Although the predictive power of each of these individual behaviors has been examined with adult European Americans, research examining maternal behavior among
minority and adolescent mothers is more limited and tends to utilize an overall composite of maternal behaviors. The utilization of such composites raises concern as they are often created without examining and considering the relations among specific maternal behaviors within the study’s sample. Additionally, this limitation impedes the identification of maternal behaviors that are important among certain populations and prevents the examination of unique relations between specific maternal behaviors and child functioning. Thus, the following studies including minority and adolescent mothers will be reviewed considering this limitation and thoroughly examining methods used to assess mother and child variables.

**Latina Mothers’ Maternal Behavior**

Only four published research studies have examined the relation between maternal behavior and child cognitive and language functioning in samples of adult Latina mothers. One study examined variation in mother-infant interactions and infant (age 9 to 12 months) cognition in a sample of 1099 Latinos (735 Mexican American and 346 other). 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’ cognitive development was assessed with BSF-R, which is a shortened version of the Bayley Scale of Infant Development- Second Edition (BSID-II; Bayley, 1993).
Researchers found that higher maternal interaction scores associated with higher cognitive test scores (Cabrera, West, Shannon, & Brooks-Gunn, 2006).

Kolobe (2004) examined the relationship between maternal childrearing practices and behaviors and the developmental status of 62 Mexican American infants (age 9 – 14 months). The HOME Inventory was used to measure the quality of stimulation in the home environment. The HOME Inventory overall score is based on 45 binary interview and observation items, including the examination of maternal behaviors and provision of stimulation during mother-child interactions. The NCATS (Sumner & Spietz, 1994) was also utilized in this study. The Mental Development Scale of the Bayley Scales of Infant Development II (BSIDII; Bayley, 1993) was used to assess infants’ cognitive development. Both the quality of the home environment and the overall NCATS score correlated positively with the infants’ cognitive development.

The following 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 “three bag” play session. The three bag assessment involves presenting the parent and infant with three numbered pillowcases, each containing a different toy; a wordless book, a toy stove top and kitchen set, and a Noah’s Ark set.

The first of these two studies, using an ethnically, mixed sample of 25% Latino, 34.8% African American and 40.2% European American, investigated the contributions of family income and parenting quality to children’s cognitive development in 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 family resources and the parenting dimensions composite uniquely contributed to children’s cognitive 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 and cognitive 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. They found that mother’s detachment never associated with child outcomes. However, correlations indicated that mothers’ sensitivity, positive regard, and cognitive stimulation were associated to higher scores on the Mental Scale of the BSID-II (MDI; Bayley, 1993) at 24 and 36 months and higher scores on the Peabody Picture Vocabulary Test (PPVT-III; Dunn & Dunn, 1997) scores at 36 months. In addition, maternal intrusiveness inversely associated with MDI scores at 24 months and negative regard associated with low scores on the MDI at 36 months.

**Adolescent Mothers**

To date, much of the research including adolescent mothers has compared adolescent parenting to adult parenting. Results show that compared to having children in adulthood, early childbearing relates to less effective and desirable parenting (Field, Widmayer, Stringer, & Ignatoff, 1980; Osofsky, Hann, Peebles, 1993). However, only two studies investigated the relation between maternal behavior and child cognitive or
language outcomes in samples of European American and African American adolescent mothers. Overall, these studies found that maternal behavior during parent-child teaching and play interactions relates to child outcomes.

The first study investigated the relation of family support factors and maternal characteristics to child outcomes among 338 African American adolescent mothers (Cooley and Unger, 1991). The quality of the mothers 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 Peabody Individual Achievement Test (PIAT; Sattler, 1988) and the Behavior problems index were used to assess child outcomes. Results showed that maternal responsiveness and cognitive stimulation related to high achievement scores and less behavioral problems.

Secondly, in a longitudinal study of 69 adolescent mothers (57.4% European American and 42.6% non European American) and their children, the potential risk of cognitive and linguistic outcomes were evaluated. Maternal sensitivity, positive and negative affect, dyadic interactive fit and dyadic verbal reciprocity were assessed. At 30 months child cognitive abilities were assessed with the Stanford Binet Form and at 44 months child receptive language was assessed with the Peabody Picture Vocabulary test. Results showed that both mother-child relationship and demographic risk affected cognitive and linguistic development. Specifically, indices of maternal positive affect, dyadic verbal reciprocity and dyadic fit at 13 and 20 months related to later cognitive-
linguistic outcomes. Maternal sensitivity and negative affect were not associated with later cognitive-linguistic outcomes (Hann, et al., 1996).

**Latina Adolescent Mothers**

The relation between maternal behavior and child outcomes has rarely been investigated in samples of Latina adolescent mothers. Only one published research study has specifically examined maternal behavior in relation to children’s cognitive and language development in a sample that included significant proportions of Latina adolescent mothers.

This longitudinal study of 164 adolescent mothers (112 Cuban and 52 African American) investigated the relations between parenting, culture, and family constellations and child outcomes (Field, et al., 1990). Mother-infant interactions were observed during 10 minutes of free play and 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 in the Cuban sub-sample, demonstrating toys at 12 months negatively related to the Bayley mental score at 24 months. Mother’s behaviors of directing play and ignoring were not associated to the child mental score for this sub-sample. In the sub-sample of African American mothers, ignoring the infants at 12 months negatively related to Bayley mental score at 24 months. Yet, in this sub-sample, demonstrating toys and directing play were not associated with the child’s mental score. However, in both samples, the decrease in mothers’ play behavior from 12 to 18 months related to a decrease in the Bayley mental scores from 18 to 24 months.
In summary, the relation between maternal behavior and child outcomes has been scarcely investigated in samples of Latina adolescent mothers. In the only study that included a significant proportion of Latina adolescent mothers, Field and colleagues (1990) found a relation between the level of involvement during interactions and their children’s functioning. However, the relationship between specific maternal behaviors and child cognitive and language outcomes remains unstudied in this population.

**Current Study**

Given the paucity of data on samples of Latina mothers in general and Latina adolescent mothers specifically, the current study added to the literature by using a within-group design to examine the relation between specific maternal behaviors of Latina adolescent mothers and their 18 month old child’s cognitive and language functioning.

The goals of this study were threefold: First, this study sought to expand the current literature by providing descriptive information regarding the cognitive and language scores of the toddlers of young Latina mothers. Although deficits among children of African American and European American adolescent mothers have been described in the literature, only one study (Field, et al., 1990) has reported on the levels of functioning of children of Latina adolescent mothers and this study included Latinos of only one country of origin (Cuban). Therefore, the scores are examined in relation to the test norms, poor children, children of ethnically diverse adolescent mothers and those of other minority children with adult and adolescent mothers. Second, the study examined the relation between individual maternal behaviors and child cognitive and language
developmental outcomes among Latina adolescent mothers. Mother-child interactions were assessed for maternal sensitivity, intrusiveness, positive and negative affect, vocalization, and repertoire of behaviors. Consistent with previous results it was hypothesized that sensitivity, positive affect, repertoire and vocalization would associate with higher cognitive and language scores. In addition, it was hypothesized that less intrusiveness and negative affect would relate to higher cognitive and language outcomes. Lastly, the current study examined the role of maternal behavior when considering risk factors that are prominent in these young families. In order to examine this goal, composites of maternal behavior were created and the relationship between these composites and child outcomes were examined. It was hypothesized that maternal behavior would relate to cognitive and language functioning when considering the risk factors of young Latina mothers.

The current study assessed maternal behavior during observations of mother-child play and teaching interaction episodes and maternal behavior rating scales that have been used in previous work (Contreras, 2004; Contreras, Mangelsdorf, et al., 1999). Studies of Latina adolescent (Contreras, 2004; Contreras, Mangelsdorf et al., 1999) and adult Puerto Rican mothers (Harwood, Schoelmerich, Schulze, Gonzalez, 1999) indicate that the interaction episodes and scales capture adequately the variability in maternal behavior present in this population. Furthermore, these scales show conceptually meaningful relations with social support variables and child behavior (Contreras, 2004; Contreras, Mangelsdorf, et al., 1999) in samples of Latina adolescent mothers.
Previous research investigating the relations between maternal behavior and child cognitive and language functioning has several limitations. First, as previously noted, a majority of studies examining maternal behavior utilize the NCATS score, which is an overall composite score. However, the single score prevents examination of specific maternal behaviors in relation to child outcomes. Moreover, the NCATS was not developed to assess the entire range of responsive parenting (Sumner & Spietz, 1994). Therefore, to advance the literature of young Latina mothers, the current study examined maternal behavior using individual indices of maternal behavior.

The majority of previous studies assessed child cognitive and language functioning with the mental scale of the Bayley Scale of Infant Development- Second Edition (BSID-II; Bayley, 1993). The mental scale assesses memory, problem solving, early number concepts, generalization skills, vocalizations, language and social skills. The mental scale is composed of both cognitive and language items and yields one overall score, the mental development index (MDI). With the development of a new edition of the Bayley (Bayley-III; Bayley, 2005), separate measurement of cognitive and language functioning is available. Therefore, the current study assessed children with the Cognitive and Language scales of the Bayley-III, thus advancing the literature by examining the children’s functioning on each scale independently. As such, this investigation can inform future research in identifying risk and protective factors that influence either cognitive functioning, language development, or both.

In summary, the specific aims of the proposed study were to examine a) the cognitive and language scores of children of Latina adolescent mothers b) the relation
between individual maternal behavior scales and child functioning, and c) the relations between maternal behavior composites and child outcomes above and beyond risk factors.
CHAPTER II

METHOD

Participants

One hundred and seventy 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 (82.4%). Mothers were also of Mexican (7.1%), Dominican (2.9%), Peruvian (2.4%), and Other (Colombian, Cuban, Guatemalan, Salvadorian; 5.4%) origin. At the time of the interview, the mother’s mean age was 19.5 (SD = 1.35; range = 16-21). The targeted children’s (54% males) mean age was 18.22 months; SD = .95 (age ranged from 16 to 20 months). Most of the children (92.4%) were born in the US mainland; 70.6% were described by their mothers as being of purely Latino origin, 18.8% as mixed Latino and African American origin, 7.1% mixed Latino and European American origin, and 3.5% mixed Latino and Other. A majority of the children were the only child (71.8%); 12.9% were the first child, 14.7% were the second child and .59% were the third 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 (67.6%). Of those 18.2% completed the 9th grade and 15.9% completed the 10th grade. Some mothers (18.8%) had a high school diploma and 13.5% had some post graduation education or vocational training. At the time of the interview, 13.5% of mothers were attending school full time, 12.4% part-time, and 74.1% were not attending school. Additionally, 70 (41.2%) mothers reported being employed and 88.2% 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 is the father of the target child, and the remaining 30 (24%) reported that their partner is not their child’s father. A total of 88 (51.8%) mothers reported residing with a partner or child’s father.

**Procedure**

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 of the participants (78.2%) were recruited through face-to-face contact in waiting rooms of pediatric clinics (15.3% referred by friends/relatives or self; 6.47% by professionals or others in the community). Given the
difficulty in reaching young Latina mothers in the area (e.g. no service agency is devoted
to this population and no specialized High School classes are provided), mothers were
enrolled whenever contact was established, regardless of child’s age. Mothers were then
followed until the child met age criteria.

Over the three year recruitment period, 253 mothers who met criteria were
contacted. On first contact, 12 of these eligible mothers did not agree to enroll in the
study (4.7%). Of the remaining 241 enrolled and followed mothers, 170 (70.54%)
participated in the study. 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.
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. Home visits were conducted
by two bilingual females. The duration of home visits was approximately 2.5 to 4 hours,
depending on necessary breaks and unexpected interruptions. During the home visit, the
child was administered a cognitive and language test, and 5 mother-child interaction tasks
were videotaped. Children were tested using the child’s dominant language(s), but
assessors also incorporated Spanish and English words the child had vocalized. 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. A majority of mothers (70.6%) completed questionnaires in English, while 29.4% completed them in Spanish. 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, 2005). Therefore, prior to data collection, the Bayley was first translated by a bilingual member of the research team and then back translated by two separate bilingual members of the team. Bilingual speakers resolved inconsistencies to achieve language equivalence (Brislin, 1970).

Demographic Variables

Demographic information was obtained through self reports. At the time of recruitment, participants provided their date of birth, ethnicity, and the date of birth of their target child to determine eligibility. During the home visit, a set of fixed format questions were used to gather the following demographic information: child’s 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.

**Economic Strain**

Mother’s economic strain was measured with nine questions regarding their household’s ability to afford basic necessities (e.g., decent housing, transportation, medical care, clothing; See Appendix C). Economic strain was rated on a 4-point scale ranging from (1) Never, (2) Sometimes, (3) Most of the time, and (4) Always. The economic strain score was computed by averaging nine scores, thus a higher score indicates higher strain. For the participants who reported economic strain, adequate reliability ($\alpha = .82$) was found, and reliabilities of .82 and .72 were found for English and Spanish respondents, respectively.

**Child Cognitive and Language Assessments**

The Bayley Scale of Infant and Toddler Development- 3rd Edition (Bayley III; Bayley, 2005) was administered to obtain an index of the children’s cognitive and language functioning. The Bayley III assesses infants and toddlers across five domains: Cognitive, Language, Motor, Social-Emotional, and Adaptive Behavior. However, to examine the aims of the current study only the Cognitive and Language scales were administered (See Appendix D). The Cognitive Scale examines how the child thinks, reacts, and learns about the world around him or her. Children in the age range of the current study, are given tasks that measure how they play with different kinds of toys,
how they explore new toys, how they solve problems, and their ability to complete puzzles (See Appendix E). 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 F). 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 G).

The Bayley Scale of Mental Development- 3rd Edition (BSID; Bayley, 2005) is the most recent version of the measure of the Bayle Scales. The current norms are based on scores of 1,700 children, ages 1 to 42 months. The normative sample was stratified on key demographic variables (i.e. age, sex, race, geographic location, and parent education). Since the recent development of the Bayley III, several published studies have reported findings based on this measure. However, none of these studies has included normally developing children, or children of adolescent or Latina mothers. The Bayley III is similar to the BSID-II, which has been the most widely used measure of cognitive development for this age range and has been successfully used with children of different ethnic backgrounds, including Latinos (Bayley, 1993). The majority of cognitive items from the BSID-II Mental Scale were retained for the Bayley III. In order,
to strengthen the cognitive scale, items were rewritten to decrease the impact of motor
ability and item directions were revised to be less reliant on the child’s receptive
language skills. In addition, 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). The new items in the Bayley III
Language Scale expanded the coverage across ages. 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, 2005).

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. Most children (43.5%) were administered the Bayley in English; 41.8% in Spanish
and 14.7% in a mixture of English and Spanish. The administrators advised the mothers
to provide support and encouragement during the testing without showing or telling their
child how to complete the items.

**Maternal Behavior**

Maternal behavior was assessed during a teaching and a free play task. Previous
studies with Latina adolescent (Contreras, 2004; Contreras, Mangelsdorf, et al., 1999)
and adult mothers (Harwood et al., 1999) of various ethnic backgrounds, indicate that
these tasks capture adequately the variability in behavior present in this population.
The teaching task required mothers to teach their child how to play with a shape sorter for five minutes. The toy was slightly developmentally advanced for the children. The English and Spanish versions of the standardized instructions provided to the mother for this task can be found in Appendix H. While instructions were presented, the shapes were removed from the shape sorter and placed in front the mother and child.

The free-play task required mothers to play with their child as they normally would when playing with a set of age appropriate toys for ten minutes. The English and Spanish versions of the standardized instructions for this task can be found in Appendix I. As instructions were presented, the toys were placed in front of the mother and child.

**Maternal behavior scales.** Maternal behavior was assessed by rating scales derived from scales constructed by Isabella (1993) and adopted to assess the behavior of young Latina mothers in previous work (Contreras, 2004; Contreras, Mangelsdorf, et al., 1999). In prior research with Latina adolescent mothers, these scales have shown conceptually meaningful relations with predictors of maternal competence (e.g., social support variables) and with child behavior (Contreras, 2004; Contreras, Mangelsdorf et al., 1999).

Each task was coded separately using four, 9-point scales: Sensitivity, Negative Affect, Positive Affect, and Intrusiveness. Two additional scales were used to code the teaching task: Vocalizations and Repertoire of Behaviors. The following is a brief description of the six maternal behaviors scales (Refer to Appendix J for full scale actually used by coders):
Sensitivity: The timing and appropriateness of the mother’s response to their children’s signals.

Negative Affect: The frequency and intensity of hostility, annoyance, frustration, impatience, and disapproval exhibited toward the child.

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

Intrusiveness: The extent to which the mother imposes activities, commands the child, and physically manipulates the child to achieve her goals.

Vocalization: The frequency and duration of mother’s vocalizations.

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

Coding. For the purpose of this study, three raters (who were all blind to other participant data) were trained to produce reliable ratings of each coded maternal behavior. During the training process, interactions collected during another study were employed. The goal of the training was to produce raters who could utilize each maternal behavior scale accurately and to establish 80% inter-rater agreement. All coders met the required agreement on the training tapes.

For the actual coding process, the free play task was coded in two, 5 minute segments. Rating scores were recorded in the appropriate recording sheet (See Appendix K). One recording sheet was utilized by each coder for each task. Each sheet provided space to record each coding score and to document notes linking scores and observations.
**Inter-rater reliability.** During the coding process, each coder was given a private list of tapes to be coded. The tapes were coded in random order, and twenty-five percent of the observations (n = 42) were randomly selected to be “reliability tapes”. For each of these tapes, two coders independently coded both teaching and play tasks in order to calculate inter-rater reliability. Coders remained blind regarding which tapes were used to calculate inter-rater reliability until coding was completed. Throughout the coding process, the raters met at regular intervals (every week) in order to compare scores for the “reliability tapes”. During these regular meetings, discrepancies were resolved and a consensus score was determined.

In order to compute inter-rater agreement, intra-class coefficients (Shrout & Fleiss, 1979) were calculated for each scale in each of the two tasks (See Table 1). Since coders achieved sufficient reliability (>70%), all scales were retained for analyses.

**Maternal behavior scores.** Bivariate correlations were conducted between the two 5-minute segments of the free play task (See Table 2). Results showed that all scales were significantly correlated across segments (r range = .37 to .66; all p’s < .05). Therefore, the scales were standardized and averaged across segments to create the following overall play scales: sensitivity, positive affect, negative affect and intrusiveness.

Therefore, the four overall play scales and the six teaching task scales (sensitivity, positive affect, negative affect, intrusiveness, vocalization and repertoire) were used in subsequent analysis. The descriptive information for these scales is reported in Table 3.
Table 1.

*Inter-Rater Agreement: Intraclass Coefficients of Maternal Behavior Variables within Task (N=42).*

<table>
<thead>
<tr>
<th>Maternal Behavior</th>
<th>Intraclass Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teaching Task</strong></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>.92</td>
</tr>
<tr>
<td>Intrusiveness</td>
<td>.91</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>.83</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>.91</td>
</tr>
<tr>
<td>Vocalization</td>
<td>.87</td>
</tr>
<tr>
<td>Repertoire</td>
<td>.90</td>
</tr>
<tr>
<td><strong>Free Play Task</strong></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>.86</td>
</tr>
<tr>
<td>Intrusiveness</td>
<td>.91</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>.74</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>.85</td>
</tr>
</tbody>
</table>

Table 2.

*Correlations of Maternal Behavior Variables Across 2 Free Play Segments. (N=170)*

<table>
<thead>
<tr>
<th>Segment 2</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sensitivity</td>
<td>.54**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Intrusiveness</td>
<td></td>
<td>.66**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Negative Affect</td>
<td></td>
<td></td>
<td>.37*</td>
<td></td>
</tr>
<tr>
<td>4. Positive Affect</td>
<td></td>
<td></td>
<td></td>
<td>.39**</td>
</tr>
</tbody>
</table>

Note: †p < .10; *p < .05; **p < .01; ***p < .001.
Table 3.

*Mean, Standard Deviations and Ranges for Maternal Behaviors Scales during Teaching and Free Play Scales.*

<table>
<thead>
<tr>
<th>Task</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teaching</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>5.12</td>
<td>1.59</td>
<td>1-9</td>
</tr>
<tr>
<td>Intrusiveness</td>
<td>3.20</td>
<td>2.09</td>
<td>1-9</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>3.90</td>
<td>1.29</td>
<td>1-7</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>2.38</td>
<td>1.52</td>
<td>1-8</td>
</tr>
<tr>
<td>Vocalization</td>
<td>5.85</td>
<td>1.38</td>
<td>3-9</td>
</tr>
<tr>
<td>Repertoire</td>
<td>3.99</td>
<td>1.35</td>
<td>1-9</td>
</tr>
<tr>
<td><strong>Free Play</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>4.30</td>
<td>1.42</td>
<td>1.5-9</td>
</tr>
<tr>
<td>Intrusiveness</td>
<td>5.31</td>
<td>2.01</td>
<td>1-9</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>3.98</td>
<td>1.19</td>
<td>1-7.5</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>1.50</td>
<td>.75</td>
<td>1-5</td>
</tr>
</tbody>
</table>
CHAPTER III

RESULTS

Overview of Analyses

According to the first goal of the study, descriptive information about children’s cognitive and language composite scores is presented first. To address the second goal of the study, partial associations between individual maternal behaviors and child outcome variables are examined. Lastly, steps taken to examine the third goal are presented. In the first step, an overview regarding the computation of maternal behavior composites is presented. In the second step of the third goal, correlations between risk factors and child outcome and maternal variables are presented. For the third step of the third goal, partial correlations between maternal aggregates and child outcome variables are presented. In the final step of the third goal, hierarchal linear regressions examining the role of maternal behavior when controlling for significant risk factors are described. Regressions were computed separately for each significant maternal behavior variable.
Study Aim 1: Child Cognitive and Language Outcomes

Descriptives

The cognitive and language composite scores of the Bayley-III (M = 100, SD = 15) are used to describe the toddler’s scores, but raw scores are used for subsequent analyses. Results showed that language of administration was not related to cognitive (F (2,167) = .741, \( p = .48 \)) and language scores (F (2,167) = 1.42, \( p = .24 \)). Cognitive and language composite scores were significantly related (\( r = .36, p = .00 \)) to each other. The mean cognitive composite score was 93.5 (SD=8.82; range 70-125) and 11.8% of the sample scored below 85 (1 SD below the mean). The mean language composite score was 89.7 (SD=10.17; range 62-121) and 27.6% children scored below 85 (1 SD below the mean). Language scores were significantly lower than cognitive scores (Paired t (169) = 4.55, \( p = .00 \)).

Further analyses showed that cognitive (\( r = -.15, p = .06 \)) and language (\( r = -.21, p = .01 \)) composite scores were significantly related with child age. Thus, the older children in the sample appeared to have more deficits than the younger children.

Gender Differences

Consistent with previous findings for young children (Fenson, 1994; Sommer, et al., 2000), gender differences were present for both cognitive (t (168) = 2.33, \( p = .02 \)) and language (t (168) = 2.22, \( p = .03 \)) composite scores; females (N= 78) scored higher than boys (N=92). The mean cognitive score for males was 92.07 (SD=8.71; range 70-115) and 16.3% of males scored below 85 (1 SD below the mean); the mean cognitive score
for females was 95.19 (SD=8.70; range 70-125) and 6.4% scored below 85. The mean language score for males was 88.22 (SD=8.98; range 62-109) and 30.4% scored below 85; females language mean score was 91.60 (SD=10.89; range 62-121) and 24.4% females scored below 85. Thus, females scored higher on both outcomes, but a similar percentage of males and females scored below 1 SD on the language scale and not the cognitive scale (See Table 4).

Comparisons

To gain an understanding of how children in the current sample compared with other relevant groups, cognitive and language composite scores from this study were compared with poor children, children of adult Mexican mothers, children of ethnically diverse adolescent mothers, children of African American adolescent mothers, and then with children of Cuban and African American adolescent mothers (See Table 4).

A longitudinal study examined poor children of ethnically diverse (European American, African American and Latina) mothers who sought assistance from local Early Head Start (EHS) community agencies across the U.S. (Lugo-Gil & Tamis-LeMonda, 2008). Compared to this population, the current sample’s cognitive and language mean composite scores are lower than these poor children’s MDI score at 14 months (MDI = 98.26), but slightly higher than their MDI score at 24 months (MDI = 89.22). Although the sample of poor children included more males than females, gender differences were not examined. The MDI score of children (age range = 9-14 months) of adult, low SES
Table 4.

*Outcome Scores: Gender Differences and Comparison of Scores with Relevant Groups.*

<table>
<thead>
<tr>
<th>Gender</th>
<th>Cognitive</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>92.07</td>
<td>88.22</td>
</tr>
<tr>
<td>% below 1 SD</td>
<td>16.3 %</td>
<td>30.4%</td>
</tr>
<tr>
<td>Females</td>
<td>95.19</td>
<td>91.60</td>
</tr>
<tr>
<td>% below 1 SD</td>
<td>6.4%</td>
<td>24.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Age (months)</th>
<th>MDI Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Poor Children</td>
<td>14</td>
<td>98.26</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>89.22</td>
</tr>
<tr>
<td>2. Adult Mexican American Mothers</td>
<td>9-14</td>
<td>94</td>
</tr>
<tr>
<td>3. Adolescent Mothers</td>
<td>1-35</td>
<td>91</td>
</tr>
<tr>
<td>4. African American Adol. Mothers</td>
<td>24</td>
<td>85.3</td>
</tr>
<tr>
<td>5. Cuban &amp; African American Adol. Mothers</td>
<td>12</td>
<td>108</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>88</td>
</tr>
</tbody>
</table>

Mexican American mothers (MDI=94; Kolobe, 2004) residing in the Chicago metropolitan area, was higher than the current sample’s language scores but similar to the cognitive scores. The comparison group’s sample had an equal number of males and females and gender differences were not tested.

The mean MDI score (MDI = 91) of children (age range = 1 to 35 months) of ethnically diverse adolescent mothers (European American, African American, Hispanic, and American Indian) enrolled in a student parenting program in a Midwestern community (Knoche, Givens & Sheridan, 2007) was slightly higher than the current sample’s language scores, but similar to the cognitive scores. The comparison group’s sample had an equal number of males and females and gender differences were not examined. Additionally, the mean MDI score (MDI = 85.3) of 24 month children of low income, African American adolescent mothers residing in Baltimore, Maryland (Hess, Papas, & Black, 2004) is slightly lower than the cognitive and language composite mean scores of the current sample. The comparison study did not provide a description regarding children’s gender or if analyses examined gender differences. Lastly, a longitudinal study examined child outcomes of children of low SES, Cuban and African American adolescent mothers who resided in Miami, Florida (Field, et al., 1990). The MDI score of these children was higher than the current sample’s cognitive and language scores at 12 (MDI = 108) and 18 months (MDI = 98), but slightly lower at 24 months (MDI = 88). This comparison study also did not provide a description regarding children’s gender or if analyses examined gender differences.
Preliminary Analyses

Control variables. Given that age and gender differences were found for cognitive and language scores, these child variables are controlled for in all subsequent analysis that include child outcomes. Furthermore, to maximize variability of scores, cognitive and language raw scores will be utilized in the following analysis.

Study Aim 2: Relationship between Individual Maternal Behaviors and Child Outcome Variables

Partial Correlations within the Teaching Task

Table 5 shows results of partial correlations between each individual maternal behavior variable within the teaching task and child outcomes variables, while controlling for child’s age and gender. Results indicate that maternal intrusiveness ($r = -.20, p < .05$) during the teaching task was significantly associated with language scores; Mothers who displayed less intrusiveness had children who scored higher on the language scales. In addition, sensitivity ($r = .13, p = .08$), positive affect ($r = .14, p = .08$), repertoire ($r = .13, p = .10$), and vocalization ($r = .13, p = .10$) during the teaching task were marginally related to language scores. These results indicate that children of mothers who displayed more sensitivity, more positive affect, more inventiveness, and more vocalization, tended to score higher on the language scales. Vocalization ($r = .14, p = .06$) was the only behavior variable that showed an association with cognitive scores. Therefore, mothers who engaged in more vocalizations had children who tended to score higher on the cognitive scale.
Table 5.

*Partial Correlations Between Teaching Maternal Behavior Variables and Child Outcome Variables while Controlling for Child’s Age and Gender. (N=170)*

<table>
<thead>
<tr>
<th>Maternal Behavior Variables</th>
<th>COGNITIVE</th>
<th>LANGUAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>.04</td>
<td>.13†</td>
</tr>
<tr>
<td>Intrusiveness</td>
<td>-.10</td>
<td>-.20*</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>-.02</td>
<td>-.01</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>.04</td>
<td>.14†</td>
</tr>
<tr>
<td>Vocalization</td>
<td>.14†</td>
<td>.13†</td>
</tr>
<tr>
<td>Repertoire</td>
<td>.08</td>
<td>.13†</td>
</tr>
</tbody>
</table>

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

**Partial correlations within free play task.** Table 6 shows results of partial correlations between each individual maternal behavior variables within the free play task and child outcomes variables, while controlling for child’s age and gender. Results indicate that only sensitivity (r = .18, p < .05) was significantly related to language scores. Thus, children of mothers who displayed more sensitivity scored higher on the language scales. In addition, positive affect (r = .15, p = .06) was marginally associated with language scores. Therefore, mothers who displayed more positive affect had children who tended to score higher on the language scales. There were no significant relations with child cognitive scores.
Table 6.

Partial Correlations between Free Play Maternal Behavior Variables and Child Outcome Variables while Controlling for Child’s Age and Gender. (N=170)

<table>
<thead>
<tr>
<th>Maternal Behavior Variables</th>
<th>Child Outcome COGNITIVE</th>
<th>Child Outcome LANGUAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>.02</td>
<td>.18*</td>
</tr>
<tr>
<td>Intrusiveness</td>
<td>-.11</td>
<td>-.09</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>-.07</td>
<td>-.10</td>
</tr>
<tr>
<td>Positive Affect</td>
<td>.04</td>
<td>.15†</td>
</tr>
</tbody>
</table>

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

Study Aim 3: Role of Maternal Behavior Above and Beyond Significant Risk Factors

Maternal Behavior Composites

In order to increase predictive power, the associations among maternal behaviors were examined to appropriately compute composites representative of the sample’s behaviors. Bivariate correlations were conducted between sensitivity, intrusiveness, negative affect, positive affect, vocalization and repertoire within task (see Table 7 & 8). The results indicated that sensitivity and intrusiveness are highly correlated in both tasks and appropriate steps were taken to combine them within task for further analyses. First, to ensure that higher scores reflected more positive behaviors, intrusiveness scores for each task were re-coded. Then sensitivity and intrusiveness scales were standardized and
averaged across task to create the following scales for each task: sensitivity-
nonintrusiveness.

Table 7.

*Correlations of Maternal Behavior Variables within Teaching Task Episode. (N=170)*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sensitivity</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Intrusiveness</td>
<td>-.59**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Negative Affect</td>
<td>-.40**</td>
<td>.25**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Positive Affect</td>
<td>.33**</td>
<td>-.11</td>
<td>-.27**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Vocalization</td>
<td>.07</td>
<td>.01</td>
<td>-.02</td>
<td>.11</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6. Repertoire</td>
<td>.55**</td>
<td>-.20**</td>
<td>-.30**</td>
<td>.28**</td>
<td>.20**</td>
<td>1</td>
</tr>
</tbody>
</table>

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

Table 8.

*Correlations of Maternal Behavior Variables Within Free Play Episode. (N=170)*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sensitivity</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Intrusiveness</td>
<td>-.77**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Negative Affect</td>
<td>-.40**</td>
<td>.34**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4. Positive Affect</td>
<td>.24**</td>
<td>-.17*</td>
<td>-.22**</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: †p <.10; *p <.05; **p <.01; ***p<.001.
Given that vocalization and repertoire constructs coded during the teaching task are didactic constructs, they were kept independent and not considered to create composites. An exploratory factor analysis was conducted to compute composites from six maternal behavior variables; sensitivity-nonintrusiveness, positive affect and negative affect from each task. A Maximum Likelihood Estimation extraction procedure (Lawley & Maxwell, 1963) was used for factor analyzing the constructs and the solution was rotated using a Promax procedure. However, during iterations one or more communality estimates greater than 1 was encountered, indicating that the resulting solution should be interpreted with caution. Examination of the factor analysis output identified positive affect coded during the teaching task as problematic. Furthermore, using cronbach’s alpha, a reliability analysis showed that the removal of that variable would increase reliability. Therefore, a factor analysis excluding positive affect was conducted using the same extraction and rotation procedures. As indicated by the scree plot, and eigenvalues, one factor was extracted from the five maternal variables. However, examination of correlations among these variables indicated that the variables were not inter-correlated enough to create a single composite. Thus, given the study aims, it was opted to examine the correlations for common constructs across task (See Table 9). These correlations indicated that aggregating constructs across task better allowed for testing hypothesis. Therefore, the final maternal behavior variables included: Sensitivity-nonintrusiveness aggregate (r = .37), positive affect aggregate (r = .35), negative affect aggregate (r = .44), vocalization and repertoire.
Table 9.

**Correlations of Maternal Behavior Variables Across Task (N=170).**

<table>
<thead>
<tr>
<th></th>
<th>Free Play Task</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Teaching Task</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sensitivity- Nonintrusiveness</td>
<td>.37***</td>
<td>.13</td>
</tr>
<tr>
<td>2. Positive Affect</td>
<td>.18†</td>
<td>.35***</td>
</tr>
<tr>
<td>3. Negative Affect</td>
<td>.24**</td>
<td>.04</td>
</tr>
</tbody>
</table>

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

**Control Variables**

The relation between the population’s SES related risk factors (Mother’s age, education attainment, current school enrollment, repeat of a grade level, her employment status, collection of welfare benefits, economic strain, marital status, residence with partner or child’s father, and father’s education level) and child outcomes appear in Table 10. Results indicate that there were no significant relations with cognitive scores. However, economic strain ($r = -.19, p <.05$), residence with partner or child’s father ($r = -.16, p <.05$) and child father’s education attainment ($r = .22, p <.05$) were significantly related to language scores. Therefore, these three variables were controlled for in hierarchal linear regression analyses that included language as a dependent variable.
Table 10.

Partial Correlations between Risk Factors and Child Outcome Variables while Controlling for Child’s Age and Gender. (N=170)

<table>
<thead>
<tr>
<th>Maternal Demographic Variables</th>
<th>Child Outcome</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.07</td>
<td>-.00</td>
</tr>
<tr>
<td>Education</td>
<td>-.05</td>
<td>.03</td>
</tr>
<tr>
<td>School Attendance</td>
<td>-.04</td>
<td>.07</td>
</tr>
<tr>
<td>Repeat Grade</td>
<td>.04</td>
<td>.03</td>
</tr>
<tr>
<td>Employment</td>
<td>-.07</td>
<td>.07</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contextual Variables</th>
<th>Child Outcome</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Strain</td>
<td>.03</td>
<td>-.19*</td>
</tr>
<tr>
<td>Welfare Status</td>
<td>-.04</td>
<td>-.01</td>
</tr>
<tr>
<td>Residence of Partner/Father</td>
<td>-.00</td>
<td>-.16*</td>
</tr>
<tr>
<td>Marital Status</td>
<td>.08</td>
<td>.10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Father’s Demographic Variables</th>
<th>Child Outcome</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>.11</td>
<td>.22*</td>
</tr>
</tbody>
</table>

Note: †p <.10; *p <.05; **p <.01; ***p<.001.
Employment, School Attendance, Repeat Grade, Welfare Status, Residence of Partner/Father
(1= No, 2 = Yes)
Marital Status (0 = single, 1 = Married live w/ )
Relations between Socio-demographic Risk Factors
and Maternal Behavior Variables

Bivariate correlations were conducted between socio-demographic factors and each maternal behavior aggregate (See Table 11). Results indicated that mother’s education level was significantly related to positive affect ($r = .15$, $p = .05$) and marginally related to negative affect ($r = -.13$, $p = .09$). Therefore, mothers with higher education levels showed more positive affect and less negative affect. In addition,

Table 11.

**Bivariate Correlations between Risk Factors and Maternal Behavior Variables.**

<table>
<thead>
<tr>
<th>Maternal Demographic Variables</th>
<th>Maternal Behavior</th>
<th>1_{(S-NI)}</th>
<th>2_{(PA)}</th>
<th>3_{(NA)}</th>
<th>4_{(V)}</th>
<th>5_{(R)}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td>.04</td>
<td>-.07</td>
<td>-.04</td>
<td>.09</td>
<td>-.03</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td>.12</td>
<td>.15*</td>
<td>-.13†</td>
<td>.08</td>
<td>.13</td>
</tr>
<tr>
<td>School Attendance</td>
<td></td>
<td>.07</td>
<td>.07</td>
<td>-.14†</td>
<td>.11</td>
<td>.12</td>
</tr>
<tr>
<td>Repeat Grade</td>
<td></td>
<td>-.12</td>
<td>-.04</td>
<td>.18*</td>
<td>-.04</td>
<td>-.23**</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td>-.16*</td>
<td>.00</td>
<td>.10</td>
<td>.09</td>
<td>-.03</td>
</tr>
<tr>
<td>Contextual Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economic Strain</td>
<td></td>
<td>-0.02</td>
<td>-0.06</td>
<td>.14†</td>
<td>-0.07</td>
<td>-0.00</td>
</tr>
<tr>
<td>Welfare Status</td>
<td></td>
<td>-0.07</td>
<td>-0.09</td>
<td>.04</td>
<td>-0.00</td>
<td>-0.02</td>
</tr>
<tr>
<td>Residence of Partner/Father</td>
<td></td>
<td>.06</td>
<td>-0.01</td>
<td>-.16*</td>
<td>-.03</td>
<td>-.04</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td>.15*</td>
<td>.04</td>
<td>-.19**</td>
<td>-.12</td>
<td>.03</td>
</tr>
</tbody>
</table>

**Father’s Demographic Variables**

| Education | .12 | .13 | -.08 | .19* | .09 |

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

1 = Sensitivity-Nonintrusiveness, 2 = Positive Affect, 3 = Negative Affect, 4 = Vocalization, 5 = Repertoire Employment, School Attendance, Repeat Grade, Welfare Status, Residence of Partner/Father (1= No, 2 = Yes).

Marital Status (0 = single, 1 = Married live w/)
mother’s current enrollment in school was marginally related to less negative affect ($r = -0.14, p = 0.06$). Mother’s who repeated a grade displayed a smaller repertoire of behaviors ($r = -0.23, p = 0.00$) and showed more negative affect ($r = 0.18, p = 0.02$). Mother’s employment status was significantly related to sensitivity-nonintrusiveness ($r = -0.16, p = 0.04$); mother who are employed are less sensitive and more intrusive. Furthermore, mothers who report higher economic strain engage in more negative affect ($r = 0.14, p = 0.07$). Mothers who are married and lived with their husband are more sensitivity and less intrusiveness ($r = 0.15, p = 0.05$) and displayed less negative affect ($r = -0.19, p = 0.01$). In addition, mothers who lived with a partner or child’s father engage in less negative affect ($r = -0.16, p = 0.04$). Results indicated a relation between children’s father’s education levels and vocalization ($r = 0.19, p = 0.02$).

**Relations between Maternal Behavior Aggregates and Child Outcomes**

Partial correlations were conducted between each maternal behavior aggregate and child cognitive and language scores, while controlling for child age and gender (See Table 12). Results indicated that only two aggregates, the sensitivity-nonintrusiveness aggregate ($r = 0.20, p = 0.01$) and the positive affect aggregate ($r = 0.17, p = 0.03$), were significantly related to language scores. There were no significant relations with child cognitive scores.
Table 12.

*Partial Correlations between Maternal Behavior Aggregates and Child Outcome Variables while Controlling for Child’s Gender and Age. (N=170)*

<table>
<thead>
<tr>
<th>Maternal Behavior Variables</th>
<th>Child Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COGNITIVE</td>
</tr>
<tr>
<td>Sensitivity-Nonintrusive Aggregate</td>
<td>.09</td>
</tr>
<tr>
<td>Negative Affect Aggregate</td>
<td>.05</td>
</tr>
<tr>
<td>Positive Affect Aggregate</td>
<td>.05</td>
</tr>
</tbody>
</table>

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

Hierarchal Linear Regressions

Hierarchal linear regressions were conducted only for those maternal behaviors found to be significantly related to child outcomes. All regressions were computed by entering child’s age and gender in the first step, then economic strain, child’s father education level, and residence with partner or child father (risk factor variables) in the second step and finally the maternal construct being evaluated. For each regression, the following was examined: Examination of the variance inflation factors indicated that multicollinearity was not an issue in any of the regressions (Neter, Wasserman, & Kutner, 1985). In addition, variables were within cutoff values of skewness (>2) and kurtosis (>7). Furthermore, examination of mahalanobis distance indicated that multivariate outliers were absent.

Before computing regressions, missing data was evaluated. Regressions examining language had eight missing values, which were from the child father’s
education variable (N = 162). Therefore, to determine whether to apply listwise or mean substitution, power was analyzed (G Power, version 3.1). With six predictors and a sample size of 162, the power is .971 with a medium effect size (ES=.15). In comparison, with a sample of 170, the power is .978 with a medium effect size (ES=.15). Given the minimal difference between power and effect size for each sample size, cases were excluded listwise for all regressions.

In the first regression, the sensitivity-nonintrusiveness aggregate was entered in the third step. As seen in Table 13, results of this hierarchical linear regression analysis indicated that maternal sensitivity-nonintrusiveness significantly related to higher scores on the language scales of the Bayley (β = .17, p = .02) when controlling for child’s age, gender, mother’s economic strain, residence with mother’s partner or child father and father’s education level. The addition of the maternal aggregate accounted significantly for 2.8 % of the variance in the model. Child’s age (marginal), gender, mother’s economic strain score, and child’s father education level continued to relate to language scores when maternal sensitivity-nonintrusiveness was in the model.

Another hierarchal linear regression was conducted to examine the role of the positive affect aggregate on child language scores. The addition of maternal positive affect accounted for 2 % of variance in the model, which was marginally significant. Table 14 shows that the positive affect aggregate was marginally related to scores on the language scales on the Bayley (β = .14, p = .06). Child’s age, gender, mother’s economic strain score and child’s father education level continued to significantly relate to language scores when maternal positive affect was included in the model.
Table 13.

*Hierarchal Linear Regression: Relationship between Maternal Sensitivity-Nonintrusiveness and Child Language Functioning. (N=162)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: Control variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s Age</td>
<td>.16</td>
<td>.07</td>
<td>.18*</td>
</tr>
<tr>
<td>Child’s Gender</td>
<td>-.13</td>
<td>.07</td>
<td>-.15*</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>3.99*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2: Control variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Age</td>
<td>.13</td>
<td>.07</td>
<td>.14†</td>
</tr>
<tr>
<td>Child Gender</td>
<td>-.12</td>
<td>.07</td>
<td>-.14†</td>
</tr>
<tr>
<td>Economic Strain</td>
<td>-.15</td>
<td>.07</td>
<td>-.17*</td>
</tr>
<tr>
<td>Father’s Education</td>
<td>.18</td>
<td>.07</td>
<td>.21*</td>
</tr>
<tr>
<td>Residence with Male</td>
<td>-.05</td>
<td>.07</td>
<td>-.06</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>4.76***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Age</td>
<td>.12</td>
<td>.07</td>
<td>.14†</td>
</tr>
<tr>
<td>Child Gender</td>
<td>-.13</td>
<td>.07</td>
<td>-.15*</td>
</tr>
<tr>
<td>Economic Strain</td>
<td>-.15</td>
<td>.07</td>
<td>-.17*</td>
</tr>
<tr>
<td>Father’s Education</td>
<td>.16</td>
<td>.07</td>
<td>.19*</td>
</tr>
<tr>
<td>Residence with Male</td>
<td>-.06</td>
<td>.07</td>
<td>-.07</td>
</tr>
<tr>
<td>Sensitivity-Nonintrusiveness Aggregate</td>
<td>.21</td>
<td>.09</td>
<td>.17*</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>4.95***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R² Δ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F Δ</td>
<td>5.25*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

*Child Gender (1 = Female, 2 = Male )
Residence w male (Partner/Father; 1= No, 2 = Yes)*
Table 14.

Hierarchal Linear Regression: Relationship between Maternal Positive Affect Aggregate and Child Language Functioning. (N=162)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1: Control variable</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s Age</td>
<td>.16</td>
<td>.07</td>
<td>.18*</td>
</tr>
<tr>
<td>Child’s Gender</td>
<td>-.13</td>
<td>.07</td>
<td>-.15*</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>3.99*</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2: Control variable</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Age</td>
<td>.13</td>
<td>.07</td>
<td>.14†</td>
</tr>
<tr>
<td>Child Gender</td>
<td>-.12</td>
<td>.07</td>
<td>-.14†</td>
</tr>
<tr>
<td>Economic Strain</td>
<td>-.15</td>
<td>.07</td>
<td>-.17*</td>
</tr>
<tr>
<td>Father’s Education</td>
<td>.18</td>
<td>.07</td>
<td>.21*</td>
</tr>
<tr>
<td>Residence with Male</td>
<td>-.05</td>
<td>.07</td>
<td>-.06</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td>.13</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>4.76***</td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Age</td>
<td>.14</td>
<td>.07</td>
<td>.16*</td>
</tr>
<tr>
<td>Child Gender</td>
<td>-.14</td>
<td>.07</td>
<td>-.15*</td>
</tr>
<tr>
<td>Economic Strain</td>
<td>-.14</td>
<td>.07</td>
<td>-.17*</td>
</tr>
<tr>
<td>Father’s Education</td>
<td>.17</td>
<td>.07</td>
<td>.19*</td>
</tr>
<tr>
<td>Residence with Male</td>
<td>-.05</td>
<td>.07</td>
<td>-.06</td>
</tr>
<tr>
<td>Positive Affect Aggregate</td>
<td>.17</td>
<td>.09</td>
<td>.14†</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td>.15</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>4.63***</td>
<td></td>
</tr>
<tr>
<td>R²Δ</td>
<td></td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>F Δ</td>
<td></td>
<td>3.57†</td>
<td></td>
</tr>
</tbody>
</table>

Note. †p <.10; *p<.05; **p<.01; ***p<.001.
Child Gender (1 = Female, 2 = Male )
Residence w male (Partner/Father; 1= No, 2 = Yes)
A hierarchical linear regression was conducted to examine the role of maternal repertoire of behaviors on child language scores (See Table 15). Results indicated that adding maternal repertoire accounted for 1.5% of variance in the model, which was marginally significant. Maternal repertoire was marginally associated to higher language scores ($\beta = .12, p = .10$). Child’s gender, child’s father education level and mother’s economic strain score continued to be significantly related to language scores when maternal repertoire was in the model.

Lastly, a hierarchal linear regression examined the relation between maternal vocalization and child language scores (See Table 16). The addition of maternal vocalization accounted for .6% of variance in model, which was not significant. Results showed that maternal vocalization was not associated to language scores ($\beta = .08, p = .32$), however, all controls, except residence of partner or father figure, continued to significantly relate to language scores.
Table 15.

Hierarchal Linear Regression: Relationships between Maternal Repertoire and Child Language Functioning. (N=162)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: Control variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s Age</td>
<td>.16</td>
<td>.07</td>
<td>.18*</td>
</tr>
<tr>
<td>Child’s Gender</td>
<td>-.13</td>
<td>.07</td>
<td>-.15*</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
<td>3.99*</td>
</tr>
<tr>
<td>Step 2: Control variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Age</td>
<td>.13</td>
<td>.07</td>
<td>.14†</td>
</tr>
<tr>
<td>Child Gender</td>
<td>-.12</td>
<td>.07</td>
<td>-.14†</td>
</tr>
<tr>
<td>Economic Strain</td>
<td>-.15</td>
<td>.07</td>
<td>-.17*</td>
</tr>
<tr>
<td>Father’s Education</td>
<td>.18</td>
<td>.07</td>
<td>.21*</td>
</tr>
<tr>
<td>Residence with Male</td>
<td>-.05</td>
<td>.07</td>
<td>-.06</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td></td>
<td>.13</td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
<td>4.76***</td>
</tr>
<tr>
<td>Step 3:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Age</td>
<td>.11</td>
<td>.07</td>
<td>.13†</td>
</tr>
<tr>
<td>Child Gender</td>
<td>-.13</td>
<td>.07</td>
<td>-.15*</td>
</tr>
<tr>
<td>Economic Strain</td>
<td>-.16</td>
<td>.07</td>
<td>-.18*</td>
</tr>
<tr>
<td>Father’s Education</td>
<td>.18</td>
<td>.07</td>
<td>.20*</td>
</tr>
<tr>
<td>Residence with Male</td>
<td>-.05</td>
<td>.07</td>
<td>-.05</td>
</tr>
<tr>
<td>Repertoire</td>
<td>.11</td>
<td>.07</td>
<td>.12†</td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td></td>
<td>.15</td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
<td>4.47***</td>
</tr>
</tbody>
</table>

Note. †p < .10; *p < .05; **p < .01; ***p < .001.
Child Gender (1 = Female, 2 = Male)
Residence w male (Partner/Father; 1 = No, 2 = Yes)
Table 16.  

Hierarchal Linear Regression: Relationships between Maternal Vocalizations and Child Language Functioning. (N=162)

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1: Control variable</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s Age</td>
<td>.16</td>
<td>.07</td>
<td>.18*</td>
</tr>
<tr>
<td>Child’s Gender</td>
<td>-.13</td>
<td>.07</td>
<td>-.15*</td>
</tr>
<tr>
<td><strong>R²</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>F</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2: Control variable</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Age</td>
<td>.13</td>
<td>.07</td>
<td>.14†</td>
</tr>
<tr>
<td>Child Gender</td>
<td>-.12</td>
<td>.07</td>
<td>-.14†</td>
</tr>
<tr>
<td>Economic Strain</td>
<td>-.15</td>
<td>.07</td>
<td>-.17*</td>
</tr>
<tr>
<td>Father’s Education</td>
<td>.18</td>
<td>.07</td>
<td>.21*</td>
</tr>
<tr>
<td>Residence with Male</td>
<td>-.05</td>
<td>.07</td>
<td>-.06</td>
</tr>
<tr>
<td><strong>R²</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>F</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child Age</td>
<td>.12</td>
<td>.07</td>
<td>.14†</td>
</tr>
<tr>
<td>Child Gender</td>
<td>-.12</td>
<td>.07</td>
<td>-.14†</td>
</tr>
<tr>
<td>Economic Strain</td>
<td>-.15</td>
<td>.07</td>
<td>-.17*</td>
</tr>
<tr>
<td>Father’s Education</td>
<td>.17</td>
<td>.07</td>
<td>.20*</td>
</tr>
<tr>
<td>Residence with Male</td>
<td>-.05</td>
<td>.07</td>
<td>-.06</td>
</tr>
<tr>
<td>Vocalization</td>
<td>.07</td>
<td>.07</td>
<td>.08</td>
</tr>
<tr>
<td><strong>R²</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>F</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. †p <.10; *p<.05; **p<.01; ***p<.001.  
Child Gender (1 = Female, 2 = Male )  
Residence w male (Partner/Father; 1= No, 2 = Yes)
CHAPTER IV

DISCUSSION

The purpose of the current study was to examine the relation between individual maternal behavior of Latina adolescent mothers and their toddlers’ cognitive and language functioning. The Language and Cognitive scales of the Bayley III (Bayley, 2005) were used to assess the toddlers’ functioning. Maternal behavior was assessed through observer ratings of mother-child interactions during a teaching and a play episode. Some of the findings are consistent with existing literature that indicates a relation between maternal behavior and child language functioning. However, contrary to findings only one maternal behavior related to cognitive functioning. Additionally, findings are consistent with previous research suggesting that risk factors have significant relations to child outcomes. Given that most research on child outcomes of adolescent mothers indicates that these children are at risk for cognitive and language deficits, the current study examined these outcomes.

With regard to child outcomes, this study reports that the cognitive and language mean composite scores of toddlers of Latina adolescent mothers are within the normal limits. However, there is substantial variability in scores and a high percentage of children scored below 1 SD on cognitive (11.8%, range 70-80) and language (27.6%, range 62-83) scores. These results are consistent with findings that children of adolescent
mothers have cognitive and language deficits (Brooks-Gunn & Furstenberg, 1986; Moore & Snyder, 1991; Hann, et al., 1996). Furthermore, the current study reports that language scores were lower than cognitive scores. Low language scores are consistent with research indicating that adolescent mothers are less verbal with their children than older mothers (Culp, Appelbaum, Osofsky, & Levy, 1988; Field, 1981). Additionally, research shows that compared to European American mothers, Latina mothers use fewer vocalizations (Laosa, 1980; Scholmerich, Lamb, Leyendecker & Fracasso, 1997). Thus, this discrepancy among scores may be attributed to the sample including Latina adolescent mothers and the bilingual environments they provide for their children. In addition, it is possible that the toddlers’ ages are within the critical period for language development. Thus, the importance of rich verbal environments is highlighted.

However, given the findings regarding the verbal use of adolescent and Latina mothers, it is possible that these children are not receiving the necessary support for early language development. Thus, future research should examine how children of Latina adolescent mothers develop language.

Additionally, cognitive and language mean composite scores for this sample were slightly lower than those of three groups: 1) poor children of adult parents at 14 months, 2) children of adult Mexican American mothers, and 3) children of Cuban and African American adolescent mothers tested first at 12 and then again at 18 months. On the other hand, the current sample scored slightly higher than 24 month old children of low income, African American adolescent mothers. These comparisons indicate a developmental trend of deficits; the current sample had slightly lower scores than
children within the same age range, but slightly higher than older (24 months) children. This suggests that the current sample’s age range may be where deficits have begun to appear but have not yet fully developed. Thus, the need to follow this sample longitudinally arises. These differences in scores may reflect the discrepancies between the BSID II and the Bayley III as well as the different constructs measured when administered at earlier versus later ages. Thus, in order to confidently establish comparisons of scores across populations, future studies should assess cognitive and language outcomes with the Bayley III (Bayley, 2005).

The same developmental trend of deficits that was indicated by the study’s comparison of scores was found within the current sample. Analyses showed age differences for cognitive and language composite scores, indicating that the older children in the sample appeared to have more deficits than the younger children in the sample. This result suggests that as children of Latina adolescent mothers get older, they are at an increased risk for more deficits. Hence, these results provide further evidence of the problematic developmental trajectories identified by Brooks-Gunn and Furstenberg’s (1986) longitudinal study with adolescent mothers and later with Whitman’s (2001) longitudinal study with African American and European American adolescent mothers. In addition, this problematic trajectory is consistent with longitudinal research including Latina adolescent mothers (Field, et al., 1990) that indicated that significant declines were noted in the children’s MDI score and language measures from 12 to 18 to 24 months of age. Therefore, these findings have implications for the timing of services
provided to Latina adolescent mothers and their children. Programs and interventions provided to this population should target them early.

Furthermore, results showed gender differences for both cognitive and language composite scores. Consistent with previous studies examining these outcomes in young children of adult European American mothers and low SES, African American adolescent mothers (Fenson, 1994; Sommer, et al., 2000), females in this sample scored higher than males on cognitive and language scales. This finding may be attributed to the fact that males of adolescent mothers are more likely to be affected by environmental events than females, as literature on divorce and single parent families seems to suggest (Furstenburg, Winquist -Nord, Peterson, & Zill, 1983).

With regard to the second aim, it was expected that maternal sensitivity, intrusiveness, positive affect, negative affect, repertoire and vocalizations would relate to both child outcomes. Consistent with Attachment and Socio-Cultural theories, the hypothesized relations between maternal sensitivity and positive affect and child language scores were supported. Furthermore, maternal intrusiveness, repertoire, and vocalizations related to child language scores. These results are consistent with the existent literature on adult European American and adolescent mothers (Luster & Vandenbelt, 1999; Hann, et al., 1996) as well as with more established findings in ethnically mixed samples of adult mothers (Tamis-LeMonda, et al., 2004). However, the hypothesized relations between negative affect and cognitive and language scores were not supported. These results are consistent with research including adolescent mothers (Hann et al., 1996) that reported no relations between negative affect and later cognitive-
linguistic outcomes for 13 and 20 month old children. The current study’s finding may be attributed to the range restriction (1-5) of negative affect coded scores during the free play task. Mothers expressed some negative affect, but scores indicative of more frequency and intense negative affect were rarely represented by the current sample. Thus, suggesting that Latina adolescent mothers may express negative affect less frequent or in different manners not captured by the scale utilized. Therefore, it is unknown if this aspect of affective quality would relate differently to child outcomes in this population when there is more variability and higher negative affect scores. Given these findings, future research should attempt to replicate the findings to further understand how these mothers express negative affect and the impact of negative affect on child outcomes.

Although previous research with adult and adolescent mothers indicates that maternal behavior relates to cognitive development (Tamis-LeMonda, et al., 2004; Cabrera et al., 2006; Kolobe, 2004; Lugo-Gil et al., 2008), the current study found only a marginal relation between maternal vocalizations and cognitive functioning. This specific finding for vocalizations is consistent with research studies on adult European American mothers that indicate a relation between verbal interactions and cognitive skills (Lazare & Darlington 1982; Royce, J. M., Darlington, R. B., & Murray, H. W., 1983). Additionally, maternal repertoire was not related to children’s cognitive functioning, which is inconsistent with Socio-Cultural theory’s view that teaching strategies contribute to children’s learning. The lack of relations between the other individual maternal behaviors and cognitive functioning may be attributed to the lack of mother’s educational attainment. Indirectly, lower maternal cognitive attainment could influence children’s
cognitive skills via less provision of support for cognitive growth and development by mothers as compared to households with greater maternal cognitive resources (Luster & McAdoo, 1994). Thus, the lack of education may influence the tasks chosen by mothers to interact with their toddlers. In addition, the mother’s financial status and economic strain may specifically hinder the amount of toys used to provide cognitive stimulation in the home. Therefore, future research should examine the effects of these variables including scales measuring the cognitive stimulation that is available in these homes. In addition, the lack of relations may be due to the constructs measured by the Bayley III for the sample’s age range. The items assessed primarily sensorimotor development, exploration, and manipulation (See Appendix E). The current sample rarely reached items that assess older children, which examine concept formation, memory, or other aspects of cognitive processing. Additionally, the inconsistent findings may be due to the use of the MDI in previous studies. Although many previous studies indicated a relation between maternal behavior and cognitive functioning, the cognitive score was based on the MDI score, which measures both cognitive and language abilities.

Partial correlations indicated that there were relations between socio-demographic risk factors and language outcomes. Specifically, mother’s economic strain, residence with a partner or children’s father and child’s father education related to language scores. The specific finding for economic strain is consistent with research that indicates that poverty associates with outcomes in early childhood (Brooks-Gunn & Duncan, 1997; Brooks-Gunn & Markman, 2005). Additionally, the findings regarding mother’s marital status and child’s father education level are consistent with research on low income,
ethnically diverse mothers and fathers that reported relations between these factors and child language outcomes (Tamis-LeMonda, 2004). However, there were no relations between socio-demographic risk factors and cognitive outcomes (See Table 10). This finding is consistent with research studies including low SES minority mothers (African American and Latina) that indicated that maternal education, marital and employment status did not relate to MDI scores (Banerjee & Tamis-LeMonda, 2006). Therefore, the current study’s finding may be attributed to the homogenous sample of low SES and low educated mothers.

The study’s third goal was to examine the relation of maternal behavior and child outcomes when considering socio-demographic risk factors. It was hypothesized that maternal behaviors would relate to child outcomes above and beyond risk factors. Findings supported the hypothesis regarding the sensitivity-nonintrusiveness aggregate. Thus, sensitivity-nonintrusiveness accounted for variance on language functioning above and beyond the risk factors, and the effects of this behavior were additive. Given this finding future research should examine what factors allow Latina adolescent mothers to be sensitive-non intrusive despite the risk they encounter. Secondly, the hypothesized relations regarding maternal positive affect and repertoire with language outcomes were not supported. The positive effects of maternal positive affect and repertoire were reduced to marginal when risk factors were present in the model. Thus, the mother’s display of positive affect and repertoire behaviors with their child was influenced by the risk factors. Additionally, the hypothesized relation between maternal vocalizations and language functioning was not supported. The inclusion of risk factors in the regression
model caused this relation to disappear indicating that risk factors impact the Latina adolescent mother’s engagement in vocalizations with their child. Furthermore, when examining maternal behavior, results showed that child’s age, gender, maternal economic strain, and child father’s education continued to significantly relate to language functioning in each regression. This finding is consistent with the literature suggesting that parenting and outcomes are associated with contextual variables (e.g., SES, education; Baldwin & Cain, 1980; García-Coll, Hoffman, & Oh, 1987). The results of the third aim indicate that future research should examine the concurrent effects of several risk factors on maternal behavior and child outcomes.

The current study also examined the relations between risk factors and maternal behavior variables. Findings indicated that mother’s education level related to their display of more positive affective and less negative affect during interactions with their children. Additionally, the current study reported that positive affect related to language outcomes. However, given that the current study included adolescent mothers, a majority of the mothers have not attained a high education. Thus, these findings have public policy implications, especially in light of the importance of educational attainment for young mothers’ and their children’s future. These implications suggest that policies that focus on educational attainment may have a positive influence on children’s future. Furthermore, the relation between maternal positive affect and language functioning was not above and beyond risk factors. Therefore, future research should examine the role of protective factors on this relation. Additionally, as seen on Table 11, there were no maternal socio-demographic risk variables related to maternal vocalization. Given the
current study’s finding of relations between maternal vocalizations and cognitive functioning, future research should examine what factors increase maternal vocalizations.

Limitations and Future Directions

While this study contributes to an understanding of the relationship between maternal behavior and child functioning among Latina adolescent mothers and their children, the current study also has limitations that need to be addressed in future research. First, the current study assessed child functioning in a sample including Spanish-speaking and bilingual children with scales from an instrument that has not been officially translated. Thus, the comparison of outcome scores between the current sample and other relevant groups may be confounded by language. However, this limitation has been ongoing given that previous studies do not report the language of administration when utilizing a translated instrument (BSID II). Additionally, such studies do not examine the relationship between language of administration and scores. In addition, future studies with similar samples using comparable translation techniques will be limited in their ability to compare outcome results with this study and previous studies as the translations may not exactly match that of the current study. These limitations indicate a need for standardized translation to strengthen replication between studies.

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 beliefs of families 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
maternal behavior and the relation between maternal behavior and child 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.

Other limitations of the current study include that results are cross sectional and not longitudinal. Therefore it is not known whether child cognitive and language functioning predict change in maternal behavior and vice versa. Longitudinal data can clarify whether any causal relationships exist between these variables; and, if so, the direction of the causation. Therefore, future research should assess these factors using a longitudinal design to assess causal relations and to determine how maternal behavior of adolescent mothers might change to meet their children’s evolving needs. Also, this study is the first study to examine this relation among Latina adolescent mothers, thus replication is needed in order to clarify and expand this study’s 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.

Given, that this study was the first to assess the relationships between individual maternal behaviors and child cognitive and language functioning among Latina adolescent mothers and their toddlers, future steps should be considered. Future studies can advance the literature by examining the effects of composites or constellations of maternal behaviors of this population on child outcomes. Specifically, prevention and
intervention efforts for child development can benefit from studies focusing on grouping mothers based on their teaching behaviors. Furthermore, future studies should examine the extent to which young mothers display similar behaviors across different tasks.

**Implications**

The findings of the current study have implications for tailoring interventions for young Latina mothers and their toddlers. First, the current study established that maternal behavior constructs relate to language functioning in children. Thus, prevention and intervention efforts should be aimed at providing parenting programs for adolescent Latina mothers. Given the findings, these programs can be tailored to emphasize maternal sensitivity, intrusiveness, positive affect, and repertoire. Additionally, such programs and interventions should be tailored specifically to the cognitive and language functioning of the children of these young mothers. Although most programs presumably believe 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).

Additionally, prevention and intervention efforts including the child’s father could prove helpful for both mother and child. Efforts for this population could draw from this research following that children’s father’s education level was significantly related to language scores. However, it is unknown whether this relation was impacted by genetics, level of stimulation provided by the child’s father or father involvement. Therefore, further studies should examine the role of fathers on the development of children of
Latina adolescent mothers and the potential benefits of including fathers in interventions and programs focused on the development of these children.

In sum, the current study furthered the literature by assessing the relation of maternal behavior to child outcomes and investigating the role that risk factors play on the development of children of adolescent Latina mothers. Results indicated that maternal behavior constructs related to child language functioning in this sample. Moreover, findings highlighted the influence of risk factors on child outcomes. Further research on these relations in a longitudinal study is indicated. The findings from this study suggest intervention and prevention efforts for this population may benefit from parenting programs for Latina adolescent mothers, early assessment of child cognitive and language outcomes and the potential involvement of the children’s fathers in these efforts.
REFERENCES
REFERENCES


G Power 3.1 (website)


APPENDIX A

CONSENT FORMS
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 1/2 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 1/2 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  Date
(Person obtaining consent)

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  
Label

CONSENT FOR PHOTOGRAPHY, AUDIO OR VIDEOTAPING (medical)

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: ________________________________  
  Journal Name

■ Inclusion in Research Paper(s):  Latina Adolescent Parenting Project  
  Name of Study

□ 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 the 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

____________________________________      ____________
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
CONSENTIMIENTO

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)
### HUMAN INVESTIGATION CONSENT FORM

**The MetroHealth System**  
2500 MetroHealth Drive, Cleveland, Ohio 44109-1998  
**ATTACHMENT A**  
Patient Addressograph Label

#### CONSENTIMIENTO DE FILMACIÓN

<table>
<thead>
<tr>
<th>Tipo:</th>
<th>Fotografía</th>
<th>Grabación de voz/sonido</th>
<th>Video tape</th>
<th>Otro: ____________</th>
</tr>
</thead>
</table>

Las fotografías de las participantes se tomarán:  
- [x] 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: __________________________ Nombre de la Revista
- [ ] Para reportes de investigación: *Latina Adolescent Parenting Project* __________________________ Nombre del Estudio
- [ ] Otro: __________________________ Especifique

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 __Investigación__

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

14. How far have you 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 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
   □  3. No (GO TO QUESTION 25)
   □  4. DON'T KNOW (GO TO QUESTION 25)
   □  5. REFUSED (GO TO QUESTION 25)

25. Do you receive any welfare benefits?
   □  1. No
   □  2. Food stamps only
   □  3. Medical card only
   □  4. Monthly check
   □  5. Money for day care
   □  6. Two or more of the above
   □  7. DON'T KNOW
   □  8. REFUSED

51. What is your marital or relationship status?
   □  1. Never married / no current partner
   □  2. Never married / has a current partner
   □  3. Married, live with husband / child's bio father
   □  4. Married, live with husband / not child's bio father
   □  5. Married, separated from husband / no current partner
   □  6. Married, separated from husband / has partner who is not husband
   □  7. Divorced / no current partner
   □  8. Divorced / has current partner
   □  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. Yes, part time
   - 3. Yes, full time
   - 4. DON'T KNOW
   - 5. REFUSED
65. Is the father of your child also your current partner/boyfriend/husband?
   □  1. No  (GO TO QUESTION 66)
   □  2. Boyfriend/partner
   □  3. Husband
   □  4. DON'T KNOW
   □  5. REFUSED

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

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

ECONOMIC STRAIN
ECONOMIC STRAIN

For the next few questions, I'd like you to tell me which of these responses comes closest to describing the usual situation of you and the people you live with - your household. If you live alone, you should just answer these questions about yourself.

1. Do you feel your household is able to afford decent housing?
   1. Never
   2. Sometimes
   3. Most of the time
   4. Always
   5. Refused

2. Is your household able to afford furniture or household items that need to be replaced?
   1. Never
   2. Sometimes
   3. Most of the time
   4. Always
   5. Refused

3. Can your household afford the kind of transportation it needs?
   1. Never
   2. Sometimes
   3. Most of the time
   4. Always
   5. Refused

4. Do you think your household has enough money for the kind of food you and your household should have?
   1. Never
   2. Sometimes
   3. Most of the time
   4. Always
   5. Refused
5. Does your household have enough money for the kind of medical care you and your household should have?
   1. Never
   2. Sometimes
   3. Most of the time
   4. Always
   5. Refused

6. Does your household have enough money to buy decent clothing?
   1. Never
   2. Sometimes
   3. Most of the time
   4. Always
   5. Refused

7. Do you feel your household has enough money for the kind of recreation you and your household want?
   1. Never
   2. Sometimes
   3. Most of the time
   4. Always
   5. Refused

8. How much difficulty does your household have paying bills?
   1. Not at all
   2. A little
   3. Some
   4. A lot (Very)
   5. A huge amount (Extremely)
   6. Refused

9. At the end of the month, do you have...?
   1. Not enough money
   2. Just enough money to make ends meet
   3. Some money left over
   4. Refused
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 COGNITIVE SCALE
BAYLEY-III COGNITIVE SCALE

The cognitive scale includes items that assess sensorimotor development, exploration and manipulation, object relatedness, concept formation, memory, and other aspects of cognitive processing. The following are examples of test items included in the cognitive scale:

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

*Find Hidden Objects*- Place the bracelet and the two washcloths on the table in a horizontal row with the child’s reach. Show the bracelet to the child and say, see the bracelet. I am going to hide it. Look, I’m hiding it under here.

1 point: Child finds bracelets by looking first under correct washcloth when hidden on both left and right sides.
0 points: Child does not attempt to find the object. Child is successful on only one side.

*Removes Pellets*- While the child is watching, put the pellet in the bottle and shake the bottle so he or she can see the pellet inside. Then hand the bottle to the child and tell him to get it out.

1 point: Child purposely removes pellet from bottle using some form of directed effort.
0 points: Child gets the pellet out accidently or shows no interest in trying to get the pellet out of the bottle.

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

*Finds Hidden Objects (Reversed)*- Place the bracelet and the two washcloths on the table in a horizontal row with the child’s reach. Show the bracelet to the child and say, see the bracelet. I am going to hide it. Look, I’m hiding it under here. Place the bracelet under the washcloth at the child’s left, then reverse the washcloths and ask the child to find the bracelet.

1 point: Child finds bracelets by looking first under correct washcloth when hidden on both left and right sides and then reversed.
0 points: Child does not attempt to find the object. Child is successful on only one side.
Relational Play- Place the objects (doll, bear, plastic cups, soon, ball, etc.) in front of the child. Say, I’m thirsty. I need a drink. Take a cup and pretend to drink form it. Observe if the child picks up an object and begins to play.
1 point: Child demonstrates relational play using him- or herself.
0 points: Child only imitates your modeled behavior.

Pink Board- Place the board on the table (pieces are already in the board) and remove the pieces from the board and place them between the board and the child. Tell the child to put pieces in.
1 point: Child correctly places one piece within 180 seconds.
0 points: Child does not correctly place any pieces within 180 seconds.
APPENDIX F

BAYLEY-III LANGUAGE SCALE- RECEPTIVE
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 G

BAYLEY-III LANGUAGE SCALE- EXPRESSIVE
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 H

TEACHING TASK INSTRUCTIONS
TEACHING TASK INSTRUCTIONS

Instructions Mother-Child Interaction

We will now videotape the child interacting with you. We want to see how (s)he does during a series of different tasks. First you will play with him/her without toys and then we will give you a set of toys for you to play with and teach your child. Try not to worry about the camera. You can move around if you want, we can move the camera to follow you. We will let you know when we are done with each part.

Ahora vamos a hacer un vídeo de tu niño/a jugando contigo. Queremos ver como él/ella actúa durante una serie de actividades diferentes. Primero vas a jugar con él/ella sin juguetes, y luego les daremos un grupo de juguetes con los que pueden jugar. No te preocupes por la cámara. Puedes moverte si quieres porque podemos ajustar la cámara para seguirte. Te avisaremos cuando termine cada parte.

Toy-oriented Teaching Task: (5 minutes)

Toy: yellow shape sorter

Now we want you to please teach (child’s name) whatever you can about how to play with this toy. There is no right or wrong way to play with this toy, so feel free to teach him/her whatever you want.

Ahora queremos que le enseñes a (nombre del niño/a) lo que puedas sobre cómo jugar con este juguete. No hay una forma correcta o incorrecta de jugar con el juguete, así que no dudes en enseñarle lo que quieras.

Give the mother the shape sorter as you are giving her the instructions. Show her how the pieces can be taken out and put in as you are giving the instructions to the mother. After 5 minutes say:

Good, we are moving right along. [Bien, estamos progresando.]

As you take the toy away from the child say: Now we have a new thing to do. [Ahora tenemos una cosa nueva que hacer].
APPENDIX I

FREE PLAY TASK INSTRUCTIONS
FREE PLAY TASK INSTRUCTIONS

Free-play with Mother:  (10 Minutes)

Toys:
Baby doll with bottle, spoon, plates, cups, comb, hairbrush, blanket
Red car
Chatter Telephone
Puppet
Wooden pound with hammer
Duplo car-base with pieces
Diego car, Diego, lemur, fox, trailer, green bear

Dump the toys in front of the child as you talk with mother.

Now we would like you to play with (child’s name). Wait a minute to see what (s)he wants to do, then play with him/her as you normally do. In other words, let him/her take the lead.”

Ahora, queremos que juegues con (nombre del niño/a). Espera un minuto para ver lo que él/ella quiere hacer, después juega con él/ella cómo lo haces normalmente. En otras palabras, deja que él/ella tome la iniciativa.
APPENDIX J

MATERNAL BEHAVIOR SCALES
MATERNAL BEHAVIOR SCALES

Maternal Sensitivity

Maternal sensitivity/responsiveness is well-timed, and reflects empathy with the child's needs and feelings. Sensitivity reflects the mother's ability to perceive and accurately interpret the child's signals and to respond to them appropriately. Questions to ask yourself when coding maternal sensitivity: (1) Was mom responsive to child's needs when called upon by child? Was she accessible? (2) Did mom's reactions to child seem appropriate? What about the timing? Did she promptly respond to the child or did it take her a while? Is response contingent on child's behavior? (3) Did mom stimulate the child too much or too little? Was she alert to subtle cues of his behavior? (4) Was mom effective in soothing the child? Behaviors to watch for include mothers task setting (allowing the child to initiate play for free play or introducing the shape sorter and shapes), appropriately positioning the child and toys near each other, engaging the child to get the activity started, the help she provides the child, and the actions taken by the mother to refocus the child.

The extent to which a mother is insensitive depends on the extent to which the mother ignores the child when the child is seeking/calling for attention. Take note that situations where the child seeks attentions vary in ratings: For instance, if the child clearly calls for her attention and the child is at least somewhat upset when the mother doesn’t respond would be considered highly insensitive. A mother that completely ignores the child, but the child is not upset or potentially in trouble would get a higher score (although still insensitive). In regards to the free play task, a mother who does nothing with the child but the child is playing with the toys as the task calls for and having fun on his own could be considered somewhat sensitive. For the teaching task, a mother who is focused on presenting and keeping the task at the child’s appropriate level and meets the child’s needs immediately could be considered sensitive. For both task, a mother who interrupts the play/activity or tries to impose her agenda when the child really does not need her would be insensitive; with the level of insensitivity related to how much the mother intrudes on the child’s activity and distresses the child.

Also note that insensitive mothers (ratings 1-5) often are disengaged with their children. This is characterized as mothers who often respond to their children, but they are not fully present in the interaction. Examples of disengagement are mothers who verbally respond to their children, but they do not make eye contact. Or they respond to...
the immediate request of the child, but they do so quickly and without soothing the child and ensuring that the child can continue to play. In other words, insensitive mothers respond to the immediate “crisis” of the child (i.e., child requesting mom to fix a toy), but the mom is not in tune with the other indirect needs of the child, such as the child wanting attention or soothing, but the child does not verbalize this desire.

An intermediate score for sensitivity would characterize moms who are as sensitive as they are insensitive. For the free play task sensitive mothers will settle their child into the task by placing toys around the child and ensuring that the child will be engaged enough to initiate play. For the teaching task, sensitive mothers will explore the shape sorter along with the child and provide sufficient exploration time and assistance based on the cues of the child.

1. **Highly Insensitive.** The extremely insensitive mother seems geared almost to her own wishes, moods, and activity. That is, this mother's interventions and initiations of interactions are prompted or shaped largely by signals within herself; if they mesh with her child's signals, this is often no more than a coincidence. Generally speaking, these mothers rarely interact with their child. These moms may be paying attention to other aspects of their environment or simply not want to interact (play or teach) with their child so they will just sit there. This is not to say that the mother never responds to her child's signals; sometimes she does if the signals are intense enough, prolonged enough or repeated often enough. The delay in response is in itself insensitive. The mother routinely ignores or distorts the meaning of the child's behavior. These mothers often do not notice or acknowledge if their children are not enjoying an activity (having difficulty with the shape sorter and shapes), such as playing with a particular toy, even if the child shows overt distress. This misinterpretation by the mother may lead the mothers to overstimulating their child and subsequently distressing the child or the child withdraws attention form the mother (i.e. child begins to play with another toy after mom’s interruption). When the mother does respond to the child's signals, her response is characteristically inappropriate in kind, or fragmented and incomplete. For example, a child may ask their mom to do something to a toy, such as fix it, and the mom might acknowledge the child, but not follow through with the request. A highly insensitive mother generally does not make eye contact, is completely disengaged, neglectful of child’s needs, and unresponsive to child’s signals or responds inappropriately. For example, a mom may tickle her child to a point where the child is overstimulated and unable to calm herself, but the mom continues to tickle.

3. **Insensitive.** This mother frequently fails to respond to her child's communications appropriately and/or promptly, although she may on some occasions show capacity for
sensitivity in her responses to and interactions with her child. However, these mothers may also overstimulate their child. In essence, her insensitivity seems to be linked to inability to see things from her child's perspective, take cues from her child, and then respond appropriately. She may be too frequently preoccupied or distracted by her environment and, therefore, is inaccessible to his signals and communications, or she may misperceive his signals and interpret them inaccurately because of her own wishes or defenses: This mother may delay an otherwise appropriate response to such an extent that it is not contingent upon his signal, and indeed perhaps is no longer appropriate to his state, mood, or activity. For example, some insensitive moms might fail to play or stimulate her child. On the other hand, an insensitive mom may also provide too much stimulation to the child in a short period of time and the child becomes distressed. These mothers will either not notice the child’s distress or fail to stop providing the stimulation to decrease the child’s distress for her own reasons (e.g., if the child’s frustration is getting to the mom). Furthermore, her interactions are likely fragmented and incomplete, and her responses half-hearted or impatient (e.g., not fixing a toy when the child requests for it). Despite such clear evidence of insensitivity, however, this mother is not as consistently or pervasively insensitive as mothers with even a lower rating. Therefore, when the child's own wishes, moods, and activities are not too deviant from the mother’s wishes, moods, and responsibilities, this mother can modify her own behavior and goals and, at this time, show some sensitivity in her handling of the child.

5. **Inconsistently Sensitive.** Although this mother can be quite sensitive on occasion, there are some periods in which she is insensitive and disengaged from communicating and playing with her child. The mother's insensitivity may occur for any one of several reasons, but the outcome is that she seems to be out of step in regards to her sensitive dealings with her child. She may be prompt and appropriate in responses to the child's communications at some times and in most respects, such as redirecting the child’s attention to the activity, but slow at other times and in other respects. These mothers often respond to their child in time to stop any immediate crisis, but they become disengaged from the activity after the crisis is resolved (e.g., child becomes frustrated because they cannot open up at toy, so the mom opens the toy but stops engaging with the child afterwards). Inconsistently sensitive mothers are engaged and playful with their child at times, but unresponsive and distracted at other times. They can also be overstimulating (tickling, tapped on head with toy by mom). On the whole, however, she is as frequently sensitive as insensitive. What is striking is that a mother who can be as sensitive as she is on so many occasions can be so insensitive on other occasions. Inconsistently sensitive mothers may be provided opportunities to demonstrate sensitivity, but the mother doesn’t respond either because she does not want to or she does not pick up on the child’s signals.

7. **Sensitive.** This mother interprets her child's communications accurately, and responds to them promptly and appropriately - but with less sensitivity than mothers with higher ratings. For example, when a child shows mom a toy, a sensitive mother will take interest in the toy and then read cues from the child about what the child wants to do next. For
instance, the child shows mom a toy and then mom reads cues from the child to
determine if the child knows what they want to do with the toy, or does the mom need to
demonstrate to the child how to play with the toy. Once the dyad determines how to
interact with the toy, the mom will often pause to let the child enjoy the toy and then
interact when the mom feels the child is ready and the interaction will facilitate play and
enjoyment. She may be less attuned to her child's more subtle cues than the highly
sensitive mother. She may sometimes miss her cues, but these are very infrequently (e.g.,
child shows mom a toy so that the mom will acknowledge the toy and maybe play with it,
but the mom neglects to engage). For instance, she may at times become slightly
distracted by the environment, and consequently, is not in tune to her child’s request.
However, these times are rare. Her responses are not as consistently prompt or as finely
appropriate - but although there may be occasional little "mismatches", the mother's
interventions and interactions are never seriously out of tune with her infant's tempo,
state, and communications. Sensitive mothers constantly make visual checks to assess
potential cues of need from the child and they respond to these cues immediately.

9. **Highly Sensitive.** Mother is very attuned to child's signals, and responds to them
promptly and appropriately. She reads her child's signals and communications skillfully,
and understands even his subtle cues. As such, she is able to “predict” the child’s
behavior, affect, and can prevent problems. For instance, a child may be becoming
distressed because they cannot figure out a toy, but they continue to play with the toy. A
highly sensitive mother would immediately notice this, redirect the child or help them
figure out the toy. Their interaction is smooth and complete and both the infant and
mother seem satisfied. Her responses are contingent upon her child's signals and
appropriate. When she feels that it is not best to comply with child's demands -- e.g. when
he is overwhelmed, or wants something he should not have -- she is tactful in
acknowledging his communications and in offering an acceptable alternative. Another
common attribute of highly sensitive mothers is that they often settle their child into the
task. That is when the task begins, these mothers usually arrange toys around the child
and ensure that the child will be engaged with the novel toys and initiate play.

**Intrusiveness**

This scale assesses the degree to which the parent interferes with their child’s
ability to function autonomously and mothers that score high appear to be unable to
recognize and respect the validity of the child’s perspective. Intrusive interactions
between mother and child are clearly adult-centered rather than child-centered and
involve imposing the mother’s agenda on the child despite signals that a different activity
or type of interaction is needed. Some examples of maternal intrusiveness would include
mother grabbing toys from child, taking charge of the situation when the child is playing
and interacting well with mom, verbal or physical restriction over the child’s actions
when unnecessary, or the mother imposes her own agenda without letting the child
initiate and continue play. Intrusiveness is when the mom begins to overtly manipulate
the play/teaching situation when it is unnecessary or un-beneficial to turn-taking play.
Keep in mind that after observing the mother-child interaction, an intrusive mother will often overstimulate or distress the child instead of increasing the child’s enjoyment during the activity. An intrusive mother often may not let the child take the lead during play (which is part of the directions they should have followed) or explore the shape sorter appropriately. This differs from interactions where the child does not initiate play or attempt the activity and the mom finally makes a step to begin the activity.

For the teaching task the coder should identify the goal of the skill the mother is teaching her child. With the goal in mind, it is important to know that a directed teaching task is not necessarily intrusive. Focus should be on the reactions of the child during the situation and the flexibility/inflexibility of the mother to change directions based on the child’s feedback.

1. **No Intrusiveness**: These mothers demonstrate no intrusive behavior with their child. They allow their child to initiate play and explore shape sorter. These mothers clearly recognize the activity as child-centered. For both task, these moms illustrate turn-taking with their child and they never grab toys away from the child.

3. **Slight Intrusiveness**: These mothers demonstrate some intrusive behaviors, such as distracting the child from contently playing, but these behaviors are extremely rare and infrequent. If the mother distracts the child, she stops herself when the child provides clear signs of distress due to the distractions.

5. **Medium Intrusiveness**: Mothers demonstrate more intrusive behavior than lower ratings, but there are also periods during the task that the mother does not control the child’s play. Examples of the “5” rating are mothers who may behave intrusively, but they back off when the child does resist or she may physically manipulate the child but if the child becomes distressed, mom will stop. Another example of intrusive moms is that they demonstrate some explicit intrusive verbal behavior, such as “Do this, play with this toy”. Mothers with this rating should be considered the midpoint of intrusiveness: they are just as intrusive as non-intrusive.

7. **High Intrusiveness**: Ratings of “7” should be given to mothers who demonstrate progressively more intrusive behavior than mothers with a rating of “5”. These ratings characterize mothers who do not acknowledge their child’s agenda, but pursue interactions that are in-tune with their agenda. These mothers disregard assessing whether their child requires their assistance, but instead, the mother imposes upon their child and takes over the situation, which also leads to a distressed child or the child’s goal/activity is clearly interrupted.
9. **High Intrusiveness**: This rating should be given to mothers whose intrusive behavior generally characterizes her behavior during the task. These mothers are clearly adult-centered and impose their own agendas on their child. She commands the child (e.g., Come here, Do this, Look at this). Mother does not allow child to complete activities. Mother may pick up the child when it is obvious the child does not want it. This mother engages in many behaviors designed to channel the child's behavior in specific (mother determined) directions. The mother may try to keep the child's attention focused on her at all times. She does not let the child play. They exert control over the child rather than acting in a manner that validates their child’s perspective and this often leads to a distressing or interrupting the child. Mothers will often grab toys from their child even when the child was playing well with the toy or they physically control the child’s actions when unnecessary. Intrusive mothers do not recognize that the child can also direct play/activity. Instead, they force the child to play with toys that they may not be interested in or force the child to insert a shape.

**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.

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

3. **Medium Positive Affect**
   - 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 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.

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 or no bodily contact that indicates the communication of warmth.

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”.

9. Instances of warmth, affection, and enjoyment are very frequent (almost continuous), and intense/exuberant. A “9” rating requires that expression of positive affect dominates mothers' behavior.

**Negative Affect**

This scale assesses the degree to which mother expresses hostility, negative affect, annoyance, frustration, impatient displeasure, and/or disapproval toward her child during the episode. Degree of negative affect is defined in terms of both FREQUENCY and INTENSITY. Behaviors to watch for are abrupt, or aggressive handling of child (might occur when a child leaves the room and the mother aggressively brings the child back in the room and plops the child on the floor), explicitly negative and/or scornful vocal tones (the mother forcefully correcting the child), impatience expressed vocally or in verbal communication, facial expressions of annoyance, and/or evident lack of enjoyment of child when the mothers interact with their child. Examples of mothers demonstrating explicit negative messages: “no,” “bad child,” “no, do ---- this way.” Notice whether this type of interaction is characteristic of the whole episode or if it only happens occasionally.

Special attention should be given to the mother’s tone of “NO-NOs”. If several No-No’s are used for instruction and there is no sign of frustration this action should not be regarded as negative affect, but rather has helping guide the child process with the task. Subtle signs of negative affect include the mother having increased tension in verbalization or behaviors. (Ratings 3-5) Whereas, obvious signs of negative affect
consist of using loud tone, shouting, pressured whisper tone or harsh tone, firmly repeated statements, and snapping objects away from the child. (Ratings 7-9)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>3</th>
<th>5</th>
<th>7</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Negative Affect</td>
<td>Medium Negative Affect</td>
<td>High Negative Affect</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. No instances of hostility, negative affect, annoyance or displeasure are observed.

3. Mother expresses some form of negative affect but such expressions are relatively infrequent (1-2 times) and/or not very intense. Examples would include frustrated vocal tone or negative expression. However a rating of a 3 does not include any direct, explicit negative messages (i.e., expressing disappointment, seeming frustrated by child, negative tone of voice.)

5. Some sufficient frequency (3-4 times) of subtle acts of hostility, negative affect, annoyance, or displeasure. Examples include two instances of verbal or nonverbal expression of annoyance, or impatience, which are not intense.

7. Negative affect, hostility, annoyance, and/or displeasure are evident, and such behavior is frequent (more than four instances) and/or intense. Although negative affect does not characterize the whole episode, such expressions of negative affect are frequent and/or intense enough to be judged as characteristic of mother’s behavior during the 5 minute period.

9. Instances of negative affect, hostility, annoyance and/or displeasure are very frequent (almost continuous) and/or intense. Either one or two very strong, striking instances of negative expression or 5 or more separate instances of negative affective expression. A “9” rating requires that expression of negative affect dominates mother’s behavior.

**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 using shape sorter/shapes, and inventing games with the shape sorter/shapes. 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 with the shapes for her own interest. Coder’s should also keep in mind how the mother uses herself to enrich the task.
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 uses the shape sorter/shapes in 1-2 standard ways, but does not seem to use other possibilities with them. For instance, rotate the shape sorted in order for the child to insert shapes the appropriate spots.

5. Medium repertoire: mother has available to her the normal playing behaviors of motherhood, shows ability to use the standard means of playing with the toys, 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. Examples for the shape sorter include inserting the shapes in the appropriate slots or in the container.

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 to the situation and her child’s momentary needs. Examples are similar to those to scale 5, but additional uses can include counting items, identifying colors, and grouping by color.

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

**Vocalizations**

This rating assesses the extent to which mother vocalizes to her child during the episode, with extent defined in terms of the frequency, duration of mother's vocalizations. For our purposes, duration refers to the "length" of mother's utterances such that a number of words strung together would generally be rated higher than a single word. (For example, mother could respond to her child's vocalization with a brief imitation of the sound, or with "are you talking to me? Huh? Are you going to tell me more?" The second response is obviously of greater duration and would receive a higher rating.) For the purposes of this rating, it is NOT necessary to be concerned with the specific content of mother's vocalizations, but repeated utterances should not be considered as long strings.
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>3</th>
<th>5</th>
<th>7</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>No Vocalizations</strong></td>
<td><strong>Frequent Vocalizations</strong></td>
<td><strong>High Vocalizations</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Mother does not vocalize during the 5-minute episode.

3. Maternal vocalizations are rare and brief. Mother may have briefly vocalized 1-5 times during the 5-minute episode.

5. Mother vocalizes more frequently than would warrant a rating of “3”, or fewer vocalizations are of greater duration. Generally, a rating of “5” should be given to a mother who vocalizes more than rarely/briefly, but for whom vocalizations do not characterize the 5-minute episode.

7. Mother's vocalizations are frequent (>10) and lengthy. A rating of “7” requires the judgment that vocalizations clearly characterize mother's behavior during the 5-minute period. Additionally, one way of distinguishing between this and the "9" rating would be to consider the extent to which mother's vocalizations are paced. To the extent it is possible to determine that vocalizations are spaced out rather than "continuous", the “7” rating would be appropriate.

9. Mother vocalizes virtually continuously throughout the 5-minute episode. This rating should be given when it is judged that maternal vocalizations are an ever-present (i.e. dominant) aspect of mother's behavior throughout the episode.
APPENDIX K

MATERNAL BEHAVIOR RATING SHEETS
MATERNAL BEHAVIOR RATING SHEETS

Latina Mother’s Project

Teaching Task

Maternal Behavior Coding Sheet

Coder’s Name: __________________________ Date Coded: ____________

HV #: 1__2 HV Date: __________

Sensitivity: ______ Intrusiveness: ______

Positive Affect: ______ Vocalizations: ______

Negative Affect: ______ Repertoire: ______

Notes:
Latina Mother’s Project

Free Play

Maternal Behavior Coding Sheet

<table>
<thead>
<tr>
<th>Coder’s Name: __________________________</th>
<th>Date Coded: ______________</th>
</tr>
</thead>
<tbody>
<tr>
<td>HV #: 1 2</td>
<td>HV Date: ______________</td>
</tr>
</tbody>
</table>

Segment #1: Time: __________  Segment #2: Time: __________

<table>
<thead>
<tr>
<th>Sensitivity:</th>
<th>Sensitivity:</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Positive Affect:</th>
<th>Positive Affect:</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negative Affect:</th>
<th>Negative Affect:</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intrusiveness:</th>
<th>Intrusiveness:</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
</tr>
</tbody>
</table>

Notes:
APPENDIX L

RELIABILITY SHEET
## RELIABILITY SHEET

**Latina Mother’s Project**

**Reliability Teaching Task**

**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>

### Teaching Task

**Final**

- **Sensitivity:**
  - ____________
  - ______
  - ______
  - ______

- **Positive Affect:**
  - ______
  - ______
  - ______
  - ______

- **Negative Affect:**
  - ______
  - ______
  - ______
  - ______

- **Intrusiveness:**
  - ______
  - ______
  - ______
  - ______

- **Vocalizations:**
  - ______
  - ______
  - ______
  - ______

- **Repertoire:**
  - ______
  - ______
  - ______
  - ______

117
### Latina Mother’s Project

**Reliability Free 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>

#### Segment #1: (0 to 5 minutes)

<table>
<thead>
<tr>
<th></th>
<th>__________</th>
<th>__________</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity:</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Positive Affect:</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Negative Affect:</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Intrusiveness:</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

#### Segment #2: (5 to 10 minutes)

<table>
<thead>
<tr>
<th></th>
<th>__________</th>
<th>__________</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity:</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Positive Affect:</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Negative Affect:</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Intrusiveness:</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>