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Parent-Child Relationships Compared with Duration of Breastfeeding and Additional Factors

by

Sinead Martin

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To the Graduate Faculty:

The members of the committee appointed to examine the thesis of Sinead Martin find it satisfactory and recommend that it be accepted.

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TABLE OF CONTENTS

List of Figures

List of Tables

Parent-Child Relationships Compared with Duration of Breastfeeding and Additional Factors

Thesis Abstract – Idaho State University (2021)

This study investigates parent-child interactions in comparison with demographic variables and feeding practices. Data from The National Institute of Child Health and Human Development's (NICHD) Study of Early Child Care and Youth Development (SECCYD) was analyzed to answer the research questions. This study includes 717 mother, father, and child triads deduced from the 1,364 families in the original study. Demographic information, qualitative ratings from the Parent-Child interaction tasks and data from questionnaires determining the duration of breastfeeding were utilized. Mothers' total interaction scores (TIS) were most highly correlated with education level and age. Fathers' TIS were most highly correlated with education level followed by ethnicity and lastly, the breastfeeding variable. Future research including fathers earlier on and more detailed information on feeding interactions is recommended to more fully understand fathers' roles.

Key Words: parent-child relationships, interaction, attachment, mothers, fathers, feeding

Chapter 1: Introduction

Literature Review

Attachment theory is one of the most researched psychological theories related to parenting. By definition, attachment is one aspect of the relationship between a parent and a child the purpose being to make a child feel safe, secure, and protected. Increased sensitivity and attachment for parents with their child is correlated with fewer behavioral problems (Verschueren & Marcoen, 1999), more reciprocated friendships (Verissimo et al., 2014), and more optimal early childhood development (Alhusen et. al., 2013).

Verissimo, Santos, and Fernandes (2014) examined attachment security with parents and its relationship to the quality of social adaptation in peer groups during early childhood. In this study mental representations of attachment were assessed by using the Attachment Story Completion Task (Bretherton et. al., 1993) and child-level indicators of social competence based on direct observation and interviews. This study found significant positive associations between attachment measures and all social competence composites. Children who had more secure attachment representations were both more socially engaged and more likely to exhibit social, emotional, and cognitive skills that contribute to peer acceptance.

Alhusen, Hayat, and Gross (2013) also examined the relationships between maternal-fetal attachment (MFA) during pregnancy and infant and toddler outcomes and the role of mothers' attachment style on early childhood developmental outcomes. This study found that women demonstrating higher avoidant attachment styles and greater depressive symptomology were more likely to have children demonstrating early childhood

developmental delays. In contrast, women reporting higher MFA had more secure attachment styles and their children had more optimal early childhood development.

Studies examining father-based attachment are less common than those examining attachment with mothers. When looking at father-child attachment there were 228, 000 less results in a database search compared to mother-child attachment. Verschueren and Marcoen (1999) included fathers in their research examining attachment. In this study, they evaluated the predictive power and effects of representations of child-mother and child-father attachment for the children's representations of self and socioemotional competence. This study included eighty participants, forty boys and forty girls, who were between the ages of 55 and 77 months. Attachment was measured using an attachment story completion task that was completed once for the mother and once for the father. The socioemotional competence of the children was measured by the kindergarten teacher while the representation of self was measured by a subgroup of the children. It was found that child's positive representation of self was best predicted by the quality of child-mother attachment and the child's anxious or withdrawn behavior was best predicted by the quality of child-father attachment. Although they differ, both quality of child-mother and quality of child-father attachment are important for children's positive representation of self and socioemotional competence.

Cerniglia, Cimino, and Ballarotto (2014) examined both mother-child and father-child involvement and quality of interaction. This study included 77 families recruited from twelve preschools in Italy. Interaction and involvement were measured through observation

of the feeding using feeding scales, self-reporting using a checklist, and report-form questionnaires on temperament and information provided by the parents regarding time spent with their children. The results showed that overall quality of father-child interactions during feeding is lower than that of mother-child interactions but also showed that paternal involvement predicts better quality of father-infant interactions. Additionally, father-child interactions were found to be significantly more maladaptive, fathers displayed poorer ability to recognize distress cues shown by their children, and fathers are more strictly influenced by children's behaviors rather than the emotional content in the context of feeding (Cerniglia, et. al., 2014). Brown, Mangelsdorf, and Neff (2012) examined concurrent and longitudinal associations of father involvement, paternal sensitivity, and father-child attachment at thirteen months and three years of age. This study included 115 father-child dyads, 56 of the children were girls and 59 boys. At timepoint 1, thirteen-month laboratory visit, fathers completed a questionnaire assessing parenting responsibility to determine involvement, they partook in a semi-structured observational procedure using the Strange Situation Procedure with their child to assess attachment and to assess sensitivity fathers participated in a ten-minute competing demands task. At timepoint 2, three-year home visit, involvement was measured using a questionnaire and interview. A semi-structured father-child play task and observations were used to asses paternal sensitivity and paternal sensitivity was assessed using a fifteen-minute period of dyadic interaction in which a series of puzzle tasks were to be completed. Results showed a secure father-child attachment relationship was related to both quantity and quality of fathering behavior,

remained relatively stable across early childhood and predicted increased paternal sensitivity overtime.

Father-child attachment is critical during the infant-parental bonding period, It was found that paternal involvement predicts better quality of father–infant interactions when associated with a child's higher scores on social orientation (Cerniglia et al., 2014) and a secure father-child attachment relationship was related to both quantity and quality of fathering behavior and predicted increased paternal sensitivity over time (Brown et al., 2012).

As the topic of attachment has become more heavily researched so has the topic of breastfeeding. Tharner et al. (2012) examined the associations of breastfeeding with maternal sensitive responsiveness and infant-mother attachment security and disorganization. The study included 675 participants who were administered questionnaires about breastfeeding practices at two and six months postpartum. Later, at fourteen months, maternal sensitive responsiveness was assessed using Ainsworth's sensitivity scales (Ainsworth et. al., 1974) and attachment quality was assessed with Stranger Situation Procedure (Ainsworth, M. D. S., 1978). The results of this study found that longer duration of breastfeeding was associated with more maternal sensitive responsiveness, more attachment security, and less attachment disorganization. Based on the literature review, no research was found on how infant feeding practices affect father-child attachment and overall relationship over time. One study by Weaver, Schofield, and Papp (2018) although aimed at investigating the potential effects of breastfeeding duration on maternal sensitivity

also ran a parallel model to predict father's sensitivity from mother's breastfeeding. The researchers found that although breastfeeding did predict mother's sensitivity it did not dictate changes in father's sensitivity (Weaver, Schofield, and Papp, 2018).

Another important factor in infant feeding is the introduction to solid foods. The American Academy of Pediatrics (AAP) (2020) recommends introducing solid foods around six months of age; including a wide variety healthy foods and textures. The AAP also states research indicates introduction to solids prior to four months is associated with increased weight gain and adiposity or excess fat tissue. The introduction of solid foods should not indicate cessation of breast or bottle feeding as the AAP recommends babies drink breastmilk or formula for the first year of life. Additionally, a study *Introduction of Solid Food to Young Infants* discusses the importance of timing the introduction of solid food (2010). In this article the National Survey of Early Childhood Health (NSECH) in which over 2, 000 parents were surveyed was analyzed; 62% of parents reported introducing solids to their child between 4-6 months of age (Kuo et. al., 2010). Also, African American mothers, English speaking Latino mothers, White mothers with more than high school education, and mothers who breastfed for 4 months or longer were less likely to introduce solids early (Kuo et. al., 2010). This information suggests that infant feeding practices vary family to family and could potentially impact child development.

Purpose of Current Study

It is evident that secure mother-child and father-child attachment, quality relationships, and certain feeding practices are important to positive child development. In

the case of mother-child attachment it is shown that increased duration of breastfeeding is beneficial to this relationship. However, there is a gap in research regarding father-child attachment and associations with infant feeding practices. The primary goal of this study is as follows:

There is evidence highlighting the positive outcomes achieved through secure father-child attachment and yet we know little about how the quantity and quality of father's involvement during feeding practices may enhance positive attachment outcomes for children. The intent of this study is to increase awareness regarding the paternal role in infant feeding and its effect on infant and father interactions.

Research questions:

1) What is the relationship between demographic factors and duration of breast feeding, to father-child interaction as measured by the Home Visit Structured Interaction Qualitative Rating Scales (NICHD Study of Early Child Care and Youth Development*, 2018)*, (see appendix C through H) scores at 54 months? What factors are related to mothers' interactions at this same timepoint (see appendix C through H)?
2) How are the significant relationships similar or different between fathers and mothers (i.e., what factors are significant for each parent)?
3) How much of a unique role, if any, does duration of breastfeeding (in months) play in father-child interaction at 54 months?

Primary Hypotheses of Study

H1: Father-child interaction scores are significantly correlated with age, education level and income.

H2: Mother-child interaction scores are significantly correlated with age, education level, and income.

H3: Length in months, of breastfeeding is negatively correlated with father-child relationship as measured by father-child interaction task at 54 months.

H4: Length in months, of breastfeeding is positively correlated with mother-child relationship measured by mother-child interaction task at 54 months and in 1st grade.

H5: Length in months, of breastfeeding will more strongly predict father-child interaction scores at 54 months as compared to father-child interaction scores in 1st grade.

Chapter 2: Methods

Data Source

This study utilized data from the National Institute of Child Health and Human Development's Study of Early Child Care and Youth Development (NICHD SECCYD; Brooks-Gunn et. al., 2003). The SECCYD was a comprehensive multi-site, prospective, longitudinal study initiated to answer questions about the relationships between childcare experiences, childcare characteristics, and children's developmental outcomes. Data collection was distributed into four phases; Phase I from 1991-1994, Phase II from 1995-1999, Phase III from 2000-20004, and Phase IV from 2005-2007. Children's development was assessed via trained observers, interviewers, questionnaires, and direct testing. Measures were taken on many facets of children's development, such as social, emotional, intellectual, as well as language development, behavioral problems and adjustment, and physical health. Accessing this restricted data set required an application to the Inter-university Consortium for Political and Social Research (ICPSR) for secure dissemination of the microdata. An application included a project description, IRB exemption documentation, data use agreement, data security plan, and roster of research staff who will access the data. Upon approval from ICPSR and obtainment of the microdata it has been stored in a locked room, password protected, and only accessed by agreed upon members of the research team.

Participants

In 1991, 1,364 families were recruited from hospitals located in ten sites throughout the United States (Little Rock, AR; Irvine, CA; Lawrence, KS; Boston, MA; Philadelphia, PA;

Pittsburgh, PA; Charlottesville, VA; Morganton, NC; Seattle, WA; and Madison, WI). Participants were selected in accordance with a conditionally random sampling plan, designed to ensure that the recruited families (a) included mothers who planned to work or to go to school full-time (60 percent) or part-time (20 percent) in the child's first year, as well as some who planned to stay at home with the child (20 percent), and (b) reflected the demographic diversity (economic, educational, and ethnic) of the sites. Both two-parent and single-parent families were included. The major exclusionary criteria used were (a) mothers younger than 18 years of age at the time of the child's birth, (b) families who did not anticipate remaining in the catchment area for at least 3 years, (c) children with obvious disabilities at birth or who remained in the hospital more than 7 days postpartum, and (d) mothers not sufficiently conversant in English.

When the infants were 1 month old, mothers (n=1,364) completed a home interview and became part of the initial study sample. The study included 10% mothers without a high school education and 14% single mothers. The average family household income was 3.6 times above the poverty threshold. The sample of children consisted of 659 females and 705 males. Assessments were conducted when the children were 1, 3, 6, 12, 15, 24, 36, 42, 46, 50, and 54 months old and at ages 5, 6, 7, 9, 11, 14, and 15 years; this study focuses on data collected between 1 month and 54 months of age. The current study was based on secondary data analysis and was therefore determined to be exempt under institutional review board protocol.

For this study, a subsection of the original 1,364 participants was analyzed based on the exclusion criteria of single mothers and families in which the father lived outside of the home resulting in a total of 717 mother, father, and child triads. This project's focus is on comparing and contrasting the mother-child and father-child relationship.

Measures

Family Demographics. Demographic information was obtained through an initial interview with the mother when the child was one month of age. Dependent variables such as mother's ethnicity, mother's age, and mother's education level were included (see appendix E and F). Demographics relating to the father include father's ethnicity, father's education level and father's income and were reported by the mother in the same initial interview (see appendix E and F). Ethnic categories were as follows; White, Black/African American, American Indian/Eskimo/Aleut, Asian/Pacific Islander, and Other. Given the small number of participants in the following ethnic categories; American Indian/Eskimo/Aleut, Asian/Pacific Islander, and Other these categories were combined to form one more encompassing "Other" group to allow for better generalization of the data analysis. Education categories were as follows; 1< 12 years, 2 – High School/GED, 3 – Some College, 4 – BA Level, 5 – Post Grad, 6 – Don't Know. (Annual Income Categories can be found in table 1 below).

Table 1

Father's Annual Income Range

	Income Range
1	<5,000
2	5,001 – 10,000
3	10,001 – 15,000
4	15,001 – 20,000
5	20,001 – 25,000
6	25,001 – 30,000
7	30,001 – 35,000
8	35,001 – 40,000
9	40,001 – 45,000
10	45,001 – 50,000
11	50,001 – 60,000
12	60,001 – 70,000
13	70,001 – 80,000
14	80,001 – 90,000
15	90,001 – 100,000
16	1000,001 – 150,000
17	150,001 – 200,000
18	200,001+

Father-child Interaction. Father-child interaction tasks were completed and rated using the structured interaction qualitative rating scales in Phase 2 at 54 months & again in 1st grade; for this study only, the interaction rated at 54 months will be utilized as this time point is closer to when infant feeding would have been occurring (see appendix C). The father was rated on a 7-point likert scale ranging from very low (1) to very high (7) on supportive presence, respect for autonomy, stimulation of cognitive development, quality of assistance, hostility, and confidence. The child was also rated on the same 7-point likert scale (from

very low (1) to very high (7)) on agency, negativity, persistence, experience of session, and felt security.

Mother-child Interaction. Mother-child interaction tasks were completed and rated using the structured interaction qualitative rating scales in Phase I at 15, 24, and 36 months as well as Phase II at 54 months and in 1st grade; again for this study only the interaction rated at 54 months will be utilized (see appendix D). The mother was rated on a 7-point likert scale ranging from very low (1) to very high (7) on supportive presence, respect for autonomy, stimulation of cognitive development, quality of assistance, hostility, and confidence. The child was rated on the same 7-point scale from very low (1) to very high (7) on agency, negativity, persistence, experience of session, goal directed partnership and felt security.

Feeding Practices. Duration of breastfeeding was based on mothers' responses on a series of questionnaires (see appendixes A through B). During the initial 1-month interview, mothers were asked whether the child was ever breastfed. Mother's responses were coded, no as *never breastfed* (only bottle-fed) and if responding yes mothers were asked how old, in weeks, their baby was when breastfeeding ceased. This protocol was repeated until the mother reported that breastfeeding had ended or through age three. For this study we are focusing on whether the child was still being breastfed at 6 months of age; this includes children who were solely bottle-fed, both bottle and breast fed, and solely breast fed. Percentage of mothers who breast-fed were as follows: never (28.6%), 6 weeks (50.3%), 6 months (26.4%), 9 months (16.6%), 12 months (9.7%), 18 months (2.7%), 20 months (1%), and longer than 24 months (2%).

Procedures

Once access to the micro data was obtained, the data files of interest were located and copied to a workable format using Microsoft excel (2013). Each excel sheet was merged and matched by ID number using the Ablebits data package. Both Mothers and Fathers were rated on hostility and the children were rated on negativity these items are referred to as reversals and therefore were not included in the average total scores. Additionally, for the Mothers' 54-month interaction task the children were also rated on goal directed partnership, this item was not included for Fathers and therefore was not included in the average total scores. Mother's and Father's average total interactive scores were calculated respectively by utilizing the average formula in excel, sans the above-mentioned items. This excel file was then imported to the statistical software jamovi (The jamovi project, 2021) for data analysis.

Data Analysis

Using jamovi (The jamovi project, 2021), descriptive statistics were run to produce histograms for both Mothers total scores and Fathers total scores. Descriptive statistics were also run to evaluate the total number and distribution of mothers and fathers according to the demographic variables age, ethnicity, education level and income. A correlational analysis was then used to compare the demographic variables for Mothers (age, education level, and ethnicity) with the breastfeeding at 6 months variable. A correlational analysis was also used to compare the demographic variables for Fathers (age, education level, and annual income) with the breastfeeding at 6 months variable. Then averaged total scores for the Father's interaction task and the Mother's interaction task (see appendix C through D) were

compared to their respective dependent variables; age, ethnicity, education level, and income and the 6-month breastfeeding variable using correlational analysis. The correlation analyses of Fathers and Mothers was compared to examine the similarities and differences in the factors that have significant relationships to positive interactions. These factors were additionally entered into respective univariate linear regressions to determine the unique contribution of these factors. Lastly, an independent T-Test was utilized to examine the relationship between Mothers' total interaction task scores and Fathers' total interaction task scores.

A secondary analysis was performed, again through jamovi (The jamovi project, 2021). Each individual interaction task item for mothers and each individual interaction task item for fathers as well as the interaction task items for the children were compared using a correlational analysis to assist in determining which interaction task items differentiated mothers and fathers.

Chapter 3: Results

Descriptive Statistics

After the exclusionary criteria was applied there were a total of 717 mother-father-child triads utilized for data analysis. Theses triads excluded single mothers and families in which the father lived outside of the home. Additionally, they had decreased ethnic variability. Histogram plots for Mothers' total interaction tasks scores and Fathers' total interaction task scores showed normal bell curve plots respectively. When looking at mothers and fathers' total interaction scores it was revealed that mothers' overall interaction scores (M = 4.98) were lower than that of fathers' total interaction scores (M = 5.29). Additionally, it was determined that mothers who were still breastfeeding when their child was 6 months of age did in fact have higher average total interaction scores (M = 5.17) than that of mothers who were not still breastfeeding their children at 6 months old (M=5.04). For fathers, the result was the same. Fathers of children who were still being breastfed at 6 months old had a mean total interaction score of 5.51 whereas fathers of children who were not being breastfed at 6 months of age had lower average total interaction scores (M=5.34). Again, fathers in both categories, still breastfeeding vs. no longer breastfeeding, overall had higher total interaction scores than mothers. Within the secondary analysis each individual qualitative rating scale item was also analyzed for both mothers and fathers (see Tables 2 & 3 below).

Table 2

Mothers Individual Item Scoring

	Mean	Median	Minimum	Maximum
Supportive Presence	5.35	6	1	7
Respect for Autonomy	5.36	6	1	7
Stimulation of Cognitive Dev.	4.58	5	1	7
Quality of Assistance	4.83	5	1	7
Hostility	1.34	1	1	6
Confidence	4.94	5	1	7
Agency (child)	4.66	5	1	7
Negativity (child)	1.78	1	1	7
Persistence (child)	4.76	5	1	7
Experience of Session (child)	5.04	5	1	7
Goal Directed Partnership	4.85	5	1	7
Felt Security (child)	5.32	6	1	7

Table 3

Fathers Individual Item Scoring

	Mean	Median	Minimum	Maximum
Supportive Presence	5.34	5	1	7
Respect for Autonomy	5.46	6	2	7

	Mean	Median	Minimum	Maximum
Stimulation of Cognitive Dev.	4.44	5	1	7
Quality of Assistance	5.00	5	1	7
Hostility	1.19	1	1	6
Confidence	5.19	5	1	7
Agency (child)	5.42	5	2	7
Negativity (child)	1.30	1	1	6
Persistence (child)	5.99	6	2	7
Experience of Session (child)	5.31	5	1	7
Felt Security (child)	5.49	6	1	7

Correlations

In the first correlation matrix relating Mothers' demographic variables and whether or not the child was still breastfeeding at 6 months revealed strong positive correlations for mother's age and breastfeeding at 6 months ($r = 0.213$, $p < 0.001$) and mother's education level ($r = 0.166$, $p < 0.001$). There was no statistically significant correlation between breastfeeding at 6 months and Mother's ethnicity. There was a strong positive correlation between breastfeeding at 6 months and father's education level ($r = 0.183$, $p < 0.001$) and weak positive correlations for annual income level ($r = 0.103$, $p = 0.035$) and father's ethnicity ($r = 0.108$, $p = 0.016$).

Another correlation analysis was run with Mother's and Father's Total Interaction Scores (TIS). There were strong positive correlations between Mother' TIS and age ($r = 0.182$, $p < 0.001$) and Mothers' TIS and education level ($r = 0.300$, $p < 0.001$); a weak positive correlation between Mothers' TIS and ethnicity ($r = 0.089$, $p = 0.017$).

For Fathers' TIS, there were strong positive correlations found for education level ($r = 0.243$, $p < 0.001$) and ethnicity ($r = 0.137$, $p < 0.001$), while a weak positive correlation was found for breastfeeding at 6 months and Fathers' TIS ($r = 0.111$, $p = 0.014$). Additionally, there was a significant correlation between Mothers' and Fathers' TIS ($r = 0.219$, $p < 0.001$). (The above reported correlations can also be found in table's 4 & 5 below.)

Table 4

Mother's Correlation Matrix

	Mother's Total Scores	Breastfeeding @ 6mo.	Mother's Age	Mother's Education
Breastfeeding @ 6mo.	Pearson's r: 0.069 p-value: 0.122			
Mother's Age	Pearson's r: 0.182 *** p-value: <0.001	Pearson's r: 0.213 *** p-value: <0.001		
Mother's Education	Pearson's r: 0.300 *** p-value: <0.001	Pearson's r: 0.166 *** p-value: <0.001	Pearson's r: 0.514 *** p-value: <0.001	
Mother's Ethnicity	Pearson's r: 0.089 * p-value: 0.017	Pearson's r: 0.075 p-value: 0.094	Pearson's r: 0.076 * p-value: 0.043	Pearson's r: 0.189 *** p-value: <0.001

Note. * $p < .05$ ** $p < .01$ *** $p < .001$

Table 5

Father's Correlation Matrix

	Father's Total Scores	Breastfeeding @ 6mo.	Annual Income	Father's Education
Breastfeeding @ 6mo.	Pearson's r: 0.111 * p-value: 0.014			
Annual Income	Pearson's r: 0.013 p-value: 0.756	Pearson's r: 0.103 * p-value: 0.035		
Father's Education	Pearson's r: 0.243 *** p-value: <0.001	Pearson's r: 0.183 *** p-value: <0.001	Pearson's r: -0.052 p-value: 0.221	
Father's Ethnicity	Pearson's r: 0.137 *** p-value: <0.001	Pearson's r: 0.108 * p-value: 0.016	Pearson's r: 0.003 p-value: 0.940	Pearson's r: 0.175 *** p-value: <0.001

Note. * $p < .05$ ** $p < .01$ *** $p < .001$

Univariate Linear Regressions

Linear regressions were performed to evaluate how strongly each demographic factor and the breastfeeding at 6 months variable predicts the TIS. The closer R^2 is to 1 the stronger the predictor. For Mothers' TIS, educational level was the strongest predictor ($R^2 = 0.105$), with age ($R^2 = 0.0330$), ethnicity ($R^2 = 0.0211$) and lastly breastfeeding at 6 months ($R^2 = 0.00482$). (See Table 6 below) Additionally, for mothers and education level, 1 (<12 years) was utilized as the reference level which revealed significant differences for each other category except for, 2 (High School/GED). For mothers total scores and ethnicity significant differences are shown between Black/African American and White but not for Other and White. (See Table 7 below) For Father's total interaction scores the strongest predictor was also education level ($R^2 = 0.0633$) followed by and annual income ($R^2 = 0.0597$), ethnicity ($R^2 = 0.0426$) and lastly breastfeeding at 6 months, ($R^2 = 0.0122$). (See Table 8 below.) For fathers total scores and education level, category 1 (<12 years) was utilized as the reference level which revealed significant differences for categories 3 ($p = 0.001$), 4 ($p < 0.001$), and 5 ($p < 0.001$). For fathers total scores and ethnicity, the results were the same as for mothers total scores; significant differences between Black/African American and White but not for Other and White. For fathers total scores and annual income, the only significant difference between categories was between 4 (15,001 – 20,000) and 7 (30,001 – 35,000). (See Table 9 below)

Table 6

Model Fit Measures for Mother's Total Scores

	R	R^2	Percentage
Education Level	0.324	0.105	10.5%
Ethnicity	0.145	0.0211	2.11%
Breastfeeding @ 6 mo.	0.0694	0.00482	0.48%
Age	0.182	0.0330	3.30%

Table 7

Linear Regression Model Fit Coefficients – Mother Total Scores

Predictor	Estimate	SE	t	p
Intercept [a]	4.124	0.141	29.18	< .001
Education				
5 – 1	1.107	0.165	6.71	< .001
4 – 1	1.089	0.154	7.08	< .001
3 – 1	0.883	0.157	5.64	< .001
2 – 1	0.471	0.162	3.90	0.004
Intercept [a]	5.020	0.0381	131.849	< .001
Ethnicity				
Black/AA - White	-0.619	0.1596	-3.881	< .001
Other - White	-0.135	0.1753	-0.770	0.442

Predictor	Estimate	SE	t	p
Intercept [a]	5.040	0.0592	85.10	< .001
Breastfeeding @ 6 mo.				
1 – 0	0.130	0.0838	1.55	0.122
Intercept [a]	3.9797	0.20570	19.35	< .001
Age	0.0340	0.00688	4.94	< .001

Table 8

Model Fit Measures for Father's Total Scores

	R	R^2	Percentage
Education Level	0.252	0.0633	6.33%
Ethnicity	0.206	0.0426	4.26%
Breastfeeding @ 6 mo.	0.111	0.0122	1.22%
Annual Income	0.244	0.0597	5.97%

Table 9

Linear Regression Model Fit Coefficients – Father Total Scores

Predictor	Estimate	SE	t	p
Intercept [a]	4.764	0.145	32.772	< .001
Education				
6 - 1	0.514	0.599	0.857	0.392

Predictor	Estimate	SE	t	p
5 - 1	0.769	0.160	4.805	< .001
4 - 1	0.681	0.157	4.341	< .001
3 – 1	0.512	0.157	3.261	0.001
2 – 1	0.259	0.161	1.608	0.108
Intercept [a]	5.340	0.0329	162.20	< .001
Ethnicity				
Black/AA - White	-0.762	0.1370	-5.56	< .001
Other – White	-0.204	0.1785	-1.15	0.252
Intercept [a]	5.338	0.0496	107.57	< .001
Breastfeeding @ 6 mo.				
1 – 0	0.174	0.0702	2.48	0.014
Intercept [a]	5.4037	0.106	51.151	< .001
Annual Income				
1 – 7	-0.2259	0.381	-0.593	0.553
2 – 7	-0.4037	0.308	-1.311	0.190
3 – 7	-0.1709	0.207	-0.824	0.410
4 – 7	-0.5575	0.168	-3.313	< .001
5 – 7	-0.1106	0.144	-0.766	0.444
6 – 7	-0.1228	0.138	-0.888	0.375
8 – 7	0.0201	0.144	0.140	0.889
9 – 7	0.1660	0.153	1.087	0.278

Predictor	Estimate	SE	t	p
10 – 7	0.0984	0.190	0.519	0.604
11 – 7	0.0630	0.161	0.390	0.697
12 – 7	0.1670	0.204	0.819	0.413
13 – 7	-0.0481	0.211	-0.228	0.820
14 – 7	0.3912	0.250	1.563	0.119
15 – 7	0.6148	0.350	1.755	0.080
16 – 7	0.1102	0.230	0.479	0.632
18 – 7	-0.4037	0.484	-0.834	0.405

Independent T-Test

Based on the independent T-test for mother's total interaction scores breastfeeding at 6 months had no significant effect, $t(495) = -1.55$, $p = 0.122$. In contrast, for father's TIS, breastfeeding at 6 months had a positive significant effect, $t(495) = -2.48$, $p = 0.014$. (The above reported t-test values can also be found in table 10 below.) Additionally, the descriptive plots show that overall families, where infants were breastfeeding at 6 months show higher total interaction scores ($M= 5.17$ and $M= 5.51$). (The above reported means can be found in table 11 below.)

Table 10

Mother's & Father's Total Scores T-Test

		Statistic	df	p	Mean difference	SE difference
Mother's Total Scores	Student's t	-1.55	495	0.122	-0.130	0.0838
Father's Total Scores	Student's t	-2.48	495	0.014	-0.174	0.0702

Table 11

Group Descriptives

	Group	N	Mean	Median	SD	SE
Mother's Total Scores	0	249	5.04	5.11	0.999	0.0633
	1	248	5.17	5.22	0.865	0.0549
Father's Total Scores	0	249	5.34	5.44	0.809	0.0513
	1	248	5.51	5.56	0.756	0.0480

Note. 0 = not breastfeeding at 6 months. 1 = breastfeeding at 6 months.

Secondary Analysis

The secondary analysis was performed to assist in determining which individual items from the structured interaction qualitative rating scales were most impactful on the differences between Mothers and Fathers. The following items were revealed to have strong positive correlations between Mothers and Fathers; supportive presence ($r = 0.205$, $p < 0.001$), respect for autonomy ($r = 0.147$, $p < 0.001$), stimulation of cognitive development ($r = 0.196$, $p < 0.001$), quality of assistance ($r = 0.188$, $p < 0.001$), agency ($r = 0.138$, $p < 0.001$),

persistence (r= 0.124, p < 0.001), experience of session (r = 0.158, p <0.001), and felt security (r = .207, p <0.001). One item was revealed to have a moderate positive correlation between Mothers and Fathers, confidence (r = 0.115, p = 0.002). The following items were not incorporated into the total interaction scores for Mothers or Fathers; hostility which had no significant correlation between Mothers and Fathers and negativity which had a weak positive correlation between Mothers and Fathers (r = 0.090, p = 0.016). (The above reported correlational values can also be found in table 12 below.) Additionally, descriptive statistics and furthermore frequencies of mothers' and fathers' confidence ratings were evaluated to contrast this individual item; only 7.0% of fathers were rated below a 4 on the likert scale for confidence whereas 10.6% of mothers were rated below a 4 on the likert scale for confidence revealing that overall mothers were rated as less confident than fathers in their respective structured interaction tasks at 54 months (The above reported values can be found in tables 12 and 13 below).

Table 12

Correlations between Mothers' & Fathers' Scores on Individual Items & Total Score

Interaction Task Rating Item	Pearson's r:	p-value
Supportive Presence	0.205	< 0.001
Respect for Autonomy	0.147	< 0.001
Stimulation of Cognitive Development	0.196	< 0.001
Quality of Assistance	0.188	< 0.001

Interaction Task Rating Item	Pearson's r:	p-value
Hostility *	0.008	0.831
Confidence	0.115	0.002
Agency (Child Rating)	0.138	< 0.001
Negativity (Child Rating) *	0.090	0.016
Persistence (Child Rating)	0.124	< 0.001
Experience of Session	0.158	< 0.001
Felt Security	0.207	< 0.001
Total Score	0.219	<0.001

Table 13

Frequencies of Mothers' Confidence Ratings

Levels	Counts	% of Total	Cumulative %
1	3	0.4%	0.4%
2	23	3.2%	3.6%
3	50	7.0%	10.6%
4	180	25.1%	35.7%
5	195	27.2%	62.9%
6	217	30.3%	93.2%
7	49	6.8%	100.0%

Table 14

Frequencies of Fathers' Confidence Ratings

Levels	Counts	% of Total	Cumulative %
1	2	0.3%	0.3%
2	9	1.3%	1.5%
3	39	5.4%	7.0%
4	129	18.0%	25.0%
5	223	31.1%	56.1%
6	251	35.0%	91.1%
7	64	8.9%	100.0%

Chapter 4: Discussion

The purpose of this study was to examine and compare mother-child and father-child attachment and how demographic variables and duration of breastfeeding may relate to these scores. Based on a sample of 717 mother-father-child triads, the findings from this study provide insight into the similarities and differences between mother-child and father-child interactions and the factors that influence these interactions.

For the families that were included in this study, the mothers' and fathers' overall interactions with their child were analyzed by taking their total average scores from the individual qualitative rating items. Descriptive statistics revealed that fathers' total interaction scores overall were rated higher than that of mothers. Although we are unable to determine the cause for this based on the data from the NICHD SEECYD study there are many possible considerations. Parental interactions could differ based on the sex of the child and this study had more male children than female; the judges could have had some underlying bias when rating mothers versus fathers as they were unable to be blinded to the sex of the parent participating in the interaction task; or other unidentified factors could have influenced this result. An additional finding was that total interaction scores for both mothers and fathers were higher for children who were still being breastfed at 6 months of age. It is recognized that breastfeeding has a variety of positive influences for mothers but as of yet there is little to no research examining the influences breastfeeding has on the father and child dyad. This finding supports further consideration of breastfeeding as a potential positive influence on the father-child dyad in addition to the mother-child dyad.

For this study the demographic variables age, ethnicity, education level, and annual income were integrated into the model. Mothers' total interaction scores were most significantly correlated with age and education level. For fathers age was not collected and therefore not utilized in this analysis. Fathers' total interaction scores were most significantly correlated with education level and ethnicity. This suggests that for both mothers' and fathers' education level is an important factor in the interactions between parent and child. Additionally, Total Interaction Scores showed that while breastfeeding was not found to be a significant for mothers' total scores, it was significantly correlated for fathers' total interaction scores. These findings although contrary to the hypothesis suggest that breastfeeding may be more influential to father-child interactions than mother-child interactions. Further research is needed to better understand this finding.

From the linear regression analysis, it is determined that the greatest predictor of parent, both mother and father, total interaction scores is education level. Although education level is shown to be an important variable it is crucial to mention that none of the variables considered can give us the entire picture. Additionally, from this analysis it was shown that breastfeeding at 6 months was a significant predictor for fathers but not for mothers. It is reiterated with the linear regression that the presence of breastfeeding at 6 months is more influential in fathers' total interaction scores than mother's total interaction scores. Again, these findings suggest that the presence of breastfeeding at 6 months is more impactful on father-child interactions than mother-child interactions. Not only is the finding of the impact of the breastfeeding variable on fathers' total interaction scores statistically

significant it is practically significant as the large population that this finding affects is easily identified and the possible positive effects of recommendations based on these findings are potentially indispensable.

With the analysis of the independent t-test comparing mothers' total interaction scores and fathers' total interaction scores grouped by the breastfeeding at 6 months variable it is revealed that although there are differences in the breastfed at 6 months versus the not breastfed at 6 months groups for both mothers' and fathers' these differences are only significant in the case of fathers' total interaction scores.

The secondary analysis was computed to further evaluate the revealed differences between mothers' and fathers' total interaction scores. For the majority of individual interaction task items mothers and fathers scores were revealed to be significantly correlated however the qualitative rating scale item, confidence, was not as highly correlated. This suggests that raters perceived differences in the confidence of mothers and fathers during their respective interaction tasks and that this difference in confidence ratings may contribute to the differences in overall total scores between mothers and fathers. Interestingly, the two qualitative rating scale reversals, hostility and negativity, were not significantly correlated but as they were not included in the total interaction scores for neither mothers nor fathers these items could not be influential in these scores' differences.

To better understand the differences in mother-child and father-child interactions it is beneficial to note the individual items from the qualitative rating scales in which mothers and fathers seemed to excel based on the qualitative ratings from the judges. For mothers'

highest mean ratings were observed in supportive presence and respect for autonomy (parent ratings) as well as experience of session and felt security (child ratings). For fathers' highest mean ratings were also observed in supportive presence and respect for autonomy (parent ratings) as well as agency and persistence (child ratings). These observations show that although the areas of ratings for parents do not appear to differ for mothers and fathers the child ratings for these respective interactions do differ suggesting that children may interact differently depending upon the parent they are interacting with.

Implications

There is a wide breadth of individuals who could be impacted by the knowledge gained from this study. First it is important to discuss individuals who work in the field of infant feeding. This broad field and scope often includes lactation consultants, speech-language pathologists, occupational therapists, gastroenterologists, and more. Each of these professions would benefit from the preliminary findings from the current study as they are client educators and provide recommendations based on their knowledge of feeding outcomes. Secondly, it is crucial to acknowledge the benefit of providing the preliminary findings and knowledge gained from this study to the public, especially soon to be mothers and fathers. It is important that this population have access to any and all information regarding pros and cons for different feeding practices in order to make educated decisions for their future children and their personal relationships with those children.

Additionally, it is important to consider the pros and cons of breastfeeding and bottle feeding. One could argue that mode of feeding is one of the first decisions made in a child's

life and to better understand the impacts this decision has on parent-child relationships and furthermore developmental and socioemotional outcomes is crucial. The preliminary findings from this study suggest positive outcomes for father-child interactions with a 6-month duration of breastfeeding and no significant negative or positive effects on mother-child interactions. This could potentially be considered a reason to recommend breastfeeding when possible. There is a lot of research regarding the pros and cons of breastfeeding and bottle feeding and this type of research is beyond the scope of this study and it is acknowledged that breastfeeding may not be possible for all women and infants. This study is not suggesting the mode of feeding as more important or more needed over another mode, what it is suggesting and what results now indicate, is that the role of the father and infant dyad, be considered more specifically and researched in more detail in future research. As has been revealed by proving the original hypothesis incorrect, additional research is needed to continue to better understand the factors that influence parent-child relationships and the implications of specific feeding practices.

Chapter 5: Conclusions

The results of this study concluded there are multiple statically significant correlations between demographic variables and total interaction scores for mothers as well as for fathers. Additionally, the results have concluded these statistically significant correlations between demographic variables and total interaction scores differ for mothers versus fathers. The results do indicate that education level as a demographic variable is statistically significant for both mothers and fathers in relation to total interaction scores for both groups. Another important conclusion that should be noted is based on the statistically significant correlation between mothers total interaction scores and fathers total interaction scores as well as the secondary analysis which shows relatively strong correlations between the majority of individual items from the structured interaction task qualitative rating scales for mothers and fathers and may suggest that parents from the same household tend to adopt similar interaction styles and receive similar qualitative ratings. Although statistically significant correlations were found, the demographic variables as well as the breastfeeding at 6 months variable were not relatively strong predictors of mothers or fathers total interaction scores. Overall, it would be difficult to hypothesize specific recommendations from the subsequent findings and further research is necessary.

Limitations

There are a variety of limitations that come with utilizing data from a previous study. In this case a major drawback was not having earlier data on father-child interactions. The NICHD SECCYD measured Mother-child interactions using the structured interaction

qualitative rating scales in Phase I at 15, 24, and 36 months as well as Phase II at 54 months and in 1st grade but for Father-child interactions this study was limited to Phase II at 54 months and in 1st grade. Including fathers earlier on in this study would have allowed the researchers to evaluate trends in this effect with earlier data points. Additionally, this lack of data including fathers is not only an issue for this particular study but in this area of research in general; fathers should be included more regularly into this area of research so individuals working within this field and scope can better understand their role. Another limitation for this study was the lack of documentation regarding the specific delineation of time spent feeding the child for fathers versus mothers. Due to the original study from which the data was obtained, the NICHD SECCYD, being geared towards understanding the effect of different childcare situations, specifics on time spent feeding for mothers and fathers as well as specific details on feeding interactions for mothers and fathers were not available. In future research this type of documentation would be important to collect and analyze.

Future Directions

Future research in this area should delve deeper into the collection and analysis of data including fathers, earlier on in child development, as it is difficult to distinguish feeding duration and other factors that could possibly be impacting the line of development. Specific feeding interactions of both mothers and fathers should also be considered in future research to better understand how parent feeding styles may relate to parent-child relationships. A future study incorporating these aspects along with the structured interaction tasks and subsequent qualitative ratings of the interactions would be impactful to child development

over time. Further research on what these specific feeding interactions look like for fathers versus mothers as well as time spent by each group respectively could lend a hand in developing better feeding protocols and outcomes for future children. Additionally, considering mother-child relationships for partnered mothers versus unpartnered mothers and the duration of mother-father relationships could provide further information on mother-child and father-child relationships. Lastly, including a more ethnically diverse population would allow a more multicultural perspective to be developed.

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Appendix A. Breastfeeding 1 Month Record Form

27. How many times each night did BABY generally wake up?

1 2 3 4 5 6 7

28. On average, for about how long would you say BABY was up each time BABY awakened? RECORD NUMBER OF MINUTES UNTIL BABY WENT BACK TO SLEEP.

Minutes

_ _ _
0 0 0
1 1 1
2 2 2
3 3 3
4 4 4
5 5 5
6 6 6
7 7 7
8 8 8
9 9 9

29. How much of a problem has BABY's awakening been for you? Would you say it was not much of a problem, somewhat of a problem, or quite a bit of a problem?

1 Not much
2 Somewhat
3 Quite a bit

30. Is BABY eating well?

Y
N

RECORD FROM ONE-MONTH VISIT:

BREASTFEEDING? YES NO

IF NO, GO TO QUESTION 33.

31. Are you now (breastfeeding/nursing) BABY?

Y (***GO TO QUESTION 33***)
N

32. How old in months was BABY when you stopped?

Months

__
0
1
2
3
4
5
6

33. And how would you describe your health, since _____ (MONTH), compared with other women your age? Would you say your health has been poor, fair, good, or excellent?

1 Poor
2 Fair
3 Good
4 Excellent

Appendix B. Breastfeeding 6, 15, 24-mo. Record Form

27. On average, for about how long would you say CHILD was up each time CHILD awakened? (Or, if CHILD did not fully awaken from sleep, about how long would you say CHILD was crying in (his/her) sleep? RECORD NUMBER OF MINUTES UNTIL CHILD WENT BACK TO SLEEP.

Minutes

0 0 0
1 1 1
2 2 2
3 3 3
4 4 4
5 5 5
6 6 6
7 7 7
8 8 8
9 9 9

28. In the last week, how much of a problem has CHILD's awakening been for you (or for other members of your household)? Would you say it was not much of a problem, somewhat of a problem, or quite a bit of a problem?

1 Not much
2 Somewhat
3 Quite a bit

RECORD FROM 6, 15, 24-MONTH VISIT:

BREASTFEEDING AT SIX MONTHS? Y N

IF NO, GO TO QUESTION 31.

29. Are you now (breastfeeding/nursing) CHILD?

Y (***GO TO QUESTION 31***)
N

30. How old in months was CHILD when you stopped?

Months

0 0
1 1
2 2
3 3
4
5
6
7
8
9

31. Now I'd like to ask you a few questions about your health. How would you describe your health, since _____ (12, 21, 33-MONTH CALL), compared with other women your age? Would you say your health has been poor, fair, good, or excellent?

1 Poor
2 Fair
3 Good
4 Excellent

Appendix C. Interaction Qualitative Rating Scale - Father – 54 mo.

54-MONTH HOME VISIT STRUCTURED INTERACTION QUALITATIVE RATING SCALES

Coder ID		Month		Day		Year		CHILD ID NUMBER					
0	0	0	0	0	0	9	6	0	0	0	0	0	0
1	1	1	1	1	1		7	1	1	1	1	1	1
2	2		2	2	2		8	2	2	2	2	2	2
3	3		3	3	3			3	3	3	3	3	3
4	4		4		4			4	4	4	4	4	4
5	5		5		5			5	5	5	5	5	5
6	6		6		6			6	6	6	6	6	6
7	7		7		7			7	7	7	7	7	7
8	8		8		8			8	8	8	8	8	8
9	9		9		9			9	9	9	9	9	9

1= Very Low
2= Low
3= Moderately Low
4= Moderate
5= Moderately High
6= High
7= Very High

Father Ratings

1.	Supportive Presence	1	2	3	4	5	6	7
2.	Respect for Autonomy	1	2	3	4	5	6	7
3.	Stimulation of Cognitive Development	1	2	3	4	5	6	7
4.	Quality of Assistance	1	2	3	4	5	6	7
5.	Hostility	1	2	3	4	5	6	7
6.	Confidence	1	2	3	4	5	6	7

Child Ratings

7.	Agency	1	2	3	4	5	6	7
8.	Negativity	1	2	3	4	5	6	7
9.	Persistence	1	2	3	4	5	6	7
10.	Experience of Session	1	2	3	4	5	6	7
11.	Felt Security	1	2	3	4	5	6	7

Coder's Confidence 1 2 3 4

Problems/Complications 0 NO 1 YES

The NICHD Study of Early Child Care
Form 54 T Revision 09/01/95

Page 1

Appendix D. Interaction Qualitative Rating Scale – Mother – 54 mo.

54-MONTH LAB VISIT STRUCTURED INTERACTION QUALITATIVE RATING SCALES

CHILD ID NUMBER

0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

Coder ID		Month		Day		Year	
0	0	0	0	0	0	9	6
1	1	1	1	1	1		7
2	2		2	2	2		8
3	3		3	3	3		
4	4		4		4		
5	5		5		5		
6	6		6		6		
7	7		7		7		
8	8		8		8		
9	9		9		9		

1=Very Low 5=Moderately High
2=Low 6=High
3=Moderately Low 7=Very High
4=Moderate

Mother Ratings

1.	Supportive Presence	1	2	3	4	5	6	7
2.	Respect for Autonomy	1	2	3	4	5	6	7
3.	Stimulation of Cognitive Development	1	2	3	4	5	6	7
4.	Quality of Assistance	1	2	3	4	5	6	7
5.	Hostility	1	2	3	4	5	6	7
6.	Confidence	1	2	3	4	5	6	7

Child Ratings

7.	Agency	1	2	3	4	5	6	7
8.	Negativity	1	2	3	4	5	6	7
9.	Persistence	1	2	3	4	5	6	7
10.	Experience of Session	1	2	3	4	5	6	7
11.	Goal Directed Partnership	1	2	3	4	5	6	7
12.	Felt Security	1	2	3	4	5	6	7

Coder's Confidence 1 2 3 4

Problems/Complications 0 NO 1 YES

The NICHD Study of Early Child Care
Form 55P Revision 09/01/95

Appendix E. Hospital Recruitment Form

HOSPITAL RECRUITMENT FORM

Identification no.

_____

0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

EXCLUSIONS

1 Mother less than 18 years at delivery
2 Multiple birth
3 Mother not fluent in English
4 Family expects to move from area within the year
5 Medical exclusions (baby)
6 Medical exclusions (mother)
7 Adoption
8 Does not wish to be called at two weeks
9 Family lives too far away (determined by sites)
10 Family already in another study
11 Family neighborhood not safe (determined by sites)
12 Mother refuses to be interviewed
13 Other (list) _____

Hi, my name is _____ and I have received permission from the hospital staff to visit you. I only need 3-5 minutes of your time. I am part of a project that is surveying the mothers of all babies who have been born in the last 24 hours. Before I say anything else let me say "Congratulations!"

How long ago did you deliver? _____ How are you feeling? _____

First, I would like to learn something about you and your baby. Things like your child's sex and birth weight, your education and your work plans. Could I ask you some questions? Please feel free to refuse to answer any questions you would rather not.

1. Is your baby a boy or a girl? M F

2. Have you named your baby? _____
(Get name in another question)

3. How much did _____ weigh at birth

lbs __ 0 1 2 3 4 5 6 7 8 9
0 1 2 3 4 5 6 7 8 9

ozs__ 0 1 2 3 4 5 6 7 8 9
0 1 2 3 4 5 6 7 8 9

4. NOTE (visitor rates/judges mother's ethnicity)
1-White 2- Black 3- Native American
4- Asian 5- Hispanic 6- Mixed

Now, I would like to ask you some questions about you and your family

5. How old are you?
Yrs__0 1 2 3 4 5 6 7 8 9
0 1 2 3 4 5 6 7 8 9

6. How far did you go in school? (Probe for details)
1- < 12 yrs. 2- High School GED 3. Some College
4- BA level 5- Post Grad.

7. Do you have a husband or male partner living with you at home? N Y

8. (If yes) Do you know how far he went in school?
1- < 12 yrs 2- High School GED 3. Some College
4- BA level 5- Post Grad. 6- Don't know

9- Were you employed or in school during the last 6 months N Y

10. (If yes) How many hours a week did you usually work or attend school?
1 - <10 hrs 2- 10-29 hrs 3- 30 hrs or more

11. Do you plan to be employed or attend school in the next year?
1- No 2- Yes 3- Don't know

12- (If yes) When do you think you will start school or working?
1- < 6 months 2- 6-12 months

13- (If yes) About how many hours a week do you think you'll be Working/going to school?
1 - <10 hrs 2- 10-29 hrs 3- 30 hrs or more

14- (If no) Do you plan on being home with _____ Full time?
1- No 2- Yes 3-Don't know

15- Are you planning on moving from the area in the next year?
1- No 2- Yes 3-Don't know

Form 1A Rev. 2

Date:_____

Appendix F. Demographic Interview Questions

PART 1. HOUSEHOLD DATA

INTRODUCE TOPIC:

First let me check my information about BABY.
REFER TO INFORMATION ON FACE SHEET.

1. Our records show BABY was born DATE. Is that right?

Month	Day	Year 199_
0 0	0 0	0
1 1	1 1	1
2 2	2 2	2
3 3	3 3	3
4 4	4 4	4
5 5	5 5	5
6 6	6 6	6
7 7	7 7	7
8 8	8 8	8
9 9	9 9	9

2. And (he's/she's) a (boy/girl)?

M F

3. ESTABLISH BIRTH ORDER FOR CHILD (NUMBER OF LIVE BIRTHS TO MOTHER).

IF YOU SEE NO SIGNS OF OTHER CHILDREN, ASK:
Is BABY your first child?
IF YES, RECORD "01".

IF YOU BELIEVE THE FAMILY INCLUDES OTHER CHILDREN, ASK:
How many other children have you had?
ADD 1 TO THIS NUMBER FOR BIRTH ORDER OF TARGET CHILD.

0 0
1 1
2
3
4
5
6
7
8
9

4. And let me verify your age. My records show you're AGE. Is that right?

Age

0 0
1 1
2 2
3 3
4 4
5 5
6 6
7 7
8 8
9 9

ETHNICITY

Because this is a national study, we need to describe all the people in our study.
HAND CARD 1 TO MOTHER. Please tell me from these categories:

	A) RACE OR ETHNIC GROUP 1) American Indian, Eskimo, Aleut 2) Asian or Pacific Islander 3) Black or Afro-American 4) White 5) Other (Specify)	B) OF HISPANIC ORIGIN (INCLUDES CHICANO/A, LATINO/A) 0) No 1) Yes
7. How would you describe yourself? IF OTHER, SPECIFY._____	A) 1 2 3 4 5	B) 0 1
8. How would you describe the baby's father? IF OTHER, SPECIFY._____	A) 1 2 3 4 5	B) 0 1
9. How would you describe the baby? IF OTHER, SPECIFY._____	A) 1 2 3 4 5	B) 0 1

IF NO HUSBAND OR PARTNER IN HOUSEHOLD, GO TO QUESTION 11.

10. When did you start living with (HUSBAND/PARTNER)?

Month	Year 19___
0 0	0 0
1 1	1 1
2	2 2
3	3 3
4	4 4
5	5 5
6	6 6
7	7 7
8	8 8
9	9 9

GO TO PART 2: HEALTH, PAGE 9.

ASK THESE QUESTIONS ONLY IF NO HUSBAND OR PARTNER IN HOUSEHOLD

11. What is your relationship to the baby's father?

1 Separated
2 Divorced
3 Widowed (***GO TO QUESTION 14.***)
4 Never married but have a continuing romantic relationship
5 Never married and not involved in a romantic way
6 Other

IF (HUSBAND/PARTNER) NOT EMPLOYED AND

- NOT IN SCHOOL, BEGIN QUESTIONNAIRES.

- CURRENTLY IN SCHOOL, GO TO QUESTION 62.

INTRODUCE TOPIC:

I'd like to know a little more about the kind of work (HUSBAND/PARTNER) does.
GET INFORMATION ON HIS **PRIMARY** JOB, USING THE MOTHER'S DEFINITION OF PRIMARY.

49. What is his position title? _____

IF SELF-EXPLANATORY, GO TO QUESTION 51.

50. What are his most important activities or duties? _____

_____

51. Who is his employer? _____

_____

IF SELF-EXPLANATORY, GO TO QUESTION 53.

52. What kind of (business/organization) is that?
RECORD TYPE OF PRODUCT, PRIMARY ACTIVITY, OR NATURE OF BUSINESS. _____

_____

53. CODE OCCUPATION ACCORDING TO WHAT MOTHER RESPONDED, USING OCCUPATION CODING DEFINITIONS. VERIFY WITH MOTHER IF NEEDED.

1 Executive, administrative, or managerial
2 Professional
3 Technician or related support
4 Sales
5 Administrative support or clerical
6 Private household
7 Protective service
8 Service
9 Farm operation or management
10 Mechanic or repairer; construction or other trade
11 Machine operator, assembler, or inspector
12 Transportation or material moving
13 Handler, equipment cleaner, helper, or laborer

54. HAND CARD 2 TO MOTHER.
From these categories, choose the one that represents (HUSBAND'S/PARTNER'S) income range.
You can choose either annual or monthly scale.

ESTIMATED INCOME CATEGORY

Annual	Monthly
0 0	0 0
1 1	1 1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

Figure 1
Mother Total Score Histogram

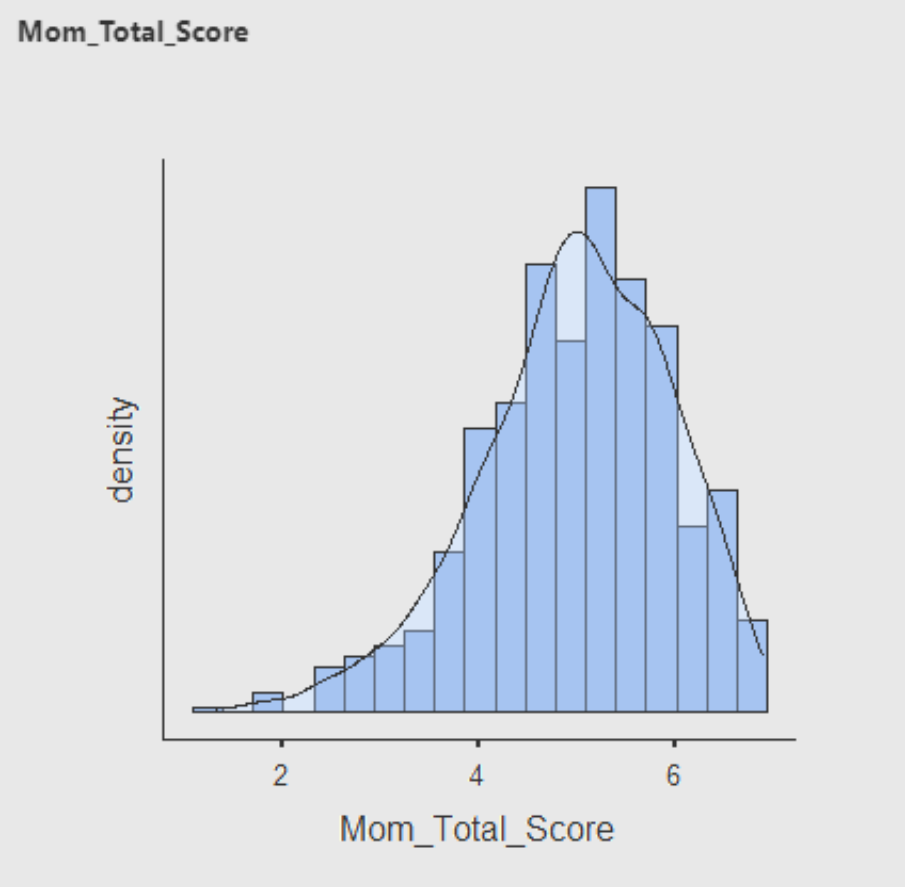

Figure 2
Father Total Score Histogram

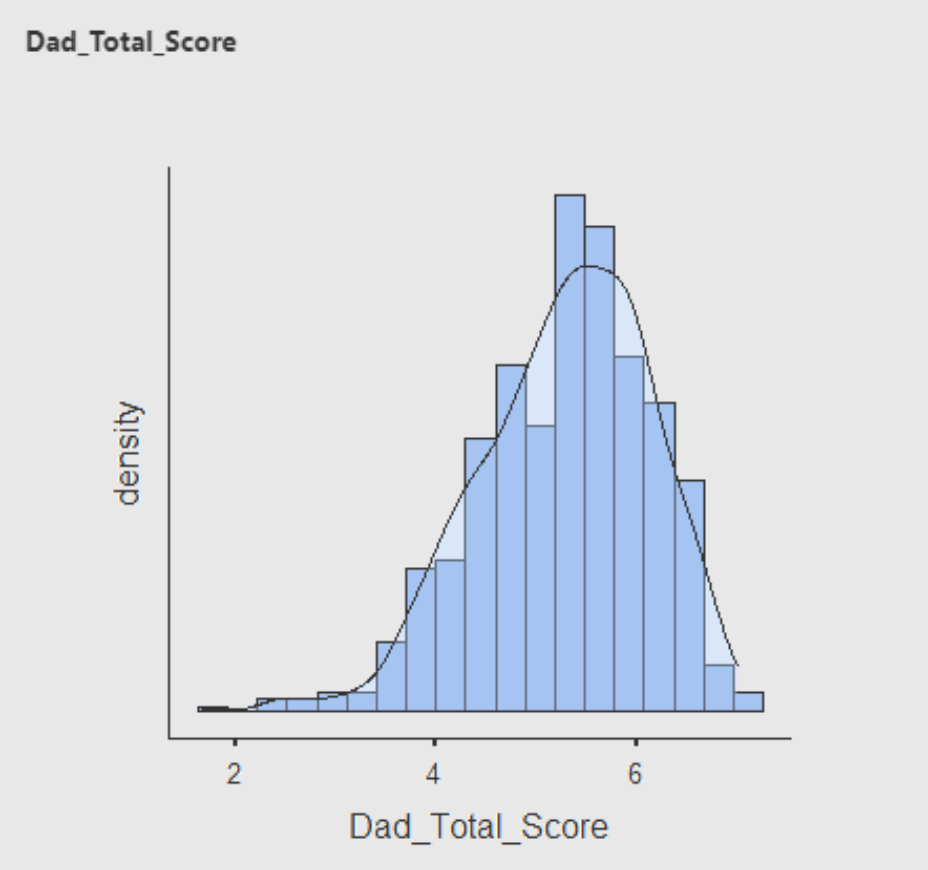

Figure 3
Mother T-Test Graph: Mean and Median

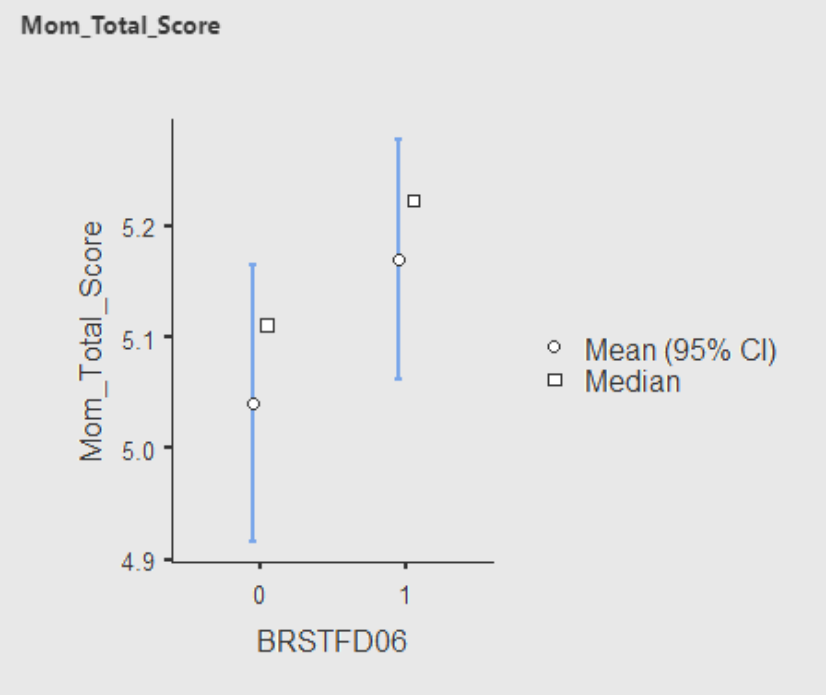

Figure 4
Mother T-test Graph: Theoretical Quantiles

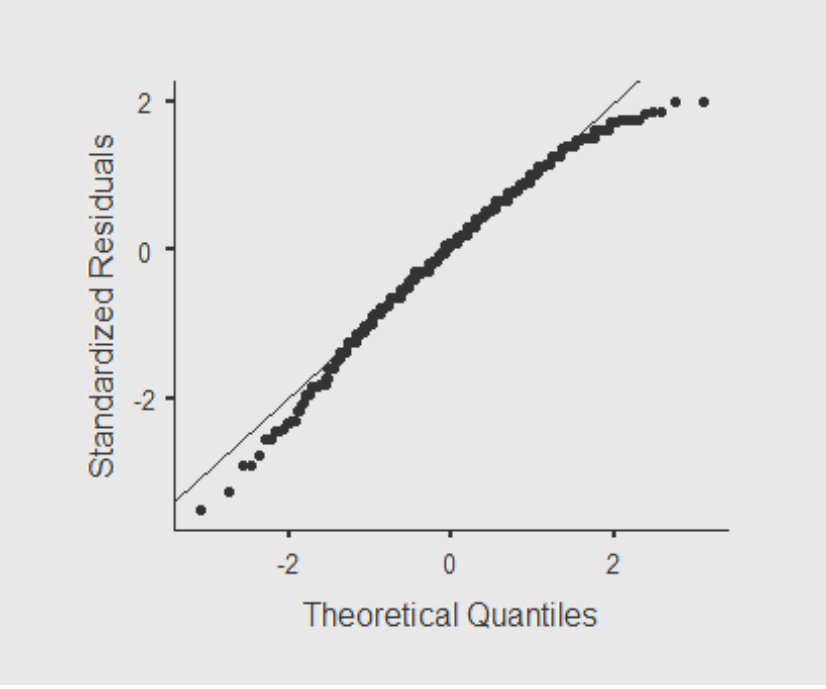

Figure 5
Father T-Test Graph: Mean and Median

Figure 6
Father T-test Graph: Theoretical Quantiles

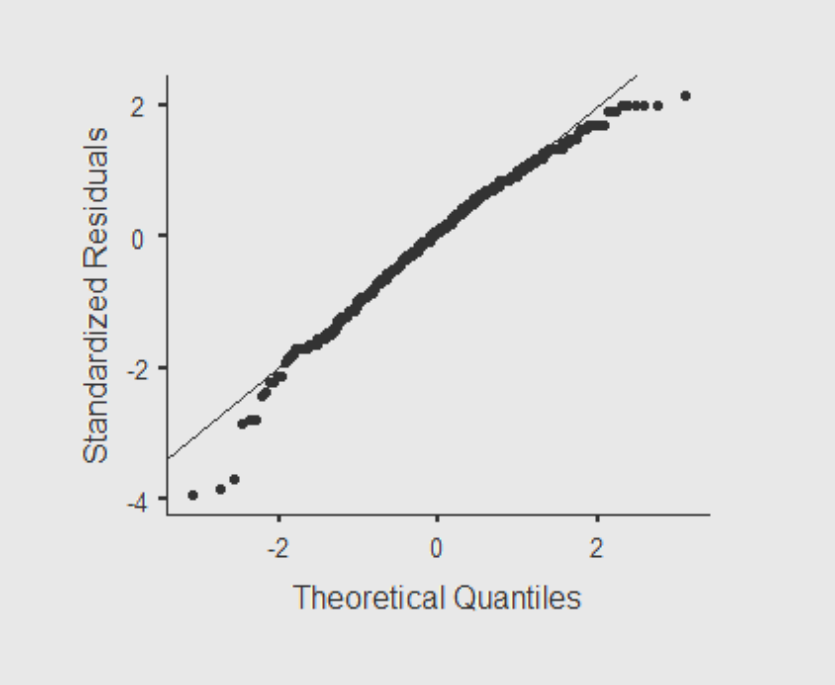

Figure 7
Mother Linear Regression Graph: Age

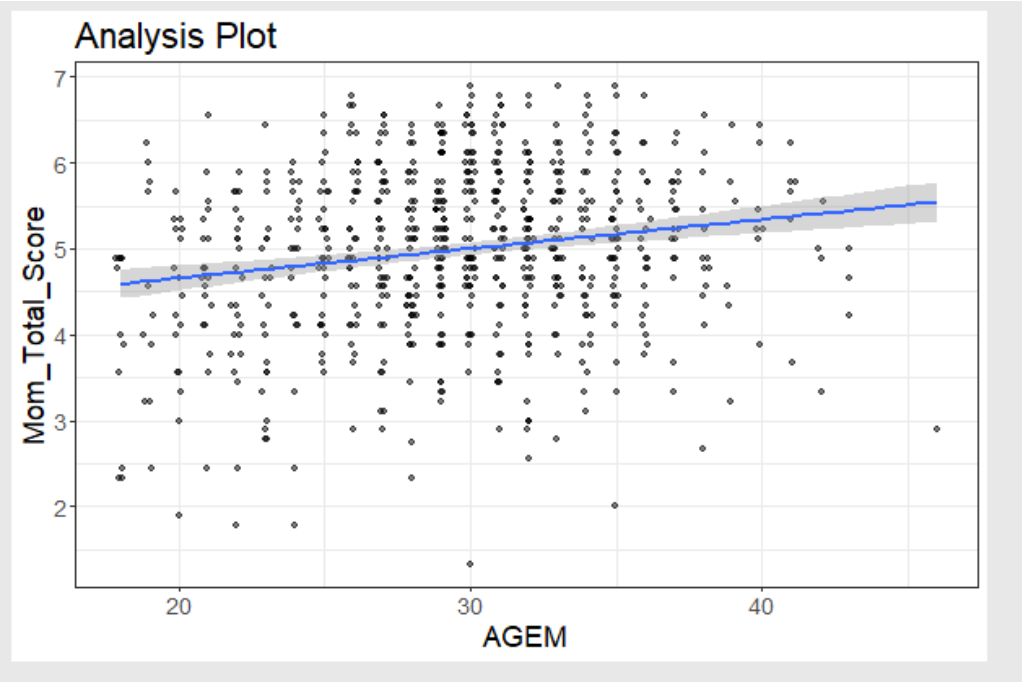

Figure 8
Mother Linear Regression Graph: Breastfeeding

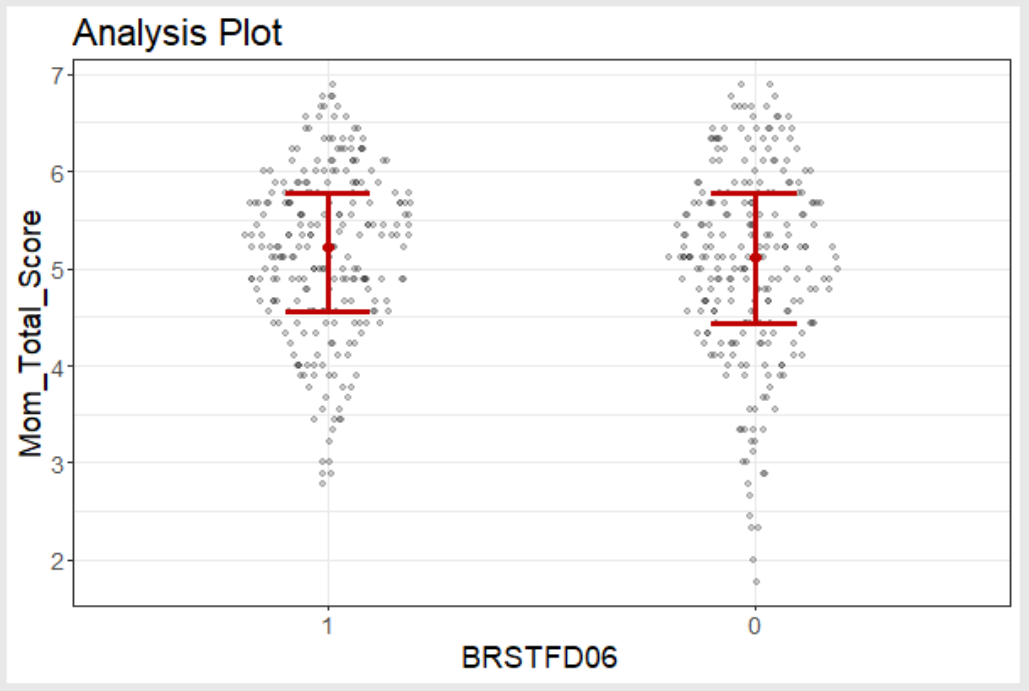

Figure 9
Mother Linear Regression Graph: Ethnicity

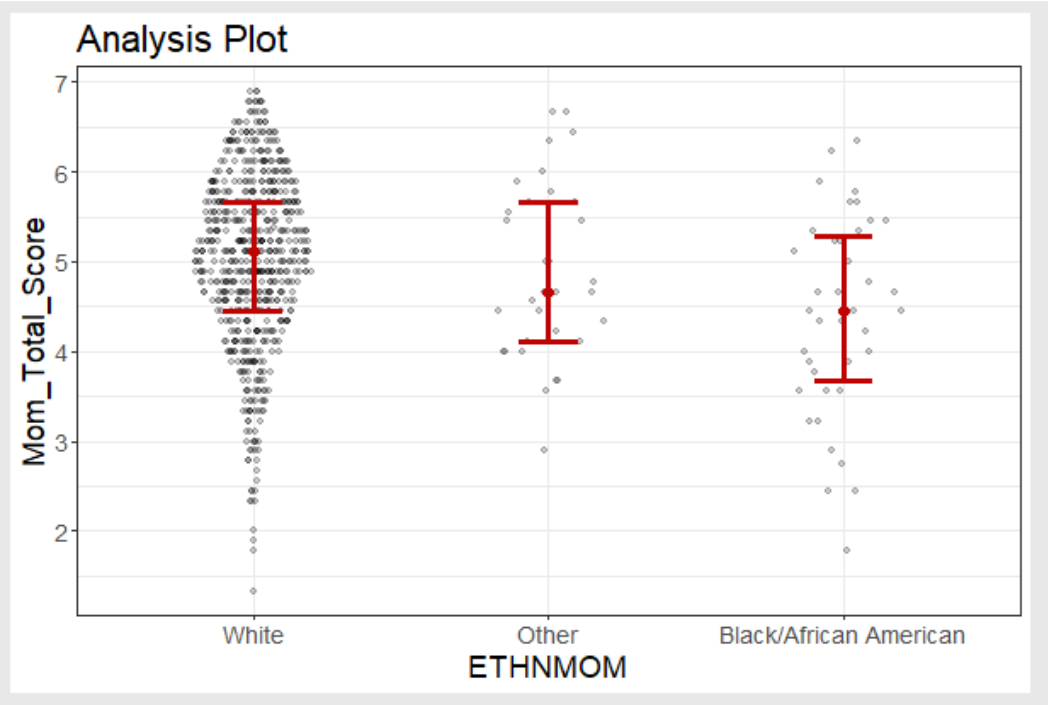

Figure 10
Mother Linear Regression Graph: Education

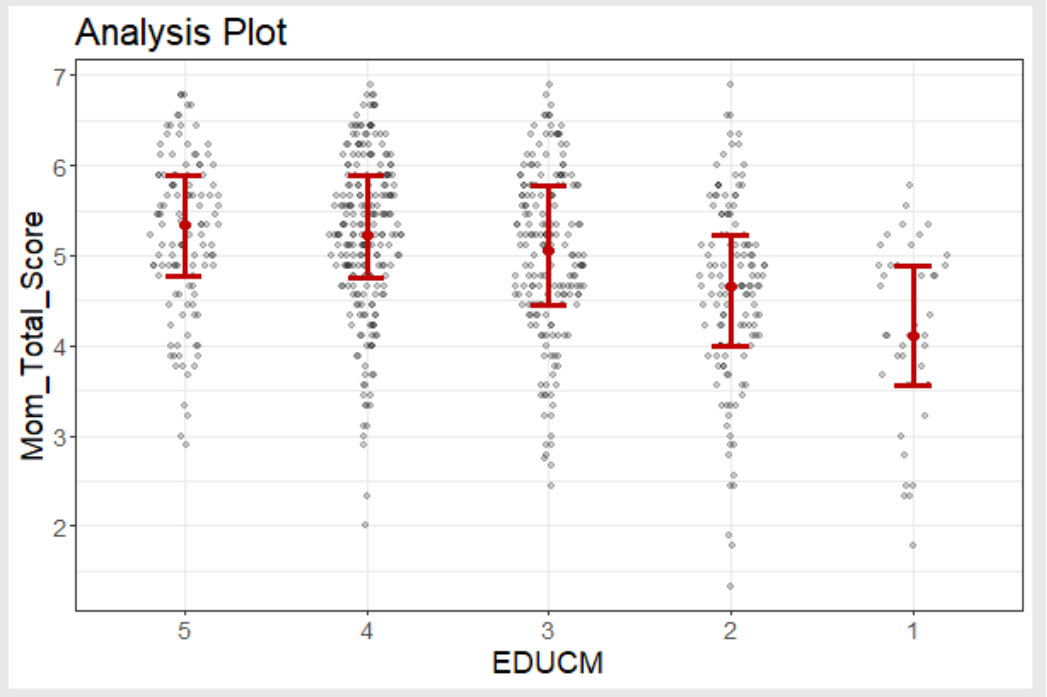

Figure 11
Father Linear Regression Graph: Annual Income

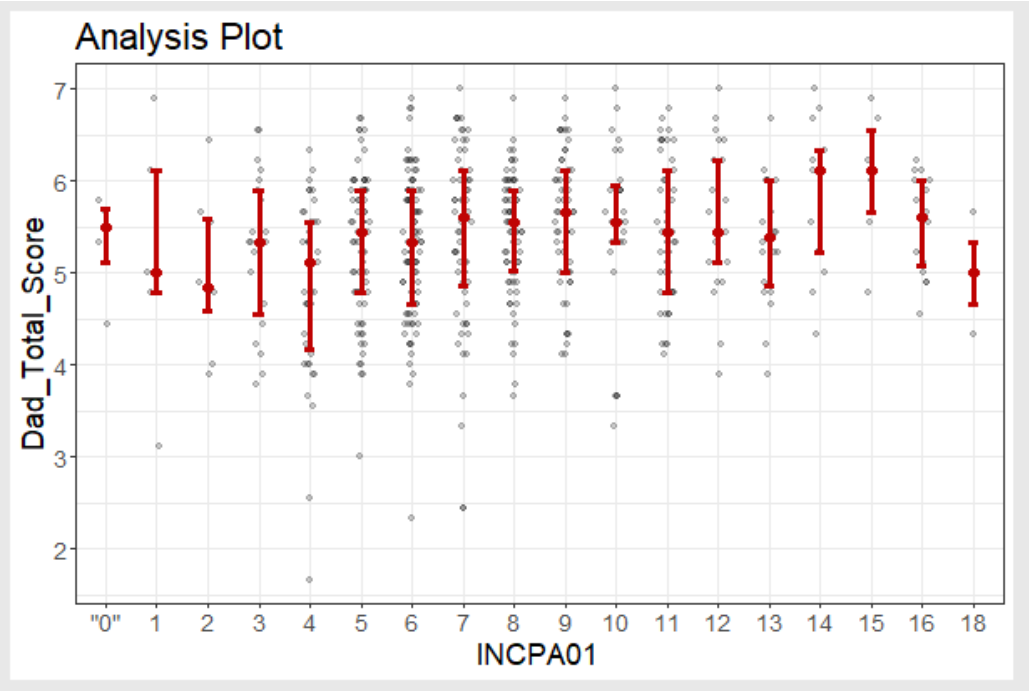

Figure 12
Father Linear Regression Graph: Breastfeeding

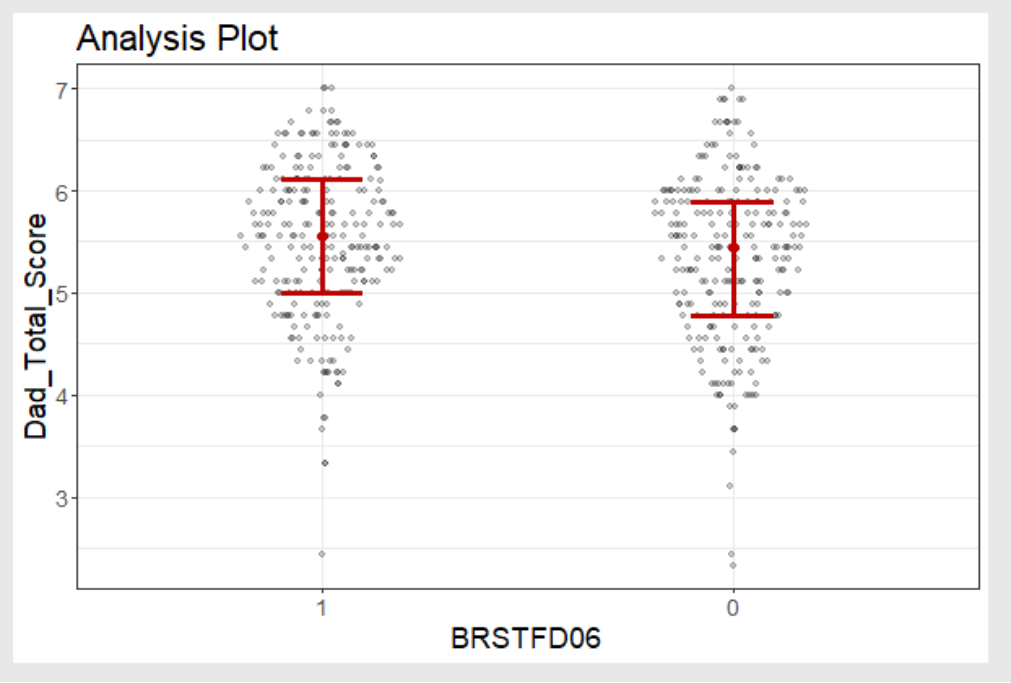

Figure 13
Father Linear Regression Graph: Ethnicity

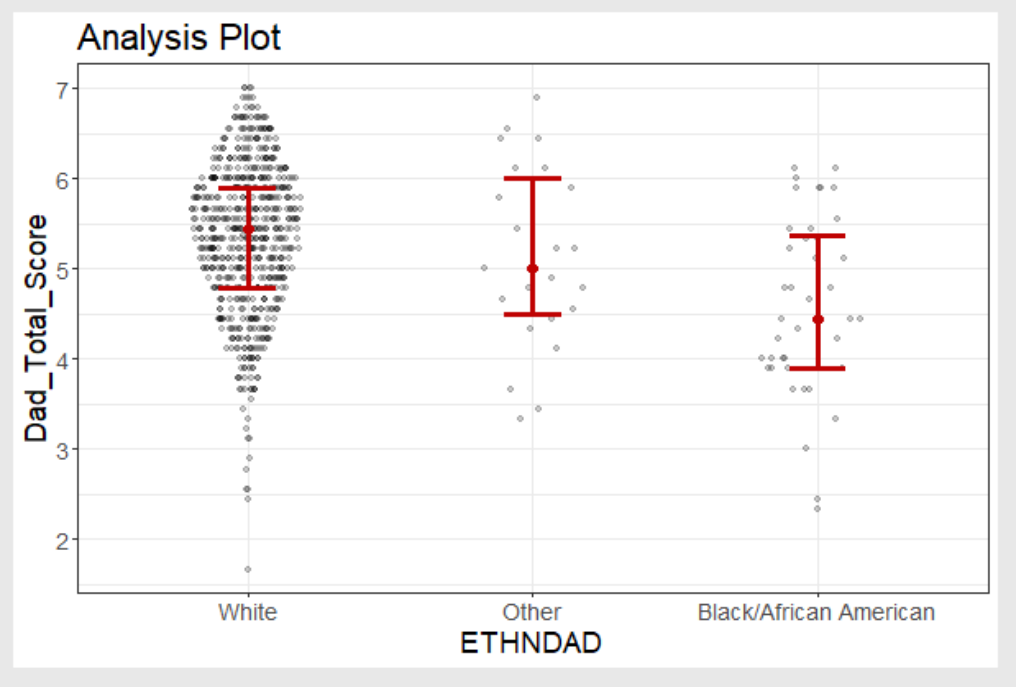

Figure 14
Father Linear Regression Graph: Education

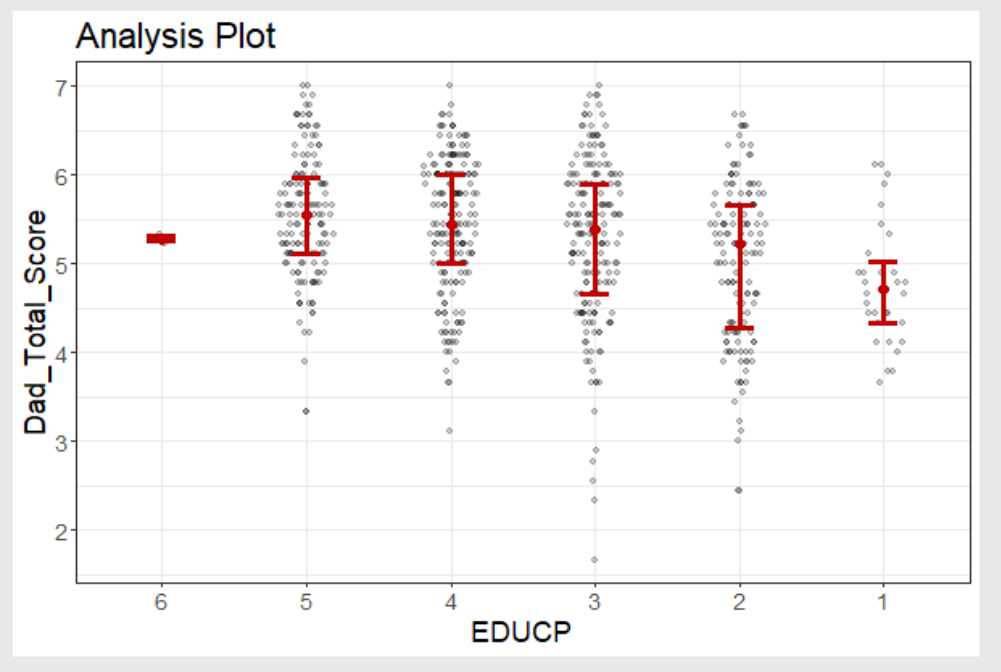

Figure 15
Mother & Father Total Scores Paneled by Breastfeeding at 6 months