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By

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Like Mother Like Child:
An Investigation of Mother Characteristics and Child Temperaments

Courtesy of billarnold.typepad.com

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Section 1: Background

Being a psychology minor, looking at the associations between mother's characteristics and outcomes in the child were of great interest to me. I was very excited about being able to combine what I've learned in my statistics courses with what I've learned in my psychology classes for this project. Overall, I think the two have meshed very well with each other.

There has been a variety of research in how different attributes of the mother are associated with child well being. This includes looking at depression, drug and alcohol use, and marital status of the mothers. Another variable of interest is household income. It has been shown that depression in the mothers was associated with lower social competence and more behavior problems in the child (Gross, 1995). Another factor associated with behavior problems in the child was mother's marital status. Mothers who reported more partner changes or a low quality relationship with a partner were more likely to have children with more behavior problems (Najman, 1997). One study on prenatal alcohol use found that mothers who drank while pregnant had children with more attention and behavioral problems compared to children from mothers who did not drink (Brown, 2002). Low income was another variable associated with these outcomes in the child (Strayhorn, 1988). Drug use in the mother (specifically crack) was associated with more depressive symptoms and emotional problems in the child (Hawley, 1995).

In this project I will be investigating how mother's characteristics are associated with temperaments of their children. Section 2 is a summary the dataset used and created variables. Section 3 discusses the methods. Section 4 is the results, and section 5 summarizes the paper and discusses future work.

Section 2: About the Dataset

I started this project with a different dataset than the one I completed it with. The datasets I began with were the National Longitudinal Survey of Youth 1979 (NLSY79) and its corresponding survey NLSY79 Children and Young Adults. The participants of the latter survey consisted of the children of the mothers included in the NLSY79 original survey. These datasets seemed perfect for looking at how mother's characteristics were associated with well-being of the child, since the survey asked the children a variety of questions about mental health and temperament. The Children and Young Adults survey also included questions regarding substance use, and criminal activity, all of which could be used as possible response variables. The NLSY79 original survey of the mothers asked questions pertaining to education, marital history, childcare, income, self-esteem, depression, and drug/alcohol use which were explanatory variables of interest to me. However, this dataset proved to be a mess to work with. There was an immense amount of data cleaning that needed to be done which is what I spent a good portion of my time doing. I had to create a lot of the variables I wanted to use. One of which was the proportion of time the mother changed her marital status since the birth of the child how was this done. The possible response variables had to be collapsed down into smaller categories. For example, having an anxiety problem included responding "yes" to having phobias, panic attacks, an eating disorder, anxiety, or shyness. The categories were

collapsed based on disorders that commonly occur together or are found in the same section in the Diagnostic and Statistical Manual IV Text revised (DSM-IV-TR). This is the leading text in the psychology field for diagnosing mental disorders. For example, sleep disorders in the DSM-IV-TR include insomnia and nightmares so I grouped those responses together. There was also an issue with missing data. Once the data was coded and in a somewhat workable condition, the models wouldn't converge most of the time due to all the missing data, especially in the response variables. I could have imputed data; however, there was a lot of missingness in the response variables, and some of the explanatory variables, making imputation unwieldy. Also, I wanted to focus on models to investigate the association between mother's attributes and outcomes in the child. Eventually it became clear that this dataset needed to be deemed unusable for my research question. Soon after this another dataset was found containing many of the same variables as the first dataset minus the large amount of missing data, and became the dataset all of the results are based on. This data set is from the Fragile Families and Child Wellbeing Study conducted by the Office of Population Research at Princeton University. The study follows almost 5,000 children born in the U.S. between 1998 and 2000. Parents were interviewed soon after the birth of the child, and when child wasone, three, and five years old. The data that I used was from the one year follow up of the mothers. The parents were asked questions regarding attitudes, relationships, parenting behavior, demographic characteristics, health (mental and physical), economic and employment status, neighborhood characteristics, and program participation. The only data cleaning I had to do with this dataset was recoding the variables in a more usable format and removing people who were not included in the one year follow up.

Section 3: Methods

My main research question was how traits of the mother are associated with temperamental attributes in the child. I chose attributes that could be potential risk factors and protective factors of mental disorders later in life. There were six response variables of interest: the child tends to be shy (Child Shy), fusses and cries a lot (Child Cry), is very sociable (Child Social), gets upset easily (Child Upset), reacts strongly when upset (Child React), and is very friendly with strangers (Child Strangers). These attributes of the child were rated on a scale of 1 to 5 by the mothers, with 1 being least like the child, and 5 being most like the child. There were 55 explanatory variables explored. These variables represented a variety of traits of the mother including marital status, drug/alcohol use, attitudes toward parenting, involvement with the child, demographic information, and work habits. To quantify the amount of involvement that occurred between the mother and the child I created a variable called involvement score. It took into account the responses from eight variables pertaining to activities the mother does with the child. These variables were the number of days per week the mother performs the following activities: playing peek-a-boo, singing songs/nursery rhymes, reading stories to child, telling stories, playing with toys, taking the child to visit relatives, showing physical affection, and putting the child to bed. The involvement score variable was the mean number of days per week the mother engaged in these activities.

Interactions between the mother's race and other explanatory variables were also explored but none were significant.

Given that the explanatory variables were a mix of categorical and quantitative variables and the response variable was a categorical variable with 5 levels, I used ordinal cumulative logistic regression to analyze the data (Abraham, 2006). This type of analysis is based on the cumulative logit model that. For my response the analysis was modeling the probability of responding 5 vs. 4, 3, 2, 1, then 4 vs. 3, 2, 1, and so on. I created the models based on the variables that came up significant using backward, forward, and stepwise selection methods. From there variables were taken out as they became insignificant. The demographic variables that were included in all models regardless of significance were mother's race, education level, age, and household income (in categories).

This page and the next contain graphs that represent a few of the variables analyzed. **Figure 1** is a graph of the row percentages for the Feel Trapped by Parenting Responsibilities variable. The "Agree" bar is a breakdown of how mothers responded to Child Cry if they responded "Agree" to Feel Trapped by Parenting Responsibilities. This is similar for the "Disagree" bar. From the graph we can see that mothers that responded "Disagree" tended to respond that their child was not fussy and cries a lot (1 or 2) more often than mothers who responded "Agree."
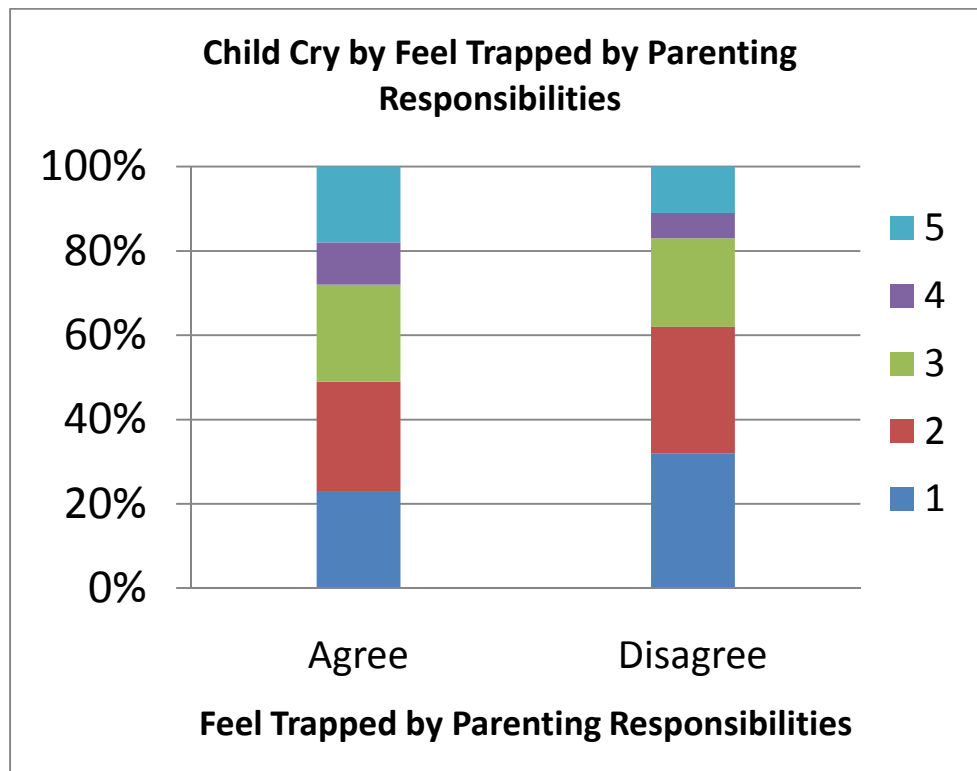

Figure 1: Feel Trapped by Parenting Responsibilities by Child Cry , where 1= "least like my child," and 5 = "most like my child."

A similar conclusion can be made for **Figure 2**. Mothers that responded that drugs did not interfere with their daily functioning rated their children not as reactive as mothers who responded that drugs had interfered with their daily functioning. At first glance this doesn't seem to make sense, but I can speculate as to why this association might occur. I think a likely explanation for this could be that mothers who use drugs often probably don't notice, or are too laid back to care if their children are reactive, hence the unusual association.
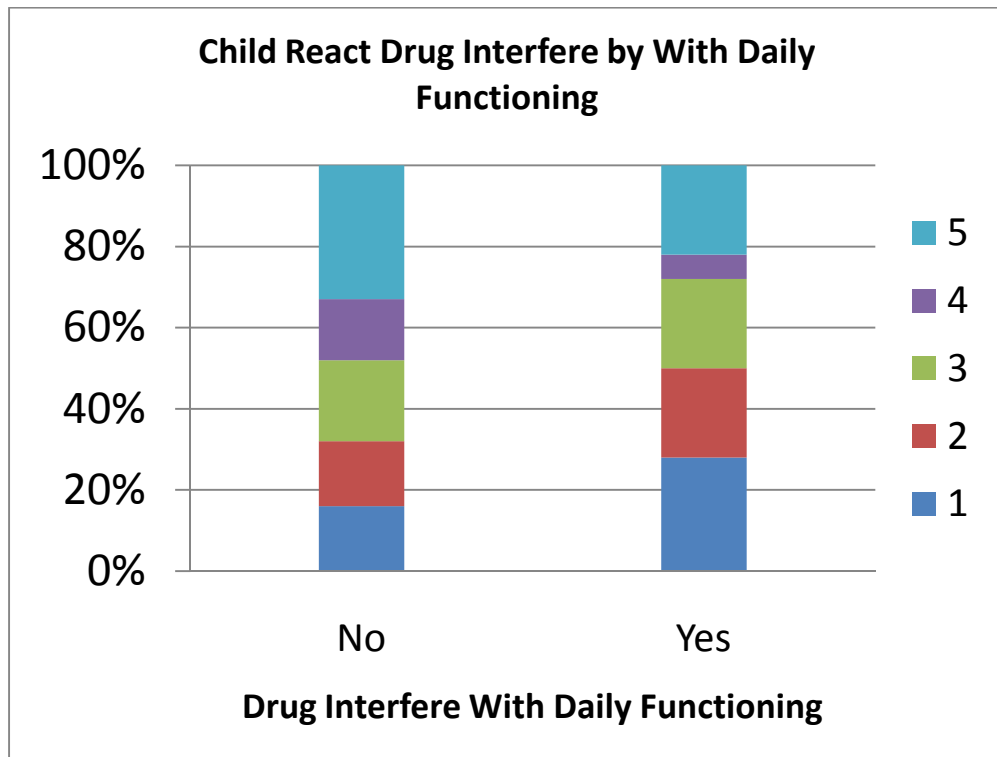
Figure 2: Drug Interfere With Daily Functioning by Child React, where 1= "least like my child," and 5 = "most like my child."

The next page has a table of the overal descriptive statistics of the control variables. These are variables that were included in every model regardless of significance.

Table 1: Overall Descriptive Statistics of Variables included in All Models

Variable	Percent
Mother's Race	
Asian	2%
Black	49%
Hispanic	2%
Other	16%
White	31%
Household Income	
< 5,000	11%
5k - 9,999	10%
10k - 14,999	8%
15k - 19,999	7%
20k - 24,999	7%
25k - 34,999	10%
35k - 49,999	9%
> 50k	16%
Don't Know/Refuse	22%
Mother Education	
< High School	28%
High School	34%
Some College	20%
College or <	10%
Don't Know/Refuse	8%
	Mean(SD)
Mother Age	26(6.25)

The following pages have descriptive tables that contain every categorical variable that was in the model for each response variable. The percents shown are row percents. For example, in **Table 2**, 40% represents the percent of Asian mothers that responded "least like my child" to the statement "Child tends to be shy."

Table 2: Conditional Percentages for **Child Shy, where 1= "least like my child," and 5 = "most like my child."**

	Child Shy				
	1	2	3	4	5
Mother's Race					
Asian	40%	28%	18%	7%	7%
Black	46%	15%	19%	7%	13%
Hispanic	54%	8%	21%	4%	13%
Other	43%	15%	18%	10%	14%
White	41%	21%	22%	7%	9%
Household Income					
< 5K	43%	12%	21%	7%	17%
5K - 9,999	48%	16%	15%	7%	14%
10K - 14,999	47%	16%	13%	8%	16%
15K - 19,999	47%	14%	17%	8%	14%
20K - 24,999	42%	17%	21%	6%	14%
25K - 34,999	46%	18%	19%	8%	9%
35K - 49,999	43%	18%	25%	7%	7%
> 50K	39%	24%	26%	8%	3%
Don't Know/Refuse	44%	16%	18%	7%	15%
Mother's Education					
< High School	46%	13%	18%	7%	16%
High School	45%	16%	19%	7%	12%
Some College	42%	20%	21%	9%	8%
College or <	38%	27%	21%	9%	5%
Don't Know/Refuse	47%	15%	17%	5%	16%
Child Gone Hungry in Past 12 Months					
No	44%	17%	20%	7%	12%
Yes	63%	11%	10%	3%	13%
Child Has a Physical Disability					
No	44%	17%	20%	7%	12%
Yes	44%	15%	15%	9%	17%
Mother and Father Talk/See Each Other					
Everyday	49%	17%	18%	6%	10%
Several Days/Week	45%	16%	19%	8%	12%
Several Days/Month	45%	16%	19%	6%	14%
Several Days/Year	48%	12%	22%	2%	16%
Hardly Ever	47%	14%	17%	7%	15%
Never	42%	18%	20%	8%	12%
Parenting Work Not Pleasure					
Agree	42%	17%	17%	8%	16%
Disagree	45%	17%	21%	7%	10%

Table 3: Conditional Percentages for **Child Cry, where 1= "least like my child," and 5 = "most like my child."**

	Child Cry				
	1	2	3	4	5
Mother's Race					
Asian	35%	34%	15%	9%	7%
Black	29%	26%	22%	8%	15%
Hispanic	28%	30%	22%	6%	14%
Other	31%	25%	19%	8%	17%
White	33%	34%	19%	6%	8%
Household Income					
< 5K	30%	23%	22%	10%	15%
5K - 9,999	29%	27%	21%	7%	16%
10K - 14,999	29%	26%	19%	8%	18%
15K - 19,999	27%	27%	23%	6%	17%
20K - 24,999	31%	31%	16%	9%	13%
25K - 34,999	32%	30%	21%	5%	12%
35K - 49,999	31%	30%	22%	8%	9%
> 50K	33%	37%	21%	4%	5%
Don't Know/Refuse	30%	26%	19%	9%	16%
Mother's Education					
< High School	32%	24%	21%	7%	16%
High School	29%	28%	23%	7%	13%
Some College	31%	34%	20%	8%	7%
College or <	35%	37%	17%	5%	6%
Don't Know/Refuse	28%	22%	15%	11%	24%
Feel Tired From Raising Family					
Agree	27%	30%	22%	8%	13%
Disagree	35%	29%	19%	6%	11%
Feel Trapped by Parenting Responsibilities					
Agree	23%	26%	23%	10%	18%
Disagree	32%	30%	21%	6%	11%
Mother Smoke Weed in Past Month					
No	31%	29%	20%	7%	13%
Yes	31%	21%	25%	15%	8%
Parenting Harder Than Expected					
Agree	27%	30%	22%	8%	13%
Disagree	36%	29%	19%	6%	10%
Parenting Work Not Pleasure					
Agree	24%	25%	22%	9%	20%
Disagree	32%	31%	21%	6%	10%
Received Help From Head Start					
No	31%	29%	20%	7%	13%
Yes	24%	24%	23%	9%	20%
Spank Child in Past Month					
No	34%	28%	19%	7%	12%
Yes	23%	30%	23%	8%	16%

Table 4: Conditional Percentages for **Child Social, where 1= "least like my child," and 5 = "most like my child."**

	Child Social				
	1	2	3	4	5
Mother's Race					
Asian	6%	8%	11%	20%	55%
Black	9%	6%	12%	13%	60%
Hispanic	11%	6%	5%	9%	69%
Other	8%	5%	11%	16%	60%
White	5%	5%	11%	20%	59%
Household Income					
< 5K	8%	7%	12%	11%	62%
5K - 9,999	11%	6%	13%	11%	59%
10K - 14,999	9%	6%	14%	11%	60%
15K - 19,999	9%	5%	8%	18%	60%
20K - 24,999	9%	6%	11%	19%	55%
25K - 34,999	7%	4%	11%	17%	61%
35K - 49,999	3%	5%	12%	20%	60%
> 50K	5%	4%	12%	22%	57%
Don't Know/Refuse	9%	6%	10%	12%	63%
Mother's Education					
< High School	10%	5%	11%	12%	62%
High School	8%	6%	13%	15%	58%
Some College	4%	6%	10%	19%	61%
College or <	3%	6%	10%	23%	58%
Don't Know/Refuse	10%	6%	12%	11%	61%
Child Ever Breast Fed					
No	9%	6%	12%	14%	59%
Yes	6%	5%	11%	17%	61%
Mother Currently Attending School					
No	8%	6%	11%	16%	59%
Yes	7%	4%	12%	13%	64%
Mother Do Regular Work For Pay Last Week					
No	9%	7%	11%	15%	58%
Yes	6%	5%	11%	16%	62%

Table 5: Conditional Percentages for **Child Upset, where 1= "least like my child," and 5 = "most like my child."**

	Child Upset				
	1	2	3	4	5
Mother's Race					
Asian	23%	32%	26%	8%	11%
Black	29%	18%	19%	10%	24%
Hispanic	31%	22%	23%	11%	13%
Other	28%	18%	19%	13%	22%
White	29%	26%	22%	10%	13%
Household Income					
< 5K	29%	18%	19%	9%	25%
5K - 9,999	32%	17%	17%	11%	23%
10K - 14,999	26%	17%	18%	13%	26%
15K - 19,999	26%	22%	16%	10%	26%
20K - 24,999	27%	24%	22%	11%	16%
25K - 34,999	30%	20%	22%	8%	20%
35K - 49,999	30%	24%	22%	13%	11%
> 50K	28%	32%	24%	9%	7%
Don't Know/Refuse	28%	18%	18%	11%	25%
Mother's Education					
< High School	27%	17%	17%	12%	27%
High School	30%	21%	20%	10%	19%
Some College	28%	25%	24%	11%	12%
College or <	32%	29%	25%	7%	7%
Don't Know/Refuse	26%	15%	17%	9%	33%
Father Deceased					
No	29%	21%	20%	10%	20%
Yes	14%	7%	29%	0%	50%
Feel Tired From Raising Family					
Agree	25%	22%	22%	11%	20%
Disagree	33%	22%	18%	8%	19%
Feel Trapped by Parenting Responsibilities					
Agree	22%	20%	21%	12%	25%
Disagree	30%	23%	20%	9%	18%
Mother Felt Tense For 1 Month or More					
No	30%	21%	20%	10%	19%
Yes	22%	20%	18%	15%	25%
Mother Hurt By Father After Child's Birth					
No	15%	22%	21%	12%	30%
Yes	29%	21%	20%	11%	19%
Parenting Work not pleasure					
Agree	24%	15%	20%	11%	30%
Disagree	30%	24%	20%	9%	17%
Spank Child in Past Month					
No	30%	22%	21%	10%	17%
Yes	24%	20%	18%	12%	26%
Who Child Usually Lives With					
Father	11%	11%	11%	11%	56%
Mother	29%	21%	20%	10%	20%
Other	47%	20%	13%	7%	13%

Table 6: Conditional Percentages for **Child React, where 1= "least like my child," and 5 = "most like my child."**

	Child React				
	1	2	3	4	5
Mother's Race					
Asian	10%	20%	28%	18%	24%
Black	17%	15%	17%	13%	38%
Hispanic	36%	12%	17%	11%	24%
Other	18%	18%	20%	12%	32%
White	13%	18%	24%	18%	27%
Household Income					
< 5K	19%	17%	17%	11%	36%
5K - 9,999	18%	15%	17%	11%	39%
10K - 14,999	15%	15%	18%	13%	39%
15K - 19,999	14%	12%	17%	14%	43%
20K - 24,999	16%	18%	22%	15%	29%
25K - 34,999	17%	14%	20%	15%	34%
35K - 49,999	15%	19%	21%	16%	29%
> 50K	10%	21%	25%	21%	23%
Don't Know/Refuse	19%	15%	19%	13%	34%
Mother's Education					
< High School	20%	14%	18%	12%	36%
High School	15%	16%	18%	16%	35%
Some College	13%	19%	23%	16%	29%
College or <	11%	20%	29%	20%	20%
Don't Know/Refuse	18%	14%	15%	10%	43%
Child Has a Physical Disability					
No	16%	16%	20%	15%	33%
Yes	11%	15%	15%	12%	47%
Drug Interfere With Daily Functioning					
No	16%	16%	20%	15%	33%
Yes	28%	22%	22%	6%	22%
Father Deceased					
No	16%	16%	20%	15%	33%
Yes	14%	0%	22%	0%	64%
Feel Tired From Raising Family					
Agree	12%	15%	21%	17%	35%
Disagree	21%	19%	20%	11%	29%
Mother Felt Tense For 1 Month or More					
No	17%	17%	20%	15%	31%
Yes	11%	14%	17%	15%	43%
Parenting Harder Than Expected					
Agree	14%	17%	20%	15%	34%
Disagree	20%	17%	20%	14%	29%
Spank Child in Past Month					
No	17%	17%	20%	15%	31%
Yes	13%	15%	18%	15%	39%

Table 7: Conditional Percentages for **Child Strangers, where 1= "least like my child," and 5 = "most like my child."**

	Child Strangers				
	1	2	3	4	5
Mother's Race					
Asian	15%	12%	22%	22%	29%
Black	32%	15%	17%	10%	26%
Hispanic	15%	13%	27%	7%	38%
Other	25%	15%	15%	13%	32%
White	17%	14%	21%	21%	27%
Household Income					
< 5K	32%	13%	17%	10%	28%
5K - 9,999	34%	13%	15%	8%	30%
10K - 14,999	29%	15%	20%	12%	24%
15K - 19,999	26%	15%	20%	11%	28%
20k - 24,999	27%	16%	17%	16%	24%
25K - 34,999	26%	11%	18%	15%	30%
35K - 49,999	20%	16%	22%	17%	25%
> 50K	15%	17%	22%	24%	22%
Don't Know/Refuse	27%	15%	16%	10%	32%
Mother's Education					
< High School	28%	14%	17%	10%	31%
High School	29%	15%	19%	11%	26%
Some College	22%	16%	20%	18%	24%
College or <	12%	15%	21%	26%	26%
Don't Know/Refuse	32%	11%	14%	11%	32%
Child Ever Breast Fed					
No	32%	14%	16%	10%	28%
Yes	21%	15%	20%	17%	27%
Feel Trapped by Parenting Responsibilities					
Agree	23%	16%	15%	14%	32%
Disagree	26%	14%	19%	14%	27%
Mother Hurt By Father After Child's Birth					
No	23%	9%	17%	14%	37%
Yes	26%	15%	18%	14%	27%
Multiple Jobs Worked in Past 12 Months					
No	26%	15%	18%	14%	27%
Yes	22%	14%	16%	16%	32%
Relationship With Father When Child Born					
Married	18%	15%	21%	20%	26%
Other	32%	13%	18%	12%	25%
Romantically Involved	27%	15%	17%	12%	29%

Section 4: Results

The six response variables (Child Shy, Child Cry, Child Social, Child Upset, Child React, and Child Strangers) were looked at individually using a cumulative logistic regression model to see which of the many possible predictor variables were significant.

For the Child Shy response variable the predictors that were significant were Household Income, Mother and Father Talk/See Each Other (about everyday vs. never), Parenting Work Not Pleasure, and Child Gone Hungry. For Household Income the two categories that were significant were 5K-9,999 vs. < 5K and 25K-34,999 vs. < 5K.

The predictors that were significant for the Child Cry response variable, were Mother's Age, Mother's Education (Don't Know/Refuse vs. < High School), Spank Child in Past Month, Received Help From Head Start, Involvement Score, Mother Smoke Weed in Past Month, Parenting Harder Than Expected, Feel Tired From Raising Family, Feel Trapped By Parenting Responsibilities, and Parenting Work Not Pleasure.

For the response variable Child Social the predictors that were significant were Household Income (20K-25,999 vs. < 5K), Child Ever Breast Fed, Days Mother Seen Child in Past Month, Involvement Score, Number of Children With Father of Child, Mother Currently Attending School, and Mother Do Regular Work For Pay Last Week.

The variables that were significant predictors of Child Upset were Mother's Age, Mother's Education, Who Child Usually Lives With, Spank Child in Past Month, Father Deceased, Mother Hurt By Father After Child's Birth, Involvement Score, Mother Felt Tense For 1 Month or More, Feel Tired From Raising Family, and Parenting Work Not Pleasure. Mother's Education had three significant categories: High School vs. < High School, Some College vs. < High School, and College or < vs. < High School.

For the Child React response variable the predictors that were significant were Mother's Race (Hispanic vs. White), Household Income (15K-19,999 vs. < 5K), Drug Interfere With Daily Functioning, Spank Child in Past Month, Father Deceased, Involvement Score, Mother Felt Tense For 1 Month or More, Parenting Harder Than Expected, Feel Tired From Raising Family, and Child Has a Physical Disability.

The variables Mother's Race (Black vs. White), Household Income (5K-9,999 vs. < 5K), Child Ever Breast Fed, Hours Per Week Worked By Mother, Mother Hurt By Father After Child's Birth, Multiple Jobs Worked in Past 12 Months, Number of Children With Father of Child, How Often Spank Child in Past Month, Feel Trapped By Parenting Responsibilities, and Relationship With Father When Child Born were found to be significant predictors of how the child reacted to strangers – Child Strangers.

Tables 8 - 13 contain the odds ratios, 95% confidence intervals, and whether or not the explanatory variable was significant, for each of the response variables. For example, a household income of between 5K and 9,999, compared to the less than 5K category, was found to be significant for the Child Shy response variable. The corresponding odds ratio can be interpreted as follows: The odds of a mother rating her child shyer when the household income is between 5K and 9,999 are 0.72 (95% CI: 0.56-0.94) times the odds of her rating the child shyer when the household income is less than 5K. That is, it appears that mothers with annual household income between 5K and 9,999 are less likely to rate their child as shy than mothers with annual household income less than 5K. A similar interpretation can be made for the 25K-34,999 category of the household income variable for the Child Shy response. The variable Child Gone Hungry

was also significant. The odds of a mother rating her child more shy if the child has not gone hungry in the past 12 months is 2.94 (95% CI: 1.17-7.39) times the odds of a mother rating her child more shy if the child has gone hungry. A similar interpretation can be made for the Parenting Work Not Pleasure variable. The odds of a mother rating her child more shy if the mother agrees that parenting is more work than pleasure is 1.27 (95% CI: 1.10-1.47) times the odds if a mother rating her child more shy if she disagrees. The last significant variable for Child Shy was how often the mother and father of the child talk to or see each other. If the mother and father talk or see each other everyday, the odds of a mother rating her child more shy is 0.76 (95% CI: 0.64-0.90) times the odds of a mother rating her child more shy if the mother and father never talk or see each other. Thus, mothers seemed to rate their children as less shy if parents saw each other every day as compared to never.

Table 8: Odds Ratios and 95% Confidence Intervals for the **Child Shy** Response Variable

Variable	Odds Ratio (95% CI)	P-Value	Significant
Mother's Race (Ref = White)			
Asian	1.00 (0.67-1.49)	0.99	
Black	0.93 (0.80-1.08)	0.35	
Hispanic	0.64 (0.39-1.06)	0.08	
Other	1.09 (0.90-1.32)	0.39	
Mother's Age	1.00 (0.99-1.01)	0.44	
Household Income (Ref = < 5K)			
5K - 9,999	0.72 (0.56-0.94)	0.02	*
10K - 14,999	0.79 (0.60-1.04)	0.09	
15K - 19,999	0.78 (0.56-1.05)	0.10	
20K - 24,999	0.89 (0.67-1.12)	0.44	
25K - 34,999	0.73 (0.56-0.95)	0.02	*
35K - 49,999	0.77 (0.59-1.00)	0.05	
> 50K	0.79 (0.61-1.02)	0.07	
Don't Know/Refuse	0.88 (0.71-1.10)	0.26	
Mother's Education (Ref = < High School)			
High School	1.00 (0.89-1.16)	0.96	
Some College	1.02 (0.85-1.23)	0.85	
College or <	0.99 (0.77-1.28)	0.95	
Don't Know/Refuse	0.96 (0.75-1.24)	0.77	
Child Gone Hungry (Ref = Yes)			
No	2.94 (1.17-7.39)	0.02	*
Mother and Father Talk/See Each Other (Ref = Never)			
Everyday	0.76 (0.64-0.90)	0.002	*
Several Days/Week	1.00 (0.80-1.25)	0.99	
Several Days/Month	0.97 (0.74-1.28)	0.83	
Several Days/Year	1.09 (0.70-1.69)	0.71	
Hardly Ever	0.81 (0.62-1.07)	0.13	
Parenting Work Not Pleasure (Ref = Disagree)			
Agree	1.27 (1.10-1.47)	0.001	*

*Significant predictor, p<.05

Table 9: Odds Ratios and 95% Confidence Intervals for the **Child Cry** Response Variable

Variable	Odds Ratio (95% CI)	P-Value	Significant
Mother's Race (Ref = White)			
Asian	1.03 (0.69-1.54)	0.89	
Black	1.12 (0.97-1.29)	0.14	
Hispanic	1.19 (0.73-1.94)	0.48	
Other	1.18 (0.98-1.43)	0.09	
Mother's Age	0.98 (0.97-0.99)	0.03	*
Household Income (Ref = < 5K)			
5K - 9,999	1.02 (0.79-1.32)	0.88	
10K - 14,999	1.14 (0.87-1.50)	0.34	
15K - 19,999	1.30 (0.97-1.75)	0.08	
20K - 24,999	1.08 (0.81-1.44)	0.59	
25K - 34,999	0.90 (0.69-1.17)	0.43	
35K - 49,999	1.03 (0.79-1.34)	0.81	
> 50K	0.91 (0.70-1.17)	0.44	
Don't Know/Refuse	1.04 (0.84-1.29)	0.72	
Mother's Education (Ref = < High School)			
High School	1.15 (0.98-1.34)	0.08	
Some College	1.02 (0.85-1.23)	0.81	
College or <	0.98 (0.76-1.26)	0.88	
Don't Know/Refuse	1.39 (1.08-1.78)	0.01	*
Feel Tired From Raising Family (Ref = Disagree)			
Agree	1.19 (1.05-1.34)	0.01	*
Feel Trapped By Parenting Responsibilities (Ref = Disagree)			
Agree	1.28 (1.09-1.51)	0.003	*
Involvement Score	0.87 (0.82-0.93)	<.001	*
Mother Smoke Weed in Past Month (Ref = Yes)			
No	1.67 (1.04-2.67)	0.03	*
Parenting Harder Than Expected (Ref = Disagree)			
Agree	1.24 (1.09-1.41)	0.001	*
Parenting Work Not Pleasure (Ref = Disagree)			
Agree	1.41 (1.21-1.64)	<.001	*
Received Help From Head Start (Ref = Yes)			
No	0.73 (0.54-0.97)	0.03	*
Spank Child in Past Month (Ref = Yes)			
No	0.71 (0.62-0.81)	<.001	*

*Significant predictor, p<.05

Table 10: Odds Ratios and 95% Confidence Intervals for the **Child Social** Response Variable

Variable	Odds Ratio (95% CI)	P-Value	Significant
Mother's Race (Ref = White)			
Asian	0.86 (0.59-1.27)	0.45	
Black	0.93 (0.81-1.08)	0.37	
Hispanic	1.21 (0.73-2.00)	0.45	
Other	1.02 (0.84-1.24)	0.82	
Mother Age	0.99 (0.98-1.01)	0.77	
Household Income (Ref = < 5K)			
5K - 9,999	0.81 (0.62-1.05)	0.11	
10K - 14,999	0.87 (0.66-1.14)	0.31	
15K - 19,999	0.93 (0.69-1.26)	0.64	
20K - 24,999	0.69 (0.52-0.93)	0.01	*
25K - 34,999	0.92 (0.70-1.21)	0.56	
35K - 49,999	0.93 (0.71-1.24)	0.64	
> 50K	0.78 (0.59-1.02)	0.07	
Don't Know/Refuse	0.97 (0.78-1.22)	0.82	
Mother's Education (Ref = < High School)			
High School	0.87 (0.75-1.02)	0.09	
Some College	1.00 (0.82-1.21)	0.97	
College or <	0.92 (0.71-1.19)	0.54	
Don't Know/Refuse	0.94 (0.73-1.20)	0.61	
Child Ever Breast Fed (Ref = Yes)			
No	0.86 (0.76-0.98)	0.02	*
Days Mother Seen Child in Past Month	0.88 (0.80-0.97)	0.001	*
Involvement Score	1.24 (1.18-1.31)	<.001	*
Mother Currently Attending School (Ref = Yes)			
No	0.84 (0.71-0.99)	0.03	*
Mother Do Regular Work For Pay Last Week (Ref = Yes)			
No	0.80 (0.70-0.90)	<.001	*
Number of Children With Father of Child	0.88 (0.82-0.94)	<.001	*

*Significant predictor, p<.05

Table 11: Odds Ratios and 95% Confidence Intervals for the **Child Upset** Response Variable

Variable	Odds Ratio (95% CI)	P-Value	Significant
Mother's Race (Ref = White)			
Asian	1.56 (0.78-1.72)	0.47	
Black	1.09 (0.95-1.26)	0.23	
Hispanic	0.82 (0.51-1.32)	0.41	
Other	1.15 (0.95-1.39)	0.15	
Mother Age	0.98 (0.97-0.99)	0.002	*
Household Income (Ref = < 5K)			
5K - 9,999	0.93 (0.72-1.21)	0.60	
10K - 14,999	1.86 (0.90-1.55)	0.22	
15K - 19,999	1.25 (0.93-1.68)	0.14	
20K - 24,999	1.07 (0.80-1.42)	0.66	
25K - 34,999	1.10 (0.76-1.28)	0.48	
35K - 49,999	0.99 (0.76-1.28)	0.91	
> 50K	1.03 (0.80-1.33)	0.81	
Don't Know/Refuse	1.15 (0.93-1.43)	0.20	
Mother's Education (Ref = < High School)			
High School	0.85 (0.73-0.99)	0.04	*
Some College	0.82 (0.68-0.98)	0.03	*
College or <	0.77 (0.60-0.99)	0.04	*
Don't Know/Refuse	1.26 (0.98-1.61)	0.07	
Father Deceased (Ref = Yes)			
No	0.29 (0.11-0.80)	0.02	*
Feel Tired From Raising Family (Ref = Disagree)			
Agree	1.22 (1.08-1.38)	0.001	*
Involvement Score	0.89 (0.84-0.94)	<.001	*
Mother Felt Tense For 1 Month or More (Ref = Yes)			
No	0.74 (0.62-0.87)	0.001	*
Mother Hurt By Father After Child's Birth (Ref = Yes)			
No	1.81 (1.23-2.65)	0.002	*
Parenting Work Not Pleasure (Ref = Disagree)			
Agree	1.47 (1.27-1.70)	<.001	*
Spank Child in Past Month (Ref = Yes)			
No	0.73 (0.64-0.84)	<.001	*
Who Child Usually Lives With (Ref = Mother)			
Father	3.22 (0.47-22.08)	0.23	
Other	0.25 (0.08-0.73)	0.01	*

*Significant predictor, p<.05

Table 12: Odds Ratios and 95% Confidence Intervals for the **Child React** Response Variable

Variable	Odds Ratio (95% CI)	P-Value	Significant
Mother's Race (Ref = White)			
Asian	1.00 (0.67-1.48)	0.99	
Black	1.06 (0.92-1.23)	0.40	
Hispanic	0.46 (0.28-0.74)	0.001	*
Other	0.91 (0.75-1.10)	0.33	
Mother Age	0.99 (0.98-1.01)	0.53	
Household Income (Ref = < 5K)			
5K - 9,999	1.21 (0.93-1.56)	0.15	
10K - 14,999	1.23 (0.94-1.62)	0.13	
15K - 19,999	1.69 (1.25-2.28)	<.001	*
20K - 24,999	1.00 (0.75-1.34)	0.98	
25K - 34,999	1.31 (0.87-1.47)	0.35	
35K - 49,999	1.00 (0.77-1.30)	0.99	
> 50K	1.13 (0.89-1.45)	0.36	
Don't Know/Refuse	1.10 (0.89-1.37)	0.39	
Mother's Education (Ref = < High School)			
High School	1.05 (0.90-1.23)	0.52	
Some College	1.01 (0.84-1.21)	0.95	
College or <	0.97 (0.76-1.24)	0.80	
Don't Know/Refuse	1.21 (0.94-1.55)	0.14	
Child Has a Physical Disability (Ref = Yes)			
No	0.61 (0.42-0.88)	0.01	*
Drug Interfere With Daily Functioning (Ref = Yes)			
No	3.43 (1.38-8.54)	0.01	*
Father Deceased (Ref = Yes)			
No	0.33 (0.11-0.95)	0.04	*
Feel Tired From Raising Family (Ref = Disagree)			
Agree	1.48 (1.31-1.70)	<.001	*
Involvement Score	0.89 (0.84-0.95)	<.001	*
Mother Felt Tense For 1 Month or More (Ref = Yes)			
No	0.67 (0.56-0.80)	<.001	*
Parenting Harder Than Expected (Ref = Disagree)			
Agree	1.17 (1.03-1.32)	0.02	*
Spank Child in Past Month (Ref = Yes)			
No	0.74 (0.65-0.85)	<.001	*

*Significant predictor, p<.05

Table 13: Odds Ratios and 95% Confidence Intervals for the **Child Strangers** Response Variable

Variable	Odds Ratio (95% CI)	P-Value	Significant
Mother's Race (Ref = White)			
Asian	0.84 (0.56-1.25)	0.38	
Black	0.65 (0.56-0.76)	<.001	*
Hispanic	1.17 (0.72-1.89)	0.53	
Other	0.83 (0.69-1.01)	0.06	
Mother Age	0.99 (0.98-1.01)	0.27	
Household Income (Ref = < 5K)			
5K - 9,999	0.99 (0.77-1.28)	0.95	
10K - 14,999	1.02 (0.77-1.35)	0.89	
15K - 19,999	1.01 (0.75-1.36)	0.96	
20K - 24,999	0.91 (0.68-1.21)	0.52	
25K - 34,999	1.30 (1.00-1.70)	0.05	
35K - 49,999	1.29 (0.99-1.69)	0.06	
> 50K	1.13 (0.87-1.47)	0.35	
Don't Know/Refuse	1.12 (0.90-1.40)	0.31	
Mother's Education (Ref = < High School)			
High School	0.92 (0.79-1.07)	0.30	
Some College	0.94 (0.78-1.13)	0.48	
College or <	1.20 (0.93-1.55)	0.16	
Don't Know/Refuse	1.13 (0.88-1.46)	0.34	
Child Ever Breast Fed (Ref = Yes)			
No	0.81 (0.72-0.92)	0.001	*
Feel Trapped by Parenting Responsibilities (Ref = Disagree)			
Agree	1.22 (1.04-1.42)	0.01	*
How Often Spank Child in Past Month	0.96 (0.92-0.99)	0.03	*
Hours Per Week Worked By Mother	0.995 (0.991-1.000)	0.03	*
Mother Hurt By Father After Child's Birth (Ref = Yes)			
No	1.69 (1.15-2.49)	0.01	*
Multiple Jobs Worked in Past 12 Months (Ref = Yes)			
No	0.80 (0.64-0.98)	0.03	*
Number of Children With Father of Child	0.90 (0.84-0.97)	0.01	*
Relationship With Father When Child Born (Ref = Married)			
Other	0.80 (0.64-0.99)	0.04	*
Romantically Involved	1.03 (0.87-1.23)	0.73	

*Significant predictor, p<.05

Table 9 shows the direction of association for the significant variables for the Child Cry response. As mother's age increases, mothers become less likely to rate their child a crier. This is probably because older mothers are more mature and better equipped to raise a child so the child's needs are being met and they don't cry as much. Mothers who didn't know or refused to respond to what their highest level of education was, were more likely to rate their child a crier than mothers who had less than a high school education. Mothers who did not spank their child in the past month were less likely to rate their child a crier than mothers who did. The relationship between spanking and crying makes sense in both directions. Mothers who have children that don't cry that often probably don't feel the need to spank them. Children that aren't spanked that often don't cry as much as a result. We also found that mothers who didn't receive help from Head start were less likely to rate their child a crier. Head start is an after school program for low socioeconomic families. So, it makes sense that mothers who didn't receive help from head start wouldn't rate their child as a crier because these are probably mothers of higher socioeconomic status, and can afford to get help in raising their children. As mother's level of involvement with their child increases they are less likely to rate their child a crier. Mothers who did not smoke weed in the past month were more likely to rate their child a crier than mothers who did. At first this seems to not make sense, but a likely explanation is that mothers who smoke weed are more laid back and less likely to think their child is a crier. Mothers who agreed that parenting was harder than expected, felt tired from raising a family, felt trapped by parenting responsibilities, or considered parenting more work than pleasure were more likely to rate their child a crier than mothers who disagreed. This relationship is to be expected. Mothers who agree with these statements probably don't get much joy out of parenting and are more likely to rate their child as fussy and a crier.

Table 10 shows the direction of association for the significant variables for the Child Social response. Mothers whose household income was between 20K and 24,999 were less likely to rate their child as social than mothers whose household income was less than 5K. This relationship doesn't make sense because intuitively, mothers whose household income is higher would have more social children. Mothers who did not breast feed were less likely to rate their child as social than mothers who did. This relationship can be explained with attachment theory (Mash, E., Wolfe, D., 2010). This theory suggests that children with more secure attachments (such as those brought about by breast feeding) are better able to form stable relationships with others later on in life. So, it makes sense that mothers who breast fed their child would rate them as more social. As the number of days the mother saw her child in the past month increases the less likely the mother was to rate her child as social. This is another odd relationship. I would expect that mothers who saw their child more would have a more social child. A possible explanation is that mothers who don't see their child that often don't know if their child is social or not. Also, the child might seem more social on the days the mother sees him or her because they are so excited to see their mother. As mother's level of involvement with their child increases they are more likely to rate their child as social. If the mother is currently not attending school or did not do regular work for pay last week she is less likely to rate her child as social. Mothers who are attending school or working are possibly trying to make a better life for themselves and their child; these women are most likely making better choices. So, it makes sense that they would have more social

children. As the number of children the mother has had with the father of the child increases the less likely the mother is to rate her child as social. This is another relationship that seems unexpected and I have no reasonable explanation for why this is the case.

Table 11 shows the direction of association for the significant variables for the Child Upset response. As mothers age increases she is less likely to rate her child as easily upset. If the mother's highest education level is college or above, some college, or high school then the mother is less likely to rate her child as easily upset. This relationship makes sense because mothers who are more educated are usually from a higher socioeconomic status and have more resources for their child. A child with more resources is expected to be less easily upset. If the child usually lives with someone other than the mother or the father, the mother is less likely to rate her child as easily upset. Again, if the child usually lives with someone other than the mother or the father, then the mother doesn't see the child enough, and isn't being told by the father, and is most likely unaware of whether or not the child reacts easily. If the mother hasn't spanked the child in the past month, hasn't felt tense for more than one month, or the father is not deceased, the mother is less likely to rate her child as easily upset. All of these relationships make sense because they represent a better home life for the child. A child with a better home life is probably not as easily upset as a child with an unstable home life. Mothers who were not hurt by the father after the child's birth were more likely to rate their child as easily upset than mothers who were hurt. This is a very odd relationship that I can only speculate the reason to. Women who are abused tend to be more timid and have dependent personality disorders. A dependent personality disorder is characterized by the person depending too heavily on others (usually boyfriend, husbands, or children) to meet their emotional and physical needs (Google Health https://health.google.com/health/ref/Dependent+personality+disorder). These timid, needy mothers may rate their child as not as easily upset. As mother's level of involvement with their child increases they are less likely to rate their child as easily upset. Mothers who agreed that they felt tired from raising a family or considered parenting more work than pleasure were more likely to rate their child as easily upset than mothers who disagreed.

Table 12 shows the direction of association for the significant variables for the Child React response. Hispanic mothers are less likely to rate their child as reacting strongly when upset than White mothers. This is most likely due to cultural differences; however, I do not know enough about Hispanic culture to venture into possible explanations. Mothers whose household income is between 15K and 19,999 are more likely to rate their child as reacting strongly when upset than mothers whose household income is less than 5K. This is another strange association that I do not have an explanation for. Mothers who reported that drugs did not interfere with daily functioning were more likely to rate their child as reacting strongly when upset than mothers who reported that drugs did interfere. The explanation for this is similar to the one made for mother's weed use for the Child Cry response variable. If the mother has not spanked the child in the past month, the father is not deceased, the mother has not felt tense for more than one month, or the child does not have a physical disability, then the mother is less likely to rate their child as reacting strongly when upset. An explanation for this is similar to the one made for these same variables for Child Upset. Children who don't have a

physical disability are probably happier with life and are less likely to react strongly when upset. As mother's level of involvement with their child increases they are less likely to rate their child as reacting strongly when upset. Mothers who agreed that parenting is harder than expected or they felt tired from raising a family were more likely to rate their child as reacting strongly when upset than mothers who disagreed.

Table 13 shows the direction of association for the significant variables for the Child Strangers response. Mothers of Black descent are less likely to rate their child as friendly with strangers than White mothers. Mothers of Black descent tend to be associated with lower socioeconomic status and less safe neighborhoods. Children growing up in an unsafe neighborhood are most likely not going to be very accepting of strangers. Mothers who did not breast feed the child or did not work multiple jobs in the past 12 months were less likely to rate their child as friendly with strangers than mothers who did. The breast feeding relationship can, again, be explained with attachment theory. The multiple jobs relationship doesn't fit in with the rest of the results, especially the next variable. As the number of hours worked per week by the mother increases the less likely the mother is to rate her child as friendly with strangers. This may be due to the mother having to work a lot of hours because the family is poor, meaning that the child is of low socioeconomic status and lives in a bad neighborhood leading to mistrust of strangers. If the mother was not hurt by the father after the child's birth, she was more likely to rate her child as friendly with strangers. This could be due to the mother trusting people more because she hasn't been hurt or betrayed by the father. As the number of children the mother had with the father increases, the more likely the mother is to rate her child as friendly with strangers. A possible explanation for this is that if the child has more siblings, he or she is more social in general including with strangers. As the number of times the mother has spanked the child in the past month increases, the less likely the mother is to rate the child as friendly with strangers. Children who are spanked more are possibly more likely to be wary of strangers because of low socioeconomic status or not trusting others due to the spanking. Mothers who feel trapped by parenting responsibilities are more likely to rate their child as friendly with strangers than mothers who don't feel trapped. This maybe because they want to believe that they can leave their child with strangers, and get a break from their responsibilities as a parent. Mothers who were not romantically involved or married to the fathers when the child was born are less likely to rate their child as friendly with strangers than mothers who were married to the fathers. Mothers who are married to the fathers of the child probably live in better neighborhoods with safer surroundings leading to the child not being afraid to talk to strangers, which again maybe a trust issue. If the mother has not been let down in love she would be more willing to trust others and that trait may have carried over to the child.

Section 5: Conclusion

Though the dataset I started with is not the same one I finished with, I am very happy with the end result. I feel the results I have obtained add to the vast amount of research that has been done in this area.

Each of my six response variables had significant predictors. Higher household income and higher parental interaction is associated with less shy children, whereas a child not going hungry and a mother who believes parenting is more work than pleasure

is associated with a shyer child. An older mother, not spanking the child, not receiving help from head start, or more involvement with the child is associated with a less fussy child. A mother who doesn't know or refuses to respond to what her education level is, a mother who hasn't smoked weed in the past month, believes that parenting is harder than expected, feels tired from raising a family, feels trapped from parenting responsibilities, or believes parenting is more work than pleasure is associated with a more fussy child. A higher household income, a child who hasn't been breast fed, a mother who sees her child often, a mother who isn't currently attending school, has more children with the father of the child, or a mother who did not do regular work for pay in the last week is associated with a less social child. A mother who is very involved with her child is associated with a more social child. An older mother, with a higher level of education, a child who doesn't usually live with their mother or father, not spanking the child in the past month, a father who isn't deceased, a higher mother-child involvement, or a mother who hasn't felt tense for over a month is associated with a child who isn't easily upset. A mother who was not hurt by the father after the child was born, who feels tired from raising a family, or believes parenting is more work than pleasure is associated with having a child who is easily upset. Hispanic mothers, not spanking the child in the past month, having a father who isn't deceased, a higher mother-child involvement level, a mother who hasn't felt tense for over a month, and a child who doesn't have a physical disability is associated with a child who isn't as reactive when upset. A higher household income, a mother who reports that drugs haven't interfered with daily functioning, a mother who believes parenting is harder than expected, or feels tired from raising a family is associated with a more reactive child. African American mothers, a child who was not breast fed, more hours worked per week by the mother, a mother who hasn't worked multiple jobs in the past twelve months, a higher number of children with the father of the child, a child who was spanked more often in the past month, or a child who doesn't usually live with the mother or father is associated with a child who isn't friendly with strangers. A mother who was not hurt by the father after the child was born, or a mother who feels trapped by parenting responsibilities is associated with a child who is friendly toward strangers.

Some of these relationships do not make intuitive sense. In the future more research should be done to validate these results and investigate the reasoning behind these relationships. As a follow-up, I would also like to look into more interactions between the different predictors to see if some of the relationships which were counter intuitive can be explained differently.

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Appendix: SAS code

```sas
options pagesize=59 linesize=80 nocenter;
libname momyr1 'G:\Senior project\FFCWS';

PROC IMPORT OUT= WORK.MOM
            DATAFILE= "G:\Senior project\FFCWS\mom data.csv"
            DBMS=CSV REPLACE;
     GETNAMES=YES;
     DATAROW=2;
RUN;

PROC IMPORT OUT= WORK.COMBINED
            DATAFILE= "G:\Senior project\FFCWS\combined.csv"
            DBMS=CSV REPLACE;
     GETNAMES=YES;
     DATAROW=2;
RUN;

data mom;
merge mom combined;
by idnum;
run;

data mom (WHERE =(cm1bsex ^= -9));
set mom;
run;

data mom (WHERE=(m2intmon ^= -9));
set mom;
if m2a4a = -6 then child_live = 'Mother';
else if m2a4a = 1 then child_live = 'Father';
else child_live = 'Other';

if m2a4d = -6 then days_seen = 30;
else if m2a4d = -2 then days_seen = .;
else days_seen = m2a4d;

if m2a6 = 2 then relationship_born = 'Romantically Involved';
else if m2a6 = -2 or m2a6 = -1 then relationship_born = ' ';
else if m2a6 = 1 then relationship_born = 'Married';
else relationship_born = 'Other';

if m2a7 = 2 then relationship_now = 'Romantically Involved';
else if m2a7 = -2 or m2a7 = -1 then relationship_now = ' ';
else if m2a7 = 1 then relationship_now = 'Married';
else relationship_now = 'Other';

if m2a6c = -6 or m2a6c = 3 or m2a6c = 4 or m2a6c = 203 then liv_tog =
'Rarely/Never';
else if m2a6c = 1 then liv_tog = 'Alll/Most';
else if m2a6c = 2 then liv_tog = 'Sometimes';
else if m2a6c = -2 then liv_tog = ' ';

if m2a7a = -6 or m2a7a = 3 or m2a7a = 4 or m2a7a = 203 then cur_liv_tog
= 'Rarely/Never';
```

```
else if m2a7a = 1 then cur_liv_tog = 'Alll/Most';
else if m2a7a = 2 then cur_liv_tog = 'Sometimes';
else if m2a7a = -2 or m2a7a = -1 then cur_liv_tog = ' ';

if m2a7b2 = -6 then father_die = 0;
else if m2a7b2 = -2 then father_die = .;
else father_die = 1;

if m2a8a = -6 or m2a8a = 2 then ever_mar = 0;
else ever_mar = 1;

if m2a9f = -6 or m2a9f = 2 then end_drug = 0;
else if m2a9f = -2 or m2a9f = -1 then end_drug = .;
else end_drug = 1;

if m2a9g = -6 or m2a9g = 2 then end_violent = 0;
else if m2a9g = -2 or m2a9g = -1 then end_violent = .;
else end_violent = 1;

if m2a11 = -6 or m2a11 = 0 then talk_seen = 6;
else if m2a11 = -1 then talk_seen = .;
else talk_seen = m2a11;

if m2a12 = -6 or m2a12 = -2 or m2a12 = -1 then num_child = .;
else num_child = m2a12;

rename cm2age = mom_age;
if mom_age = -3 then mom_age = .;

if cm2marf = -3 then MomMar1yr = .;
else MomMar1yr = cm2marf;

rename cm2cohf = mom_cohabit;
run;

data mom;
set mom;

if m2b12 = -6 or m2b12 = -2 then BreastFed = .;
else BreastFed = m2b12;

/*possible response*******************************************/
if m2b17a = -6 or m2b17a = -2 then child_shy = .;
else child_shy = m2b17a;

if m2b17b = -6 or m2b17b = -2 then child_cry = .;
else child_cry = m2b17b;

if m2b17c = -6 or m2b17c = -2 then child_social = .;
else child_social = m2b17c;

if m2b17d = -6 or m2b17d = -2 then child_upset = .;
else child_upset = m2b17d;

if m2b17e = -6 or m2b17e = -2 or m2b17e = -1 then child_react = .;
    else child_react = m2b17e;
```

```
if m2b17f = -6 or m2b17f = -2 then child_strangers = .;
else child_strangers = m2b17f;
/************************************************************/
run;

data mom;
set mom;

if m2b19 = -6 or m2b19 = -1 then ever_spank = .;
else if m2b19 = 2 then ever_spank = 0;
else ever_spank = m2b19;

if m2b19a = -1 then often_spank = .;
else if m2b19a = -6 and ever_spank ^= . then often_spank = 0;
else if ever_spank = . then often_spank = .;
else often_spank = m2b19a;

            *agree to disagree;
if m2b20a = -6 or m2b20a = -5 or m2b20a = -2 then parent_hard = ' ';
      else parent_hard = m2b20a;

if  m2b20a = 3 or m2b20a = 4 then parent_hard2 = 'Disagree';
else if m2b20a = -6 or m2b20a = -5 or m2b20a = -2 then parent_hard2 = '
';
else if m2b20a = 1 or m2b20a = 2 then parent_hard2 = 'Agree';

if m2b20b = -6 or m2b20b = -5 or m2b20b = -2 or m2b20b = -1 then
parent_trapped = .;
else parent_trapped = m2b20b;

if  m2b20b = 3 or m2b20b = 4 then parent_trapped2 = 'Disagree';
else if m2b20b = -6 or m2b20b = -5 or m2b20b = -2 then parent_trapped2
= ' ';
else if m2b20b = 1 or m2b20b = 2 then parent_trapped2 = 'Agree';

if m2b20c = -6 or m2b20c = -5 or m2b20c = -2 then parent_work = .;
      else parent_work = m2b20c;

if  m2b20c = 3 or m2b20c = 4 then parent_work2 = 'Disagree';
else if m2b20c = -6 or m2b20c = -5 or m2b20c = -2 then parent_work2 = '
';
else if m2b20c = 1 or m2b20c = 2 then parent_work2 = 'Agree';

if m2b20d = -6 or m2b20d = -5 or m2b20d = -2 or m2b20d = -1 then
parent_tired = .;
else parent_tired = m2b20d;

if  m2b20d = 3 or m2b20d = 4 then parent_tired2 = 'Disagree';
else if m2b20d = -6 or m2b20d = -5 or m2b20d = -2 then parent_tired2 =
' ';
else if m2b20d = 1 or m2b20d = 2 then parent_tired2 = 'Agree';

if m2b21 = -6 or m2b21 = -2 or m2b21 = -1 then cared_others = .;
else if m2b21 = 2 then cared_others = 0;
else cared_others = m2b21;

if m2b29 = -2 then child_care = .;
```

```
else if m2b29 = -6 or m2b29 = 1 or m2b29 = 3 then child_care = 0;
else if m2b29 = 2 then child_care = 1;
run;

data mom;
set mom;

if m2c2a = -2 or m2c2a = -1 then father_seen = .;
else if m2c2a = -6 then father_seen = 0;
else father_seen = m2c2a;

if m2c10 = -2 or m2c10 = -1 or m2c10 = -5 then legal_support = .;
else if m2c10 = -6 or m2c10 = 1 then legal_support = 1;
else legal_support = 0;

if m2d6h = 2 then father_hurt = 'Sometimes';
else if m2d6h = -2 or m2d6h = -1 then father_hurt = ' ';
else if m2d6h = -6 then father_hurt = 'N/A';
else if m2d6h = 1 then father_hurt = 'Often';
else if m2d6h = 3 then father_hurt = 'Never';

if m2d9a3 = -2 then hurt_born = .;
else if m2d9a3 = -6 or m2d9a3 = 1 then hurt_born = 1;
else if m2d9a3 = 2 then hurt_born = 0;

if m2e2 = -3 or m2e2 = -2 or m2e2 = -1 then relation_other = .;
else if m2e2 = -6 or m2e2 = 2 then relation_other = 0;
else relation_other = m2e2;

if m2e2b = -6 or m2e2b = 1 then married_partner = 1;
else married_partner = 0;

if m2h8c = -2 or m2h8c = -1 then head_start = .;
else if m2h8c = 2 then head_start = 0;
else head_start = m2h8c;

if m2h9a1 = -2 or m2h9a1 = -1 then welfare = .;
else if m2h9a1 = 2 then welfare = 0;
else welfare = m2h9a1;
run;

data mom;
set mom;

if m2h19b = -2 or m2h19b = -1 then child_hungry = .;
if m2h19b = 2 then child_hungry = 0;
else if m2h19b = 1 then child_hungry = 1;

if m2h19c = -2 or m2h19c = -1 then mother_hungry = .;
else if m2h19c = 2 then mother_hungry = 0;
else mother_hungry = m2h19c;

if m2j3 = -2 or m2j3 = -1 then child_healthcare = .;
else if m2j3 = 2 then child_healthcare = 0;
else child_healthcare = m2j3;

if m2j5 = -1 then mother_smoke = .;
```

```
else if m2j5 = 2 then mother_smoke = 0;
else mother_smoke = m2j5;

if m2j6a = -2 then mother_drink = .;
else if m2j6 = -1 and m2j6a = -6 then mother_drink = .;
else if m2j6 ^= -1 and m2j6a = -6 then mother_drink = 0;
else mother_drink = m2j6a;

if m2j7 = -2 or m2j7 = -1 then mother_weed = .;
else if m2j7 = 2 then mother_weed = 0;
else mother_weed = m2j7;

if m2j8 = -1 then mother_crack = .;
else if m2j8 = 2 then mother_crack = 0;
else mother_crack = m2j8;

if m2j9 = -1 or m2j9 = -2 then drug_interfere = .;
else if m2j9 = 2 or m2j9 = -10 then drug_interfere = 0;
else drug_interfere = m2j9;
run;

data mom;
set mom;

if m2j12 = -1 then mom_depressed = .;
else if m2j12 = 2 then mom_depressed = 0;
else if m2j12 = 1 or m2j12 = -11 then mom_depressed = 1;

if m2j16 = -1 or m2j16 = -2 then mom_tense = .;
else if m2j16 = 2 then mom_tense = 0;
else mom_tense = m2j16;

if m2k1 = -1 then mom_school = .;
else if m2k1 = 2 then mom_school = 0;
else mom_school = m2k1;

if m2k3a1 = -2 then complete_hs = .;
else if m2k3a1 = -6 or m2k3a1 = 12 then complete_hs = 1;
else  complete_hs = 0;

if m2k4 = -1 or m2k4 = -2 then military = .;
else if m2k4 = 2 then military = 0;
else military = m2k4;
run;

data mom; set mom;

/*possible response*******************************************/
if m2b3 = -6 or m2b3 = -2 then physical_disability = .;
else if m2b3 = 2 then physical_disability = 0;
else physical_disability = m2b3;

if m2b18a = -6 or m2b18a = -2 then peek_boo = .;
else peek_boo = m2b18a;

if m2b18b = -6 or m2b18b = -2 or m2b18b = -1 then nursery_rhymes = .;
      else nursery_rhymes = m2b18b;
```

```
    if m2b18c = -6 or m2b18c = -2 or m2b18c = -1 then read_stories = .;
        else read_stories = m2b18c;

    if m2b18d = -6 or m2b18d = -5 or m2b18d = -2 or m2b18d = -1 then
    tell_stories = .;
    else tell_stories = m2b18d;

    if m2b18e = -6 or m2b18e = -5 or m2b18e = -2 or m2b18e = -1 then
    play_toys = .;
    else play_toys = m2b18e;

    if m2b18f = -6 or m2b18f = -5 or m2b18f = -2 or m2b18f = -1 then
    visit_relatives = .;
    else visit_relatives = m2b18f;

    if m2b18g = -6 or m2b18g = -5 or m2b18g = -2 or m2b18g = -1 then
    physical_affection = .;
    else physical_affection = m2b18g;

    if m2b18h = -6 or m2b18h = -5 or m2b18h = -2 or m2b18h = -1 then
    put_bed = .;          else put_bed = m2b18h;

    interaction_score = mean(peek_boo, nursery_rhymes, read_stories,
    tell_stories, play_toys, visit_relatives,
                physical_affection, put_bed);
/***************************************************************/
run;

data mom;
set mom;

if m2k5 = -1 then regular_work = .;
else if m2k5 = 2 then regular_work = 0;
else regular_work = m2k5;

if m2k9 = -1 or m2k9 = -2 then hrs_work = .;
else if m2k9 = -6 then hrs_work = 0;
else hrs_work = m2k9;

if m2k11a = -1 or m2k11a = -2 then work_evenings = .;
else if m2k11a = 2 or m2k11a = -6 then work_evenings = 0;
else work_evenings = m2k11a;

if m2k11b = -1 or m2k11b = -2 then work_nights = .;
else if m2k11b = 2 or m2k11b = -6 then work_nights = 0;
else if m2k11b = 1 then work_nights = 1;

if m2k11c = -1 or m2k11c = -2 then work_weekends = .;
else if m2k11c = 2 or m2k11c = -6 then work_weekends = 0;
else work_weekends = m2k11c;

if m2k14 = -1 or m2k14 = -2 then multiple_jobs = .;
else if m2k14 = 2 or m2k14 = -6 then multiple_jobs = 0;
else multiple_jobs = m2k14;


run;
```

```
data mom; set mom;

if m1h3a = 1 or m1h3 = 101 then mom_race = 'Hispanic';
if m1h3 = 1 then mom_race = 'White';
else if m1h3 = 2 then mom_race = 'Black';
else if m1h3 = 3 then mom_race = 'Asian';
else if m1h3 = 4 or m1h3 = 5 then mom_race = 'Other';

length income $10;
if m1j3 = -3 then income = ' ';
else if m1j3 = -2 or m1j3 = -1 then income = 'DK/Refuse';
else if m1j3 = 1 then income = '<5000';
else if m1j3 = 2 then income = '5K-9999';
else if m1j3 = 3 then income = '10K-14999';
else if m1j3 = 4 then income = '15K-19999';
else if m1j3 = 5 then income = '20K-24999';
else if m1j3 = 6 then income = '25K-34999';
else if m1j3 = 7 then income = '35K-49999';
else if m1j3 = 8 or m1j3 = 9 then income = '>50K';

length mom_ed $20;
if m1i3 = -6 or m1i3 = -3 then mom_ed = ' ';
else if m1i3 = -2 or m1i3 = -1 then mom_ed = 'DK/Refuse';
else if m1i3 = 1 or m1i3 = 2 or m1i3 = 3 then mom_ed = '<High School';
else if m1i3 = 4 or m1i3 = 5 then mom_ed = 'High School';
else if m1i3 = 6 or m1i3 = 7 then mom_ed = 'Some college';
else if m1i3 = 8 or m1i3 = 9 then mom_ed = 'College or <';
run;

proc freq data = mom;
table mom_ed income mom_race;
run;

proc means data = mom;
var mom_age;
run;

/*model child shy*/
proc logistic data = mom;      /*model CHILD SHY, full model, backward*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
     father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
     ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
     legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
     child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
     mom_tense mom_school complete_hs military
     regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_shy = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
```

```
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = backward;
run;

proc logistic data = mom;      /*full model, forward*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_shy = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = forward;
run;

proc logistic data = mom;      /*full model, stepwise*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs;
```

```
    model child_shy = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = stepwise;
run;

proc logistic data = mom;      /*full model, stepwise 2*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed / param = ref;
model child_shy = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed/selection = stepwise;
run;

proc logistic data = mom;      /*reduced 1: all sig*/
class mom_race talk_seen parent_trapped child_care head_start
child_hungry drug_interfere;
model child_shy = mom_race talk_seen parent_trapped child_care
head_start child_hungry drug_interfere;
run;

proc logistic data = mom;      /*reduced 2: no head_start,
drug_interfere*/
class mom_race talk_seen parent_trapped child_care child_hungry;
```

```
model child_shy = mom_race talk_seen parent_trapped child_care
child_hungry;
run;

proc logistic data = mom descending;       /*reduced 3: no talk_seen*/
/*Old Best Model*/
class mom_race parent_trapped child_care child_hungry;
model child_shy = mom_race mom_age parent_trapped child_care
child_hungry;
run;

proc logistic data = mom descending;       /*extra 1*/
class mom_race income mom_ed talk_seen parent_work2 child_care
child_hungry;
model child_shy = mom_race mom_age income mom_ed talk_seen parent_work2
child_care child_hungry;
run;

/*Best Model*/ proc logistic data = mom descending;    /*extra 2: no
child_care*/  /*Best Model*/
class mom_race income (ref = '<5000') mom_ed (ref = '<High School')
talk_seen parent_work2 child_hungry / param = ref;
model child_shy = mom_race mom_age income mom_ed talk_seen parent_work2
child_hungry;
run;

proc logistic data = mom descending;       /*interaction 1*/
class mom_race income mom_ed talk_seen parent_work2 child_hungry;
model child_shy = mom_race mom_age income mom_ed talk_seen parent_work2
child_hungry
             mom_race*interaction_score mom_race*mom_age
mom_race*mom_ed;
run;

proc logistic data = mom;     /*interaction 2*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
      ever_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
      legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed;
model child_shy = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
      ever_spank often_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
      father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
```

```
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed
        mom_race*physical_disability mom_race*child_live
mom_race*relationship_born mom_race*num_child
        mom_race*parent_work2 mom_race*child_hungry mom_race*mother_drink
/selection = stepwise;
run;

/*model child cry*/
proc logistic data = mom;       /*model CHILD CRY, full model, backward*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_cry = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = backward;
run;

proc logistic data = mom;       /*full model, forward*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs;
```

```sas
      model child_cry = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
      ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
      father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = forward;
run;

proc logistic data = mom;      /*full model, stepwise*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
      ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
      legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_cry = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
      ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
      father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = stepwise;
run;

proc logistic data = mom;      /*full model, stepwise 2*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
      ever_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
      legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
```

```
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed;
model child_cry = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed /selection = stepwise;
run;

proc logistic data = mom;      /*reduced 1: all sig vars*/
class mom_race relationship_now ever_mar ever_spank parent_hard
parent_trapped parent_work parent_tired
        head_start welfare mother_weed;
model child_cry = interaction_score mom_race relationship_now ever_mar
mom_age ever_spank parent_hard
        parent_trapped parent_work parent_tired head_start welfare
mother_weed;
run;

proc logistic data = mom;      /*reduced 2: no ever_mar or
relationship_now*/
class mom_race ever_spank parent_hard parent_trapped parent_work
parent_tired
        head_start welfare mother_weed;
model child_cry = interaction_score mom_race mom_age ever_spank
parent_hard
        parent_trapped parent_work parent_tired head_start welfare
mother_weed;
run;

proc logistic data = mom descending;      /*reduced 3: no welfare*/
/*Old Best Model*/
class mom_race ever_spank parent_hard parent_trapped parent_work
parent_tired
        head_start mother_weed;
model child_cry = interaction_score mom_race mom_age ever_spank
parent_hard
        parent_trapped parent_work parent_tired head_start mother_weed;
run;

/*Best Model*/ proc logistic data = mom descending;   /*extra 1*/
/*Best Model*/
class mom_race income (ref = '<5000') mom_ed (ref = '<High School')
ever_spank parent_hard2 parent_trapped2
            parent_work2 parent_tired2 head_start mother_weed / param =
ref;
```

```
    model child_cry = mom_race mom_age income mom_ed interaction_score
ever_spank parent_hard2
        parent_trapped2 parent_work2 parent_tired2 head_start
mother_weed;
run;

proc logistic data = mom;        /*interaction 1*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed;
model child_cry = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed
        mom_race*income mom_race*mom_ed mom_race* mother_weed
mom_race*head_start mom_race*parent_tired2
        mom_race*parent_work2 mom_race*parent_trapped2
mom_race*parent_hard2 mom_race*ever_spank mom_race*interaction_score
        /selection = stepwise;
run;

/*model child social*/
proc logistic data = mom;        *full model, backward;
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs;
```

```
      model child_social = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
      ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
      father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = backward;
run;

proc logistic data = mom;      *full model, forward;
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
      ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
      legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_social = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
      ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
      father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = forward;
run;

proc logistic data = mom;      *full model, forward 2;
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
      ever_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
      legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
```

```
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed;
model child_social = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed /selection = forward;
run;

proc logistic data = mom;      *full model, stepwise;
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_social = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = stepwise;
run;

        *reduced 1;
proc logistic data = mom;      *reduced 1;
class ever_spank physical_disability mom_race parent_trapped
drug_interfere mom_school military regular_work;
model child_social = ever_spank often_spank physical_disability
mom_race interaction_score num_child parent_trapped drug_interfere
mom_school military regular_work;
run;
```

```sas
        *reduced 2;
proc logistic data = mom;       *reduced 1 without physical_disability;
class ever_spank mom_race parent_trapped drug_interfere mom_school
military regular_work;
model child_social = ever_spank often_spank mom_race interaction_score
num_child parent_trapped drug_interfere mom_school military
regular_work;
run;


        *reduced 3;
proc logistic data = mom;       *reduced 1 without mom_school and
often_spank;
class physical_disability mom_race ever_spank parent_trapped
drug_interfere military regular_work;
model child_social = physical_disability mom_race ever_spank
interaction_score num_child parent_trapped drug_interfere military
regular_work;
run;


        *reduced 4;
proc logistic data = mom;       *reduced 2 without mom_school and
often_spank;
class mom_race ever_spank parent_trapped drug_interfere military
regular_work;
model child_social = mom_race ever_spank interaction_score num_child
parent_trapped drug_interfere military regular_work;
run;


        *reduced 5;
proc logistic data = mom;       *reduced 2 without mom_school,
ever_spank, and often_spank;
class mom_race parent_trapped drug_interfere military regular_work;
model child_social = mom_race interaction_score num_child
parent_trapped drug_interfere military regular_work;
run;

proc logistic data = mom; *selection 1: all vars;
class mom_race BreastFed parent_trapped drug_interfere mom_school
regular_work;
model child_social = mom_race interaction_score num_child BreastFed
parent_trapped drug_interfere mom_school regular_work;
run;

proc logistic data = mom; *selection 2: no mom school, add military;
class mom_race BreastFed parent_trapped drug_interfere regular_work
military;
model child_social = mom_race interaction_score num_child BreastFed
parent_trapped drug_interfere regular_work military;
run;

proc logistic data = mom descending; *selection 3: no military or mom
school;     /*old best model*/
class mom_race BreastFed (ref = '1') parent_trapped drug_interfere
regular_work;
model child_social = mom_race mom_age interaction_score num_child
BreastFed parent_trapped drug_interfere regular_work;
```

```sas
run; *ran model with days_seen and mom_school (sig in back/forward
selection) but both turned out insig;

proc logistic data = mom descending; *extra 1;
class mom_race income mom_ed BreastFed (ref = '1') drug_interfere
regular_work mom_school;
model child_social = mom_race mom_age income mom_ed interaction_score
days_seen num_child BreastFed drug_interfere
     regular_work mom_school;
run;

/*best model*/ proc logistic data = mom descending; *extra 2: no
drug_interfere;   /*best model*/
class mom_race income (ref = '<5000') mom_ed (ref = '<High School')
BreastFed (ref = '1') regular_work mom_school / param = ref;
model child_social = mom_race mom_age income mom_ed interaction_score
days_seen num_child BreastFed
     regular_work mom_school;
run;

proc logistic data = mom descending; *interaction 1;
class mom_race income mom_ed BreastFed (ref = '1') regular_work
mom_school;
model child_social = mom_race mom_age income mom_ed interaction_score
days_seen num_child BreastFed
     regular_work mom_school
     mom_race*mom_age mom_race*income mom_race*mom_ed
mom_race*interaction_score mom_race*days_seen mom_race*num_child
     mom_race*BreastFed mom_race*regular_work mom_race*mom_school;
run;

proc logistic data = mom; *selection 4: sig selection vars, 3
w/days_seen, mom_school;
class mom_race BreastFed parent_trapped drug_interfere regular_work;
model child_social = mom_race interaction_score days_seen num_child
BreastFed parent_trapped drug_interfere mom_school regular_work;
run;

/*model child upset*/
proc logistic data = mom;      /*model CHILD UPSET, full model,
backward*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
     father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
     ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
     legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
     child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
     mom_tense mom_school complete_hs military
     regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_upset = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
```

```
      father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
      ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
      father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = backward;
run;

proc logistic data = mom;      /*full model, forward*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
      ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
      legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_upset = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
      ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
      father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = forward;
run;

proc logistic data = mom;      /*full model, stepwise*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
      ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
      legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work work_evenings work_nights work_weekends
multiple_jobs;
```

```
    model child_upset = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = stepwise;
run;

proc logistic data = mom;      /*full model, stepwise 2*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed;
model child_upset = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed /selection = stepwise;
run;

proc logistic data = mom;      /*reduced 1: all sig vars*/
class mom_race child_live (ref = 'Mother') relationship_born father_die
end_violent talk_seen BreastFed ever_spank parent_hard parent_work
hurt_born
        relation_other married_partner mom_tense;
model child_upset = mom_race interaction_score child_live
relationship_born father_die end_violent talk_seen mom_age BreastFed
ever_spank parent_hard
        parent_work hurt_born relation_other married_partner mom_tense;
run;
```

```
proc logistic data = mom descending;       /*reduced 2: no talk_seen,
relation_other, married_partner*/ /*Old Best model*/
class mom_race child_live (ref = 'Mother') relationship_born (ref =
'Married') father_die end_violent BreastFed (ref = '1') ever_spank
parent_hard parent_work hurt_born mom_tense;
model child_upset = mom_race interaction_score child_live
relationship_born father_die end_violent mom_age BreastFed ever_spank
parent_hard
        parent_work hurt_born mom_tense;
run;

/*Best model*/ proc logistic data = mom descending;   /*extra 1: no
parent_hard, end_violent*/ /*Best model*/
class mom_race income (ref = '<5000') mom_ed (ref = '<High School')
child_live (ref = 'Mother') father_die ever_spank
            parent_work2 parent_tired2 hurt_born mom_tense / param =
ref;
model child_upset = mom_race mom_age income mom_ed interaction_score
child_live father_die
        ever_spank parent_work2 parent_tired2 hurt_born mom_tense;
run;

proc logistic data = mom descending;       /*interaction 1*/
class mom_race income mom_ed child_live (ref = 'Mother') father_die
ever_spank parent_work2 parent_tired2
        hurt_born mom_tense;
model child_upset = mom_race mom_age income mom_ed interaction_score
child_live father_die
        ever_spank parent_work2 parent_tired2 hurt_born mom_tense
        mom_race*mom_age mom_race*income mom_race*mom_ed
mom_race*interaction_score mom_race*child_live mom_race*father_die
        mom_race*ever_spank mom_race*parent_work2 mom_race*parent_tired2
mom_race*hurt_born mom_race*mom_tense;
run;

/*model child react*/
proc logistic data = mom;      /*model CHILD REACT, full model,
backward*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_react = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
```

```
        ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = backward;
run;

proc logistic data = mom;      /*full model, forward*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_react = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = forward;
run;

proc logistic data = mom;      /*full model, stepwise*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs;
```

```
model child_react = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
      ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
      father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = stepwise;
run;

proc logistic data = mom;      /*full model, stepwise 2*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
      ever_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
      legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_react = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
      ever_spank often_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
      father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
      child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
      mom_tense mom_school complete_hs military
      regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = stepwise;
run;

proc logistic data = mom descending;      /*reduced 1, old best model*/
class mom_race physical_disability relationship_born (ref = 'Married')
father_die ever_spank parent_hard parent_trapped parent_tired
      drug_interfere mom_tense;
model child_react = interaction_score mom_race mom_age
physical_disability relationship_born father_die ever_spank parent_hard
parent_trapped parent_tired
      drug_interfere mom_tense;
run;
```

```sas
proc logistic data = mom descending;       /*extra 1: no
parent_trapped*/
class mom_race income mom_ed physical_disability relationship_born (ref
= 'Married') father_die ever_spank parent_hard2
      parent_tired2 drug_interfere mom_tense;
model child_react = interaction_score mom_race mom_age income mom_ed
physical_disability relationship_born
      father_die ever_spank parent_hard2 parent_tired2 drug_interfere
mom_tense;
run;

/*best model*/ proc logistic data = mom descending;   /*extra 2: no
relationship_born*/     /*best mocel*/
class mom_race income (ref = '<5000') mom_ed (ref = '<High School')
physical_disability father_die ever_spank parent_hard2
      parent_tired2 drug_interfere mom_tense / param = ref;
model child_react = interaction_score mom_race mom_age income mom_ed
physical_disability
      father_die ever_spank parent_hard2 parent_tired2 drug_interfere
mom_tense;
run;

proc logistic data = mom descending;       /*interaction 1*/
class mom_race income mom_ed physical_disability father_die ever_spank
parent_hard2
      parent_tired2 drug_interfere mom_tense;
model child_react = interaction_score mom_race mom_age income mom_ed
physical_disability
      father_die ever_spank parent_hard2 parent_tired2 drug_interfere
      mom_race*interaction_score mom_race*mom_age mom_race*income
mom_race*mom_ed mom_race*physical_disability
      mom_race*father_die mom_race*ever_spank mom_race*parent_hard2
mom_race*parent_tired2 mom_race*drug_interfere
      mom_race*mom_tense;
run;

proc logistic data = mom descending;       /*interaction 2: mom_ed,
parent_hard2, mom_tense*/
class mom_race income mom_ed physical_disability father_die ever_spank
parent_hard2
      parent_tired2 drug_interfere mom_tense;
model child_react = interaction_score mom_race mom_age income mom_ed
physical_disability
      father_die ever_spank parent_hard2 parent_tired2 drug_interfere
       mom_race*mom_ed mom_race*parent_hard2 mom_race*mom_tense;
run;

/*model child strangers*/
proc logistic data = mom;     /*model CHILD STRANGERS, full model,
backward*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
      father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
      ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
```

```
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_strangers = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = backward;
run;

proc logistic data = mom;      /*full model, forward*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_strangers = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = forward;
run;

proc logistic data = mom;      /*full model, stepwise*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
```

```
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard parent_trapped parent_work parent_tired
cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs;
model child_strangers = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard parent_trapped parent_work
parent_tired cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs /selection = stepwise;
run;

proc logistic data = mom;      /*full model, stepwise 2*/
class mom_race physical_disability child_live relationship_born
relationship_now liv_tog cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen MomMar1yr
mom_cohabit BreastFed
        ever_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
        legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed;
model child_strangers = interaction_score mom_race physical_disability
child_live days_seen relationship_born relationship_now liv_tog
cur_liv_tog
        father_die ever_mar end_drug end_violent talk_seen num_child
mom_age MomMar1yr mom_cohabit BreastFed
        ever_spank often_spank parent_hard2 parent_trapped2 parent_work2
parent_tired2 cared_others child_care
        father_seen legal_support father_hurt hurt_born relation_other
married_partner head_start welfare
        child_hungry mother_hungry child_healthcare mother_smoke
mother_drink mother_weed mother_crack drug_interfere
        mom_tense mom_school complete_hs military
        regular_work hrs_work work_evenings work_nights work_weekends
multiple_jobs income mom_ed /selection = stepwise;
run;
```

```
proc logistic data = mom;       /*reduced 1*/
class mom_race relationship_born father_die BreastFed hurt_born
child_healthcare multiple_jobs;
model child_strangers = mom_race relationship_born father_die num_child
BreastFed hurt_born child_healthcare mother_drink hrs_work
multiple_jobs;
run;

proc logistic data = mom descending;      /*reduced 2: no father die,
mother drink, hrs work*/
class mom_race relationship_born BreastFed hurt_born child_healthcare
multiple_jobs;
model child_strangers = mom_race relationship_born num_child BreastFed
hurt_born child_healthcare multiple_jobs;
run;

proc logistic data = mom descending;      /*reduced 3: no
relationship_born*/ /*old best model*/
class mom_race BreastFed (ref = '1')hurt_born child_healthcare
multiple_jobs;
model child_strangers = mom_race mom_age num_child BreastFed hurt_born
child_healthcare multiple_jobs;
run;

proc logistic data = mom descending;      /*extra 1: parent_trapped2*/
class mom_race income mom_ed BreastFed (ref = '1')relationship_born
(ref = 'Married') parent_trapped2 hurt_born
      child_healthcare multiple_jobs;
model child_strangers = mom_race mom_age income mom_ed num_child
relationship_born BreastFed often_spank parent_trapped2 hurt_born
      child_healthcare hrs_work multiple_jobs;
run;

 /*best model*/ proc logistic data = mom descending;  /*extra 2: no
child_healthcare*/ /*best model*/
class mom_race income (ref = '<5000') mom_ed (ref = '<High School')
BreastFed (ref = '1')relationship_born (ref = 'Married')
parent_trapped2 hurt_born
       multiple_jobs / param= ref;
model child_strangers = mom_race mom_age income mom_ed num_child
relationship_born BreastFed often_spank parent_trapped2 hurt_born
      hrs_work multiple_jobs;
run;

proc logistic data = mom descending;      /*interaction 1*/
class mom_race income mom_ed BreastFed (ref = '1')relationship_born
(ref = 'Married') parent_trapped2 hurt_born
       multiple_jobs;
model child_strangers = mom_race mom_age income mom_ed num_child
relationship_born BreastFed often_spank parent_trapped2 hurt_born
      hrs_work multiple_jobs
      mom_race*mom_age mom_race*income mom_race*mom_ed
mom_race*num_child mom_race*relationship_born mom_race*BreastFed
      mom_race*often_spank mom_race*parent_trapped2 mom_race*hurt_born
mom_race*hrs_work mom_race*multiple_jobs;
run;
```

```sas
proc freq data = mom;
table mom_race*child_shy income*child_shy mom_ed*child_shy
child_hungry*child_shy physical_disability*child_shy
      talk_seen*child_shy parent_work2*child_shy/ nocol nofreq
nopercent;
run;

proc freq data = mom;
table mom_race*child_cry income*child_cry mom_ed*child_cry
parent_tired2*child_cry parent_trapped2*child_cry
      mother_weed*child_cry parent_hard2*child_cry
parent_work2*child_cry head_start*child_cry
      ever_spank*child_cry/ nocol nofreq nopercent;
run;

proc freq data = mom;
table mom_race*child_social income*child_social mom_ed*child_social
BreastFed*child_social mom_school*child_social
      regular_work*child_social/ nocol nofreq nopercent;
run;

proc freq data = mom;
table mom_race*child_upset income*child_upset mom_ed*child_upset
father_die*child_upset parent_tired2*child_upset
            parent_trapped2*child_upset mom_tense*child_upset
hurt_born*child_upset parent_work2*child_upset
            ever_spank*child_upset child_live*child_upset / nocol
nofreq nopercent;
run;

proc freq data = mom;
table mom_race*child_react income*child_react mom_ed*child_react
physical_disability*child_react
            drug_interfere*child_react father_die*child_react
parent_tired2*child_react mom_tense*child_react
            parent_hard2*child_react ever_spank*child_react/ nocol
nofreq nopercent;
run;

proc freq data = mom;
table mom_race*child_strangers income*child_strangers
mom_ed*child_strangers BreastFed*child_strangers
            parent_trapped2*child_strangers hurt_born*child_strangers
multiple_jobs*child_strangers
            relationship_born*child_strangers/ nocol nofreq nopercent;
run;
```