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Maternal Depression's Effect on Child Joint Attention and Language Skills

Hayley Ann Bell
Regis University

MATERNAL DEPRESSION'S EFFECT ON CHILD JOINT ATTENTION AND LANGUAGE SKILLS

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Hayley Ann Bell

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Approval Page

Thesis Written by Hayley Ann Bell

Approved by

Thesis Advisor

Thesis Coadvisor

Accepted by

Director, University Honors Program

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I: Introduction

College is the time where people begin to grasp an idea of finding a career path that excites and fulfills them. For some people, the concept of fulfilling work includes a career where they can make a comfortable living, while others want to work somewhere where they are involved in a creative process, and some people crave work that involves serving the community at large. I have always been the kind of person who was drawn to work that would serve the larger community, but I wasn't sure as to exactly what that would look like. I also knew I wanted to find a line of work that I was deeply passionate for, but none of the typical job paths I knew drew on my strengths. Never have I had an interest in working a stagnant office job; as a kid I was always bored by the slow pace of school. I wanted to absorb everything new that crossed my path and be an active participant in learning. I wanted to have a job where I would be inspired everyday.

My experiences at Regis University allowed me to explore my strengths, and showed me how I could make an impact on the world using them. The psychology department handed me the tools to learn about my chosen field and the many different paths I could go down with my degree. Professors such as Dr. Miller, Dr. McCall, and Dr. Fricks-Gleason all taught me different lessons on how to take charge of my college experience as a psychology student. They encouraged me to take big risks within academia, such as taking a research internship even though I was not all too confident in my research abilities. Those risks paid off, and they have informed my decision to pursue a career as a counselling psychologist. A career that speaks to my interests and makes an impact on the larger community.

My time spent as a research assistant at the Child Health and Development Lab at the University of Denver played a particularly significant role in choosing to pursue counselling psychology. I was encouraged by my professors to seek out opportunities that included working in a lab to strengthen my resume and to learn what the graduate experience entailed. When I came across the work of Dr. Sarah Watamura, the head of DU's child health lab, I felt that I was in the right place. With the support of Sarah and her PhD student Lisa, I was able to engage in various aspects of a huge, multifaceted research project that completely fascinated me. I learned about how to interpret all kinds of data, the process of applying for grant funding, and how to function in a large university lab setting. I got a test of what a PhD program looked like, and I felt that graduate school was an attainable goal for me. I knew I wanted to spend my time devoted to the health of children.

I am so grateful to have the opportunity to take what I am passionate about within my research assistant position and to take my experiences as a student at Regis University and combine them to produce my Honor's Senior thesis project. I was able to form a thesis that spoke to my desires of working towards finding solutions for children and parents to have successful relationships, leading to healthy child development and future success. Through a collaboration with Regis University's Honor's program and the University of Denver's Child Health and Development Lab, I was able to study the ways in which typically developing children with mothers who exhibit symptoms of depression demonstrate joint attention and language abilities to researchers.

This thesis topic has been a pleasure to work on, and my being at a liberal arts Jesuit university gave me the tools to get there. Throughout our lives, we make seemingly small decisions that have the capacity to affect the world around us on a larger scale. The decision to

begin my undergraduate career at Regis University would end up drastically changing the way I saw myself fitting in the world. By participating in the ideals of the Jesuit Mission, I learned that I desired to make a large positive impact through meaningful work in an academic setting. By participating in research opportunities, I took part in collaborative science that was actively working to understand complex realities of the human condition. My time abroad made me think about my place in a global scale, rather than in the places I have always known. My time throughout Regis has led me towards a deeper understanding of my desire to help others. Through the process of writing this thesis, I have learned more about the vocation child developmental and clinical psychology. I feel that I am on the right path towards impacting the world in a positive way with my Jesuit education, and this thesis is just the beginning.

II: Literature Review

The Importance of Mom and Child Interactions

Interactions between parents and children starting in infancy have the ability to impact the course of a child's development. Maternal interaction style is an important environmental influence on child cognitive and emotional outcomes (Murray & Cooper, 1997). For example, low quality maternal caregiving behaviors have been shown to contribute to infants having more negative affect during caregiving activities (Hane & Fox, 2006). A lack of maternal involvement in infancy contributes to internalizing symptoms such as sadness, anxiety, and withdrawal in children by the 2nd grade (Lyons-Ruth, 2008).

Just as negative interactions contribute to less positive development, positive interaction styles have the possibility to positively influence child development. For example, Teti and Gelfhand (1991) showed that maternal self-efficacy mediates the relationship between a mother's competence with infants and maternal perceptions of infant difficulty. Sensitive parenting interaction styles have been shown to amplify children's reactions to positive facial expressions (Taylor-Colls & Fearon, 2015). Home environments that are conducive to child development and emotional needs lead to children exhibiting fewer externalizing and internalizing behavioral problems (Twomey et al., 2013). By seeking to understand parent and child interactions, we can gain knowledge on a key component of child development. Knowing the importance of mother-child interactions on development, we decided to look at maternal depression and how it affects both child joint attention and child language skills.

Maternal Depression and Development

Depression. Depression is defined as a mood disorder involving biological processes as well as persistent feelings of sadness and loss of interest in regular activities ("Depression", 2017). To be defined as a depressive disorder, symptoms must persist for at least two weeks at a minimum, and include but are not limited to criteria such as depressed mood most of the day, diminished pleasure in daily activities, hypersomnia or insomnia, or a significant appetite change (American Psychiatric Association, 2013). Individuals may have symptoms of depression without having the full-blown disorder; people often exhibit symptoms that map onto a depressive disorder after experiencing something such as a traumatic life event ("Depression", 2018).

The effect of maternal depression on children. Mothers with depression exhibit less consistently positive interaction styles than those without. Both the severity and the chronicity of maternal depressive symptoms relate to behavioral problems in children (Brennan, Hammen, Andersen, Bor, Najman, & Williams, 2000). In a study by Edwards and Hans (2015), children of mothers with symptoms of depression and anxiety had a higher rate of co-occurring behavioral problems. Elevated levels of stress and psychological symptoms exhibited by the child's primary caregiver are associated with an increase in child behavioral problems (Twomey et al., 2013).

While many studies have shown maternal depression can influence aspects of child development, few studies have looked at the relationship between maternal depression and joint attention, or maternal depression and child language development. Joint attention is a cognitive skill defined as the shared focus of an object or activity between two people (Cornew, Dobkins, Akshoomoff, McCleery, & Carver, 2012). This construct is important, as it is a core mechanism through which young children learn about the world, and it relies on the ability of both the adult

and the child to engage in meaningful social communication. Language development is also crucial for a child's interaction with the world. Thus, the purpose of this study is to assess whether maternal depression predicts the development of child joint attention and language development, controlling for other factors such as age, socioeconomic status, and characteristics of the parent- child interaction. Below I will describe the concept of child joint attention, how it develops, and the influence that maternal depression has on this critical cognitive-social skill.

Joint Attention

Joint Attention can be defined as the shared focus on an object or activity between two people (Cornew, Dobkins, Akshoomoff, McCleery & Carver, 2012). Joint attention skills are an important reciprocal aspect of early social development (Vaughan Van Hecke et al., 2007). Initiating joint attention (IJA) refers to an individual's ability to seek out joint attention from another person. Higher rates of IJA among children are related to lower disruptive behaviors (Sheinkope, Mundy, Claussen, & Willoughby, 2004). Responding to joint attention (RJA) refers to an individual's ability to engage in joint attention activities when prompted by another person. Higher rates of RJA are related to lower disruptive behaviors and later positive social behavior (Sheinkope et al., 2004). Interventions that target behaviors related to joint attention have been shown to be effective in increasing joint attention skills, leading to higher levels of social competency (Schertz, Odom, Baggett, & Sideris, 2013; Whalen & Schreibman, 2003).

Development of joint attention. Children differ in their frequency and ability of joint attention skills depending on their developmental stage. Typically-developing children tend to follow a steady path of growth in joint attention skills, while children with Autism Spectrum Disorders (ASD) of the same age groups tend to score lower on joint attention (Cornew, Dobkins, Akshoomoff, McCleery & Carver, 2012). A typically-developing child at 12 months of

age will typically have exhibited responding to joint attention. Also by 12 months, children's levels of joint attention are predictive of their social competence at 30 months, even after accounting for temperament ratings, cognition and language, and other demographic variables (Vaughan Van Hecke et al., 2007). By 18 months of age, initiating joint attention skills and social referencing are clearly demonstrated for typically developing children (Clifford, Hudry, Elsabbagh, Charman & Johnson, 2013; Mundy, et al., 2007). Once children hit 14 months, lower joint attention skills are predictive of the later development of ASD (Cornew, Dobkins, Akshoomoff, McCleery & Carver, 2012).

Joint attention in the brain. Understanding the neurological components of joint attention aids understanding of this cognitive ability**.** In a study by Schilbach, researchers scanned the brains of individuals participating in gaze-following joint attention exercises, and found the anterior medial prefrontal cortex activated, indicating the involvement of the supramodal coordination of perceptual and cognitive processes; the ventral striatum is also involved with joint attention as it provides the hedonic aspects of sharing attention (Schilbach et al., 2010).

Examining patient populations that experience atypical joint attention skills is another way to gain insight into the neural underpinnings of joint attention. Preschool aged children with ASD have lower functional connectivity to the amygdala specifically with areas involved in social communication and repetition. They exhibit weaker connectivity between the amygdala, striatum, bilateral medial temporal lobes, posterior ventral temporal lobes, and medial prefrontal cortex. Weaker connectivity between the amygdala and the frontal and temporal lobes specifically relates to the severity of autism symptoms past levels of overall cognitive function (Shen, Li, Keown, Lee, Johnson, Angkustsiri & Nordahl, 2016). Understanding that children

with ASD often exhibit issues with joint attention, we can better understand the neurological presence of joint attention by looking at these children's brain development. They also show the importance of the frontal lobe (specifically the prefrontal cortex and the ventral striatum), the temporal lobe, and the amygdala in processing joint attention.

The effect of maternal depression on the development of joint attention. In a study by Hane and Fox (2006), a sample of middle class mother-child dyads were measured on maternal caregiving behaviors and their effect on child development. By nine months of age, poor maternal caregiving behaviors were correlated with right frontal lobe asymmetry, higher levels of fearfulness, and less positive initiating joint attention skills. Hane and Fox did contribute a portion of the poor caregiving behaviors to infants with extreme temperamental tendencies, which subsequently caused mothers to be less attentive due to an inability to soothe. Their population consisted of a Caucasian majority who were of middle class standing. No matter the cause, their study suggests that lower rates of maternal caregiving are associated with a heightened response to stressors in the future, and an increased risk for health and behavioral problems, including social developmental skills such as joint attention. A concerning part of this study is its sample of children being 9 months of age, when we have knowledge that joint attention is not reliably measured until at least 12 months (Mundy et al., 2007). In addition, this study only looked at initiating joint attention, they did not measure responding joint attention.

While Hane and Fox (2006) had found a connection between maternal depression and joint attention, other studies have not found a significant relationship between the new variables. In a 2018 study examining maternal depression's effect on child executive functioning, joint attention and maternal depression were not significantly related (Geuron-Sela et al., 2018). Gueron- Sela looked at a sample of families who lived in rural areas, and who were under the

poverty line. The sample included an African American majority. Their measure for joint attention was not split into the subcategories of responding and initiating, but the interactions they measured most closely matched our definition of responding joint attention. Their results showed maternal depression as not having an effect on the children's joint attention skills. They also controlled for mother-child interaction styles, which account for the ways in which a mother interacts with their child daily. When controlling for mother-child interaction styles, this relationship still held true.

A study by Henderson and Jennings (2003) also found that there was not a significant difference in child joint attention skills between depressed mothers and mothers who did not exhibit symptoms of depression. Their study included mothers recruited from a local hospital, with a majority of mothers being middle class and of European American descent. Like Gueron-Sela et al. (2018), Henderson and Jennings (2003) examined joint attention without analyzing the subcategories of responding and initiating separately, but upon looking at their criteria, we found it most closely matched our definition of responding joint attention. Their findings concluded that children of depressed mothers did not demonstrate a significant difference in joint attention than their control group of non-depressed mothers, but the scores were slightly lower in the depressed mothers group.

A study conducted at the University of Reading also found that mothers who were more interactive in their relationships with their children had more positive joint attention, yet distinctions of depression or socioeconomic status were not significantly related (Gaffan, Martins, Healy & Murray, 2009). Their sample was taken from participants at a university hospital, and their population was mostly upper middle class. Their definition of joint attention included infant bids for attention, matching our definition of initiating joint attention. This study

looked at both history of mental illness in the mothers as well as their interaction styles with their children. Their findings showed that maternal depression was not significantly related to child joint attention, but certain joint attention features gathered at 6 months were predictive of behaviors exhibited at 9 months.

To summarize, there is not a large body of research on the relation between joint attention and maternal depression, and the studies that do exist report mixed findings; some suggest a relation between joint attention and maternal depression while others do not. One major limitation of the existing literature is that it fails to separate joint attention into the subcategories of initiating and responding joint attention. Perhaps by examining these subcategories of joint attention, we can help clarify the conflicting results of previous studies. One purpose of our study is to examine the construct of joint attention in relation to maternal depression and to address the problems listed above, while our other purpose is to examine the relationship between child language and maternal depression.

Language

Early language development is an important factor when children are developing other crucial skills. Supporting oral language development has been shown to be critical for later reading success for children, specifically by engaging in direct and purposeful conversations to help children develop conversational skills (Whorall & Cabell, 2015). Children with language impairments are often seen to be more difficult in home and educational settings (Cohen & Lipsett, 1991). Similar to the development of joint attention, the development of language plays a critical role in other aspects of child development. Thus, the present study also examines the impact of early influences, specifically, maternal depression, on the development of language.

Language development. Language is an important indicator of child cognitive development that has a clear chronology in typically developing kids. There are several stages in which early language skills develop. According to Arnett and Maynard (2013), from eight to ten months of age, children learn to communicate through gestures. From ten to twelve months, they gain the ability to comprehend words and simple sentences. Twelve to eighteen months, language begins to develop at a slower and steadier pace than previously and word acquisition steadily increases. Eighteen to twenty-four months children are learning new words at double the pace of before, and from twenty-four to thirty-six months children begin to learn prepositions and complex understanding of word's categories.

Categories of language. Our study is aiming to see the relationship between child language and maternal depression. We are breaking language into the subcategories of expressive communication and auditory comprehension. Expressive communication is described as how a child communicates with others (Zimmerman, Steiner & Pond, 2011). Proficiency in expressive communication is an important outcome for early childhood social and cognitive development (Luze & Linebarger, 2001). Auditory comprehension is how well a child demonstrates a basic comprehension of language (Zimmerman, Steiner & Pond, 2011). These categories of language allow us to look at various aspects of early language development and have a better idea of how they are affected by maternal depression.

Maternal impact on child language. According to a 2007 study, poorer quality of maternal caregiving and maternal depression within the first year of a child's life has been shown to negatively affect language skills at 36 months of age; when accounting for socioeconomic factors the study found that the effect of maternal depression on the maternal quality of caregiving was stronger for less advantaged groups (Stein et al., 2007). While we have some

knowledge of the impacts of maternal depression on language development, we have yet to compare the relation between maternal depression and the specific categories of auditory comprehension versus expressive communication when controlling for socioeconomic factors and maternal caregiving.

Previous research has highlighted the effect of maternal depression on child language development. Studies have shown that children's vocabulary abilities relate to maternal education and frequency of home literacy activities, and child reading ability in kindergarten is predicted by the same factors (Hammer, Farker & Maczuga, 2010). According to Paulson, Keefe & Leiferman (2009) at 9 months post partum, 14 % of mothers have reported symptoms of depression, which is negatively associated with parent to child reading, and subsequently child language development. Maternal depression has a significant negative relationship with language development at 12 months of age (Quevedo et al., 2011). Neither Quevedo nor Paulson's study looked at the impact of socioeconomic factors on maternal depression and language development. Yet, the relationship between maternal depression and language development is apparent throughout their work.

Some research suggests that maternal depression relates to child language development through specific symptomology of depression. Early research by Kaplan demonstrated that at 4 months of age, children of depressed mothers fail to associate their mother's speech with a smiling face, but they can associate a stranger's speech with a smiling face (Kaplan, 2000). From 5-13 months of age, children failed to associate their depressed mother and an unfamiliar non-depressed mother's speech to their facial expressions; they were able to acquire associations with an unfamiliar and non-depressed father's infant directed speech (Kaplan, 2004). These studies

demonstrate children's reactions to symptoms of depression, and how it influences their interactions with their parents in addition to others they may interact with.

Later research by Kaplan demonstrates how maternal depression is responsible for the lack of positive affect exhibited in past work. Kaplan has shown that mothers with depression exhibit weaker connections between their facial expressions and the tone of their voice compared to non-depressed mothers (Kaplan, 2009). Kaplan's research implies that within just the first year of life, children undergo a process where there is a significant change in responsiveness based on their experiences with their primary caregiver (Kaplan, 2010). These experiences may lead children down a different path of development based, supported by this research. Kaplan shows the negative relationship between child language development and maternal depression throughout his extensive research.

Study Goals

The goals of this study are to measure the effect of maternal depression on child joint attention and language. By splitting joint attention into initiating and responding, and language into expressive communication and auditory comprehension, we aim to add to the conversation on their relation to maternal influence. One strength of our study is that we control for two variables known to predict both joint attention and language: socioeconomic status and maternal interaction style. We break maternal interaction style down into three specific behaviors: detachment, intrusiveness, and sensitivity. We elaborate on our rationale for controlling these variables below. We hypothesize that maternal depression will negatively influence both child joint attention and child language, but that this relationship can be buffered by sensitive parent-child interactions styles. Specifically, we hypothesize that both responding and initiating joint

attention will see a significant negative effect when accounting for maternal depression, as well as both expressive communication and auditory comprehension.

Depression and socioeconomic factors. Socioeconomic factors can have a major influence on mental health of parents and child development. In a study by Leventhal and Brooks-Gunn (2000), it was shown that low socioeconomic status and residential instability related to outcomes of negative behaviors and emotions. A high number of stressing events and exposure to violence significantly interacts with neighborhood disadvantages and leads to concurrent aggression in children (Attar, Guerra & Tolan, 1994). Higher income is associated with higher perceived parenting competence (Kiang, Glatz & Buchanan, 2016). In a 2005 study (Lowe et al.) childhood trauma and neighborhood crime were shown to have a significant relationship with maternal depressive symptoms.

Depression can be indicative of negative socioeconomic factors and has been shown to be associated with physical distress through perceptions of disorder and experiences of violence (Curry, Latkin & Davey- Rothwell, 2008). The interaction of genes with the social environment has been shown to correlate with to trauma exposed populations being at a higher rate of psychiatric outcomes (Lowe et al., 2015).

Maternal caregiving's influence on child development. Maternal caregiving is a crucial factor for child development. The past research has highlighted the key role of caregiving in development (Cordes et al.,2017; Cuevas et al., 2014; Hane and Fox, 2006; Hane, Henderson, Reeb-Sutherland & Fox, 2010; Murray & Cooper, 1997; Stein et al., 2007). In our study, we decided to focus on the maternal caregiving behaviors of detachment, intrusiveness, and sensitivity. Our study aims to see the effects of different positive and negative behaviors and how

they relate to the relationship between maternal depression with both joint attention and language development.

III: Methods and Procedure

Participants

Families with a preschool-age child were recruited at full-time child care centers in the Denver area to participate in the Buffering Early Stress Together (BEST) study as part of the Child Health and Development Lab at the University of Denver. There were specific child care centers that met the criteria of good quality using the Early Childhood Environment Rating Scale – Revised (ECERS-R; Harms, Clifford, & Cryer, 2014) criteria for good-quality classrooms. Based on these criteria, the individual classrooms (n = 36) observed as part of the study ranged from average to above average quality (M = 5.52, SD = 0.59, Range = 4.35-6.33). The observed classrooms were part of cortisol reactivity in preschoolers at home and child care Early Head Start centers, a University-affiliated child-care center, and community-based centers.

Researchers conducted data collection through home visits to our families. The recruitment and screening process yielded data from 197 preschool-aged children enrolled in full-time child care programs. Children were excluded due to serious developmental delays or chronic disorders.

From the total sample of 162 children, 65 of them who were of at least one year of age to accurately measure joint attention, were included in the present study. Tests related to varying aspects of child development were performed under the BEST study. The children in the present study were measured for their joint attention and language abilities while the mothers of these children were tested for their levels of depression. We also collected crime data and free play data for our families. In addition to family visits, follow up phone calls were conducted to

administer some of our measures. Families participating in the study were tested over a period of five separate visits, the present study's data was collected on the fifth such visit. The content of the study included both family forms and child development forms. We then interpreted and scored the tests we gathered and entered our scores into SPSS. The study was approved by the University of Denver's Institutional Review Board for Human Subjects.

Materials

Early Social Communication Scales (ESCS). ESCS was administered to the children twice throughout the study. ESCS was administered in either English or Spanish depending on the child's language. ESCS has a measure including subscales measuring a range of factors relating to developmentally appropriate social communication skills in children up to four years of age. In the present study, we employed the joint attention, which measures both responding and initiating levels of joint attention.

The test includes interactions between a child and an assessor such as turn taking (passing a toy back and forth), gaze following through book presentation, turn taking with an attractive toy, etc. The whole test taking process is videotaped and subsequently scored in the laboratory. Researchers code each task according to the criteria established by Mundy (2003). Each video is double-coded by two different researchers to ensure reliability in scoring.

PLS-5

The Preschool Language Scales, fifth edition (PLS-5) was administered to the children twice throughout the study. The PLS-5 is a bilingual English/Spanish language development assessment measuring a child's auditory and expressive abilities. Representative of our sample,

the test is administered to children between the ages of birth to 8 years. The test includes age appropriate manipulatives (such as a toy bear and blocks) and a picture manual.

A researcher administered the PLS-5 in the child's house. For bilingual Spanish/English speaking children, each test item was first conducted in Spanish, and if the child answered incorrectly, the item was administered in English. To establish a baseline, a child must answer 3 consecutive items in a row correctly and to establish a ceiling, a child must answer 6 consecutive items in a row incorrectly. Each instruction was repeated only one time if the child did not understand the question. Infants between the ages of 6 months to 1 year old sat in the caregiver's lap to conduct the test. For children between the ages of 1 year to 3 years old, the assessor sat on the floor with the child for the administration. The assessor attempted to administer the test in the same room as the caregiver in order to put the child at ease. Additionally, the assessor tried to remove extraneous stimuli, such as the child's personal toys. However, in some cases, it was not possible to remove all of the extraneous stimuli or administer the test in the same room as the caregiver. Further, the tester asked the caregiver to have the other children (i.e. the target child's siblings) play in another room in order to minimize distractions. Because of limited space and/or a lack of other caregivers, in a few cases, the PLS-5 was administered with another sibling in the room.

For analysis, we obtained a dual language score for bilingual Spanish/English children. The dual language score is important because research has shown that bilingual children's language abilities may appear reduced if only one language is considered (Hammer et al., 2010). Additionally, auditory comprehension and expressive communication raw scores, standard scores, percentile ranks, and confidence intervals were calculated using the appendices in the PLS-5: Administration and Scoring Manual. Total language raw scores, standard scores,

percentile ranks, and confidence ranks were calculated using the appendices in the Administration and Scoring Manual. Finally, discrepancy comparisons between auditory comprehension (AC) and expressive communication (EC) standard scores were calculated. The PLS-5 Total Language score has demonstrated strong reliability (α = .80; Pearson, 2012).

The Center for Epidemiologic Studies Depression Scale (CESD).

The CESD was administered on paper to the mothers in our study. They were asked to complete the 20-item CES-D based on their rate of depressive symptoms over the past week prior to the visit, and parents completed a CES-D form in both the pre and post intervention stages of testing. Each item is rated on a 4-point scale, with 0 meaning the item occurred rarely or none of the time (less than 1 day over the past week) and 3 meaning the symptom was occurring most or all of the time (5–7 days). Scores were then totaled to find the overall rate of depressive symptoms. The CES-D has proved reliable in community samples (Radloff, 1977) and with Latino populations (α = .85; Corona et al., 2012). The Spanish translation of the CES-D has shown to be very reliable when used with a similar Head Start sample of 310 families (α = .80).

Free Play.

The Free Play data measures the organically occurring relationship between mother and child. Each free play interaction was carried out on home visits and videotaped. The interactions were 7-10 minutes long depending on the age of the child, and coded using the guidelines provided by Mills-Koonce's qualitative ratings for parent-child interaction at 3-18 months of age (2013) which were adapted from the *Family Life Project Parent Coding Manual* (Cox & Cornic, 2003). The videos were coded through the use of subscales including, intrusiveness, detachment,

positive affect, negative affect, animation, sensitivity, development, and dyadic mutuality between parent and child. Videos that were administered in Spanish were transcribed into English before being coded. About 20 percent of the total videos were then sent to a partnering lab in Chapel Hill, North Carolina, where they were double-coded to ensure reliability. We took the final scores and add them up into intrusiveness, detachment, and sensitivity totals and an overall total.

Crime.

We used the Denver Police Department's crime records as a proxy for socioeconomic status. High rates of neighborhood crime have been shown to be associated with factors such as child aggression and poor mental health, (Attar, Guerra & Tolan, 1994; Simmons et al, 2002; Wandersman & Nation, 1998). Our crime data were gathered from the Denver Police Department's (DPD) website, under the public records section. We looked up which district each family resides in, and we gathered information from the DPD's website about crime activity from the year prior through the year after the last home visit. We took the breakdown of all different crime activity and summed it to find the total rate of criminal activity per district. We then used that crime score for each family in our analyses.

Procedure

Home visits were used to collect our data. Our research team, consisting of bilingual Spanish and English speakers, confirmed home visits via phone call prior to the date of visit. Mothers reported on their symptoms of depression by completing the CESD in either English or Spanish according to their preference on one pre intervention and one post intervention home visit. Research assistants trained in the administration of each measure administered the PLS-5

and ESCS measures to the children on these visits as well. Parent and child free play interactions were filmed on both home visit two and home visit four. Research assistants in the lab gathered the crime records for each district of the families participating in our study from a year before through the year after their initial involvement in the study.

IV: Results

Results

Analyses. We ran descriptive analyses which can be found in Table 1. We then ran correlations between initiating and responding joint attention with maternal depression, child age, child gender, district crime, free play detachment, free play intrusiveness, and free play sensitivity. We also ran these same correlations with total language, auditory comprehension, and expressive communication instead of joint attention variables. We then ran a series of regression analyses. We analyzed each of my dependent variables (two joint attention and three language) with maternal depression and child age as predictors as the base model. We then extended this base model by adding SES, free play detachment, free play intrusiveness, and free play sensitivity as control variables in separate models.

Joint attention. We conducted correlations using Pearson coefficients among the following variables: responding to joint attention, initiating joint attention, child age, child gender, maternal depression, district crime scores, free play detachment scores, free play intrusiveness scores, and free play sensitivity scores (see Table 2).

Initiating joint attention and maternal depression were not correlated, $r = -.14$, $p = .29$. As anticipated, age positively correlated with initiating joint attention, $r = .40$, $p = .00$; the older the child, the higher their rate of joint attention. Initiating joint attention and free play sensitivity were approaching a significant positive correlation, $r = .23$, $p = .07$; higher initiating joint attention is related to higher sensitivity scores between child and parent. Initiating joint attention and free play intrusiveness were negatively correlated, $r = -.28$, $p = .03$. The more intrusive

parent-child interactions were the lower the child's initiating joint attention score was. Initiating joint attention was not significantly correlated with crime, $r = -.25$, $p = .09$.

Responding joint attention was approaching a significant negative correlation with maternal depression scores, $r = -.25$; $p = .06$; the higher the maternal depression score was, the lower the child responding joint attention score. Age positively correlated with responding joint attention, $r = .41$, $p = .00$. Responding joint attention was approaching a significant negative correlation with free play detachment scores, $r = -.23$; $p = .07$; meaning that low responding joint attention is related to higher detachment scores between child and parent. Responding joint attention was not correlated to free play sensitivity scores, $r = .20$, $p = .12$, crime, $r = .02$, $p = .91$, or child sex, $r = .13$, $p = .32$; $r = .00$, $p = .10$.

To determine the contribution of factors such as age, maternal depression, SES, and free play scores on child joint attention, we ran a series of linear regression analyses. The results of these analyses can be found in Table 4.

Initiating joint attention regressions. Controlling for age and observed maternal detachment ($\beta = -.14$, $t(59) = -1.20$, $p = .28$), intrusiveness ($\beta = -.15$, $t(59) = -1.20$, $p = .24$), or sensitivity during free play ($\beta = -.18$, $t(59) = -1.44$, $p = .16$), maternal depression was not predictive of initiating joint attention. Accounting for SES, maternal depression was not predictive of initiating joint attention ($\beta = -.12$, $t(49) = -.86$, $p = .39$).

Responding joint attention regressions. Accounting for age, children of mothers with higher rates of depression exhibited lower responding joint attention skills. This association also held when controlling for age and observed detachment ($\beta = -.27$, $t(59) = -2.24$, $p = .03$), observed intrusiveness ($\beta = -.27$, $t(59) = -2.33$, $p = .02$), or observed sensitivity ($\beta = -.06$, $t(59) =$

-.48, p = .02) . Accounting for SES, maternal depression was approaching significance with responding joint attention (β = -.26, t(49) = -1.95, p = .06).

Language. We correlated expressive communication, auditory comprehension, and total PLS-5 language (which is a composite of expressive communication and auditory comprehension) with the following variables: child age, child gender, maternal depression, district crime scores, and free play detachment, free play intrusiveness, and free play sensitivity scores (see Table 2).

Total PLS-5 language scores were not significantly correlated to maternal depression, r = - .11, p = .45. Total PLS-5 language was not significantly correlated to child age, r = .22, p = .10. Total PLS-5 language scores were positively correlated with free play sensitivity scores, r = .33, p = .01; the higher the rate of sensitivity that was rated between parent and child, the higher the child's total language score. Total PLS-5 language was negatively correlated with free play Detachment, r = -.27, p = .04; the higher the total language score of the child, the lower the rate of detachment between parent and child. Total language scores and free play intrusiveness were not correlated, r = -.20, p = .14.

Expressive communication was not significantly correlated with maternal depression, r = -.15, p = .26. Age positively correlates with expressive communication, r = .27, p = .04; meaning that older children had higher expressive communication scores. Expressive communication was positively correlated with free play sensitivity, r = .40, p = .00; the higher the rate of sensitivity between parent and child, the higher the rate of expressive communication produced by the child. Expressive communication was negatively correlated with free play intrusiveness, r = -.32, p = .01; the higher the rate of child expressive communication, the lower the rate of intrusiveness was between parents and children. Expressive communication was negatively correlated with

free play detachment, r = -2.86, p = .03; the higher the rate of child expressive communication, the lower the rate of detachment between parent and child. Auditory comprehension was not significantly correlated with any other variable (see Table 2).

Next, we ran a series of linear regression analyses in order to determine the contribution of factors such as age, maternal depression, SES, and free play scores on child language skills. The results of these analyses can be found in Table 5.

Total language regressions. Controlling for age, maternal depression did not have a significant effect on total PLS-5 language scores, β = -.13, t (54) = -.97, p = .34. However, accounting for SES, maternal depression became significantly related to total language scores, β = -.36, t (40) = -2.52, $p < .05$. Accounting for free play sensitivity, intrusiveness, and detachment in separate models, maternal depression was not significantly related to total language scores, β = -.09, t (54) = -.70, p =.50; β = -.12, t (54) = -.91, p = .40; β = -.09, t (54) = -.68, p = .50.

Expressive communication regressions. Controlling for age, maternal depression did not have a significant effect on expressive communication scores, β = -.18, t (54) = -1.38, p = .17. Accounting for SES, maternal depression become significantly related to expressive communication scores, β = -.39, t (40) = -2.74, $p < .01$. Accounting for free play sensitivity, intrusiveness, and detachment in individual models, maternal depression did not have a significant relationships with expressive communication, β = -.14, t (54) = -1.07, p = .29; β = -.17, t (54) = -1.28, p = .21; β = -.15, t (54) = -1.10, p = .28.

Auditory comprehension. Controlling for age, maternal depression did not have a significant effect on auditory comprehension scores, β = -.03, t (56) = -.25, p = .81. Accounting for SES, there was still no significant relationship between maternal depression and auditory

comprehension, β = -.22, t (42) = -1.41, p = .17. Individual models controlling for free play scores (sensitivity, intrusiveness, and detachment) showed no significant relationship between maternal depression and auditory comprehension, β = -.02, t (55) = -.14, p = .89; β = -.04, t (55) = -.311, p = .76; β = .00, t (55) = .00, p = .99.

V: Discussion

Our study's comprehensive look into the effects of maternal depression contribute to the scientific conversation on the impact of early life factors on child development. We found that children of mothers with depressive symptoms exhibit lower levels of responding joint attention, but maternal depression is not related to the process of initiating joint attention among these same children. Our original hypothesis that both initiating and responding joint attention would both be correlated with maternal depression was not met. This finding supports existing literature that shows maternal depression can impact a child's social/cognitive development, and it extends the literature by suggesting that maternal depression has a greater negative effect on responding joint attention than initiating joint attention, after accounting for one purported mechanism, increased detachment.

Our findings that responding joint attention and maternal depression are significantly related add to the conversation from previous literature. There are currently no other studies that have found a significant relationship between the specific responding subscale of joint attention and maternal depression. Gueron-Sela found that when accounting for maternal depression's effect on child executive functioning as a whole, responding joint attention was not affected (Geuron-Sela et al., 2018. Henderson and Jennings (2003) also found that there was not a significant difference in responding joint attention skills exhibited by children between mothers with depression and mothers who did not exhibit symptoms of depression. By breaking joint attention down into the responding and initiating joint attention, we were able to gain a more complete picture of the effects of maternal mental health. These results suggest that symptoms of depression such as withdrawal may negatively impact mothers' interactions with their children by not fostering the sociability needed for children to properly respond to requests of joint

attention. With higher rates of depression comes symptoms such as withdrawal, which we believe could contribute to mother's not requesting their child's attention enough for their shared attention to properly develop.

The effect of maternal depression on responding joint attention remained significant when accounting for sensitivity, detachment and intrusiveness between mother and child. A 2006 and a 2010 study found that poor maternal caregiving behaviors related to less positive joint attention in both human and animal models (Hane and Fox, 2006; Hane, Henderson, Reeb-Sutherland & Fox, 2010). But the research that has accounted for maternal depression in addition to maternal caregiving has not found maternal depression to be indicative of significant changes in joint attention (Gaffon, Marths, Healy & Murray, 2009; Geuron-Sela et al., 2018; Henderson & James, 2003). The finding that controlling for detachment in mother child interactions still shows a significant relationship between maternal depression and responding joint attention demonstrates that detachment is not changing the relationship. The same story goes for the relationships between maternal depression and responding joint attention accounting for intrusiveness as well as sensitivity.

When we controlled for our socioeconomic status measure, we found that maternal depression was not significantly related to responding joint attention or initiating joint attention. Past studies have shown a mix of relationships between joint attention and socioeconomic status. A 2015 study found that children in higher socioeconomic status groups showed more active joint attention, while low socioeconomic groups followed points of researchers, a skill that is a part of responding joint (Abels & Hutman, 2015). But, in a 1999 study by Saxon and Reilly, socioeconomic status was found to not be related to joint attention. Our study supports the

findings of Saxon and Reilly, although our measure of district crime as socioeconomic status could be flawed.

We found that initiating joint attention did not relate to maternal depression significantly, even when accounting for SES and mother child interaction styles. Research so far has not shown a significant effect of maternal depression on child initiating joint attention. For example, Gaffan (2009) found that while mothers who were more interactive had more positive initiating joint attention with their children, distinctions of depression or socioeconomic status were not significantly related to initiating joint attention in children. Hane and Fox (2006) found that at nine months of age, poor maternal caregiving behaviors were correlated with less positive initiating joint attention skills, but their study did not directly look at maternal depression, and past research has shown that reliable joint attention cannot be measured in children until the age of 12 months (Mundy et al., 2007). Our study adds to the literature confirming that maternal depression is not a significant predictor of initiating joint attention. This indicates that even when mothers are exhibiting depressive symptoms, children continue to initiate interactive behaviors.

Another contribution of this study is that we examined the relationship between maternal depression and child language development. In addition to total language, we specifically looked at auditory comprehension and expressive communication subscales of the PLS-5 measure to examine the relation between maternal depression and these two different types of language. Maternal depression was not a significant predictor of total language, auditory comprehension, or expressive communication in our study. But previous work has shown a different story. A previous study (Paulson, Keefe & Leiferman, 2009) showed that depression is negatively associated with parent to child reading which would subsequently be related to child language development. Quevedo (2011) found that maternal depression has been shown to have a

significant negative relationship with language development in children at 12 months of age. Our study's differing findings suggest that maternal depression is not a factor when looking at language in this specific breakdown of auditory comprehension and expressive communication.

Our study found that only when accounting for SES, total language and expressive communication were significantly related to maternal depression, while auditory comprehension was not. Maternal depression only predicts poor language outcomes when SES is statistically controlled. This suggests that the relation between maternal depression and child language, particularly the child's expressive communication, is influenced by the family's SES status. Only after controlling for SES could the relation between maternal depression and child expressive communication be observed. A study by Stein (2007) found that when accounting for socioeconomic factors, maternal caregiving separate from maternal depression resulted in lower levels of language development, and the effect of maternal depression on the maternal quality of caregiving was stronger for less advantaged groups, demonstrating that maternal depression contributed to this relationship (Stein et al., 2007). Our study supports these findings, and shows that socioeconomic status could have significant implications on the relationship between maternal depression and language.

Our study did have some limitations. One of these limitations is that some of the participants in this study participated in an intervention targeting positive parenting. As a part of the BEST study, families participated in five total home visits. Half of the participants in the BEST study were randomly assigned to an intervention condition. The families who were assigned to the intervention group participated in positive parenting interventions between home visits three and four. Our data in this study were taken from families post intervention; thus the intervention could have impacted our results. We took the data post intervention due to research

stating that joint attention skills are not fully apparent until children reach 12 months of age (Mundy et al, 2007; Vaughan Van Hecke et al, 2007), which at the time of the post intervention videos, the majority of children were. Running our experiment without the intervention condition could contribute to a clearer relationship between key variables.

Another limitation comes from our data collection taking place in the home environment rather than a lab. Each home environment where we conducted our data collection had different variables that could distract the children in our study and affect their scores on our tasks. In a lab setting, you cut down the risk of situations such as another sibling intervening, or other such factors. It would be good to measure child joint attention and language skills in a controlled lab setting to cut down on outside influences and in order to see if the results still support our findings.

In our study, our use of crime rates per district as a measure of socioeconomic status can be seen as a limitation. While crime does not show a full picture into the status of our families, we felt that it was a way to gather comprehensive information on our families that did not carry researcher bias. Using a more comprehensive measure to look at how socioeconomic status impacts the relationship between child cognition and maternal depression would offer us a larger picture.

A limitation of any longitudinal study is the inability to find exact causation. In our particular study, looking at a variety of different factors that affect the parent-child relationship in a home setting does not allow us to run analyses other than regressions to find patterns. Due to the nature of our data being correlational, we cannot for sure determine our significant scores to be caused by maternal depression, only that our variables are highly related to maternal depression. While our relationship suggests strong patterns, we cannot be certain of causation.

Our study has contributed to the field by continuing the conversation about maternal depression's effect on children, and specifically in a population that is underrepresented. Future directions for this research include continuing to conduct studies on maternal depression as it affects joint attention when split into responding and initiating categories to gain a more complete picture of their effects and to confirm our findings. Another course of action would be to continue longitudinal research in underrepresented populations to see how culture and environment influence joint attention, seeing the other possible ways in which this crucial developmental feature can be affected. We hope our research continues the conversation as to why we need to focus our attentions on maternal depression and its impacts on child development.

VI: Conclusion

The Jesuit Mission

In writing my thesis, I thought a lot about why my topic of maternal depression and its effects on child cognition mattered, and how it fit into Regis' Jesuit Mission. Our university emphasizes the importance of using our education to serve the community at large. We specifically focus on the importance of our ideals such as being a man or woman for others, and being a contemplative in action. When I was deciding on my topic for my thesis, I paid particular attention as to how my work could contribute to the ideals in our mission.

Being passionate about child development, I knew I wanted to focus my thesis on an aspect of that field. When I was granted the opportunity of working with Dr. Watamura at the Child Health and Development Lab on my project, the door was opened for me to engage with a community of families whose stories are often not told within the scientific community. Science, and specifically psychology, has a history of collecting data from majority members of the society. Studies have long been focused on a middle to upper class, English speaking, western population. While the tide is changing in our field, there is still a stark difference in the amount of data we have from groups of people from different cultural and socio-economic backgrounds.

My study fits in with the Jesuit mission in that is aiming to tell a different side of the story of parent child relationships than what we are used to seeing. In the tradition of being men or women for others, this study was focused on advocating and bringing light to a population that is often ignored within our community. By my data being part of the BEST study, I have had the ability to run a scientific experiment that is focusing on a population of mother-child dyads from low socioeconomic and predominantly Hispanic backgrounds. My study is contributing to a

conversation of science that we need to pay attention to people of all diverse backgrounds to gain a more complete understanding of the human condition. We cannot simply focus on the data that is easiest to collect, we as researchers have a duty to seek out marginalized populations and help to tell their stories through our work.

I drew from the value of being a contemplative in action when choosing this topic for my thesis. I wanted to engage in a project that brought the ideals of helping others from a practice into a reality. I believe that my thesis topic has practical implications for bringing attention to the ways in which we as a society need to focus on maternal mental health. The more research conducted on the interactions between parents and children, the more information we have available to us to understand how we as a society can develop the tools necessary to support parents. My research shows that the state of maternal mental health has implications towards child cognitive development. My goal is to continue participating in research that informs the scientific community of the implications of this relationship, and from there impact the way in which we as a society treat maternal mental health and allocate resources to families in need.

My thesis aimed to answer a call to action from our Jesuit community. I wanted my work to have real implications in the realm of psychological science, and to comment on a problem that is highly relevant in our world today. I also wanted my thesis to highlight the values instilled in me by the honors program to constantly seek out new learning opportunities. Learning about the problems faced by a lack of attention on maternal mental health, especially in communities outside of the majority population has been an important lesson in my undergraduate career. I believe in this work, and I hope to continue finding answers to complex psychological issues which can then be used to inform others of the needs of our community. By combining all of

these goals together, I wrote a thesis that served brought my Jesuit education together with my research background and my honor's program ambitions.

For Honesty's Sake

I remember being a freshman student in the Honor's program and being completely overwhelmed by the idea of writing a thesis. On our first day of class, hearing everyone go around the room and talk about their accomplishments in high school, I felt that I had barely earned the right to be a part of the Honor's program. I remember thinking, "how could someone like me fit into a program like this? I have no idea what I'm doing". Those feelings of imposter syndrome went away for a while, only to flare back up whenever I was working on something big and important throughout my academic career.

Writing this thesis was hard for in that it drew upon my biggest insecurities when it came to academia. All those thoughts from my freshman class of not being enough came rushing back. My head was filled with thoughts such as, "Who am I to be writing this? I know so many more people who are more competent researchers and students. They should be telling this story, they should be doing this project. I'm just going to mess it up, and this work is too important for someone like me." The thought that someone else could and should be doing this project instead of me were pervasive and difficult to ignore. I believed in the value of my findings, and I believed that they should be shared, but I did not quite believe that I was the best person to get that message across.

Up until the end of this project, the doubts I had surrounding myself are what have held me back the most. I have had periods of time where I am frozen in place. I felt unable to work on my thesis, because I was sure that my work would be riddled with mistakes in need of correction.

And sure enough, every red mark on the pages handed back to me after editing felt like a punch in the gut. Again, thoughts surfaced about my incompetence in this line of work. It was too important, I was not able to tell this story and share this work in a competent and compelling way.

No one knows this thesis quite as well as I do. I know the choice behind every word, every decision to cut something out, and every addition made over time. I know which sections took me weeks and which ones took me hours. I can pinpoint how defeated I felt when I read back over what I was writing at those low moments. But no matter what was happening around me, with each new page there were feelings of victory over my progress. Writing a thesis is not for the faint of heart.

Coming from a space of complete honesty, there has not been a big moment of clarity for me surrounding my feelings of inadequacy. I still have days where I feel the shame, and I do not know why I decided to start in on this process. But something I have learned is that even on the days when it is hard to recognize, these feelings of inadequacy are inaccurate and do not serve any positive purpose. When you are so close to a project, it is incredibly hard to take a step back and realize that your work is of value. But at the end of the day, that is the truth. This project has taken so much of my time and energy and I have invested countless hours in its success. When you attach yourself to something you are passionate about, it is easy to see all of its flaws. Putting this work out there for the world to see takes a large amount of courage. You have to let yourself be vulnerable.

In letting myself be vulnerable through my writing this thesis, I have opened the doors for my work to be received by others. And in putting my work out for the public to see, I am aware that I could receive feedback that points out the flaws I have tried to carefully to hide away.

Theodore Roosevelt once said, “It is not the critic who counts… The credit belongs to the man who is actually in the arena, who knows the great enthusiasms, the great devotion, and who spends himself in a worthy cause. If he fails, at least he fails while daring greatly”. I am coming to this public unveiling of my thesis with the words of Roosevelt in mind; only those who have been through this process can see my work for what it is and judge it with the knowledge of their own experience. I believe this thesis that I have written is of a worthy cause, and therefore I believe that my time spent in the arena, wrestling with self-doubt and data collection, was worth taking the risk of being vulnerable.

	N (%)	Mean	SD	Range
Age	64[a]			
Child Age (months)		29.406	10.104	(10.0-51.0)
Mom Age		33.016	6.189	(20.0-50.0)
Child Sex	65			
Male	38, 58.5%			
Female	27, 41.7%			
Race	65			
White/Caucasian	52, 80%			
African American/Black	4, 6.2%			
African American/Native Indian/ Alaska Native	1, 1.5%			
Other Pacific Islander	1, 1.5%			
Biracial/Multiracial	6, 9.2%			
Ethnicity	65			
Not Latino	15, 23.1%			
Latino/a	50, 76.9%			
Language	64[a]			
English	15, 23.1%			
Spanish	28, 43.1%			
Both	21, 32.3%			
Net Income	64[a]	$23,642.35	$12,967.22	($6,140.40-$69,501.25)
Amount of People Living in the Home	64[a]	5.0156	1.9395	(2-12)

Table 1. Descriptives

a= missing data due to incomplete information at home interview

	1	2	3.	4	5	6	7	8	9
1. Post Initiating Joint Attention	-	.262*	-.137	-.233	.234	-.282*	-.181	.126	.402**
2. Post Responding to Joint Attention		-	-.246	.016	.201	-.152	-.243	.000	.410**

Table 2. Correlations Among ESCS Variables

Note: **= $p \leq .01$, *= $p \leq .05$

N = 65

(1. Post Initiating Joint Attention, 2. Post Responding to Joint Attention, 3. Maternal CESD score, 4. Crime Score, 5. Free Play Sensitivity, 6. Free Play Intrusiveness, 7. Free Play Detachment, 8. Child Sex, 9. Child Age)

Dependent Variable	Independent Variable	Standardized beta	*t*	*p*	R^2
Initiating Joint Attention	Age	.396	3.319	.002	.147
	CESD	-.150	-1.260	.213	.147
	Age	.375	2.765	.008	.124
	CESD	-.117	-.863	.392	.124
	SES	-.197	-1.473	.148	.124
	Age	.431	3.312	.002	.138
	CESD	-.179	-1.437	.156	.138
	Sensitivity	-.118	-.882	.381	.138
	Age	.368	2.801	.007	.129
	CESD	-.146	-1.195	.237	.129
	Intrusiveness	-.056	-.424	.674	.129
	Age	.380	3.017	.004	.127
	CESD	-.141	-1.098	.277	.127
	Detachment	-.037	-.285	.777	.127
Responding Joint Attention	Age	.439	3.871	.000	.171
	CESD	-.261	-2.303	.025	.228
	Age	.406	3.037	.004	.148
	CESD	-.260	-1.947	.058	.148
	SES	-.039	-.296	.768	.148
	Age	.463	3.736	.000	.218
	CESD	-.276	-2.317	.024	.218
	Sensitivity	-.061	-.484	.631	.218
	Age	.471	3.797	.000	.221
	CESD	-.270	-2.331	.023	.221
	Intrusiveness	.081	.651	.518	.221
	Age	.450	3.770	.000	.216
	CESD	-.272	-2.242	.029	.216
	Detachment	.036	.287	.775	.216

Table 3. Regressions among Joint Attention variables

	1	2	3.	4	5	6	7	8	9	10
1. Total PLS-5 Language Score	-	.915**	.901**	-.105	-.078	.334*	-.195	-.271*	.129	.221
2. Expressive Communication Score		-	.664**	-.154	.001	.395**	-.321*	-.286*	.004	.267*
3. Auditory Comprehension Score			-	-.014	-.110	.122	-.009	-.228	.230	.154

Table 4. Correlations Among PLS-5 Variables

Note: **= $p \leq .01$, *= $p \leq .05$

N = 65

(1. Total PLS-5 Language Score, 2. Expressive Communication Score, 3. Auditory Comprehension, 4. Maternal CESD, 5. District Crime Score, 6. Free Play Sensitivity, 7. Free Play Intrusiveness, 8. Free Play Detachment, 9. Child Sex, 10. Child Age)

Dependent Variable	Independent Variable	Standardized beta	*t*	*p*	R^2
Total PLS-5 Language	Age	.260	1.946	.057	.043
	CESD	-.129	-.966	.339	.043
	Age	.411	2.854	.007	.200
	CESD	-.364	-2.520	.016	.200
	SES	-.091	-.642	.525	.200
	Age	.164	1.165	.249	.085
	CESD	-.092	-.697	.489	.085
	Sensitivity	.261	1.849	.070	.085
	Age	.226	1.603	.115	.035
	CESD	-.122	-.906	.369	.035
	Intrusiveness	-.108	-.766	.447	.035
	Age	.179	1.188	.240	.048
	CESD	-.093	-.678	.501	.048
	Detachment	-.174	-1.140	.260	.048
Expressive Communication	Age	.300	2.288	.026	.079
	CESD	-.181	-1.382	.173	.079
	Age	.435	3.066	.004	.222
	CESD	-.389	-2.736	.009	.222
	SES	-.018	-.131	.896	.222
	Age	.180	1.332	.189	.156
	CESD	-.135	-1.065	.292	.156
	Sensitivity	.325	2.401	.020	.156
	Age	.225	1.662	.103	.116
	CESD	-.165	-1.281	.206	.116
	Intrusiveness	-.242	-1.794	.079	.116
	Age	.226	1.522	.134	.081
	CESD	-.148	-1.099	.277	.081
	Detachment	-.160	-1.068	.291	.081
Auditory Comprehension	Age	.181	1.344	.185	-.003
	CESD	-.033	-.249	.805	-.003
	Age	.290	1.891	.066	.054
	CESD	-.216	-1.408	.167	.054
	SES	-.094	-.621	.538	.054
	Age	.166	1.139	.260	.001
	CESD	-.019	-.136	.892	.001
	Sensitivity	.119	.815	.419	.001
	Age	.233	1.635	.108	-.006
	CESD	-.042	-.311	.757	-.006
	Intrusiveness	.080	.567	.573	-.006
	Age	.132	.865	.391	.011
	CESD	.000	.000	.999	.011
	Detachment	-.169	-1.100	.276	.011

Table 5. Regressions among Language variables

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