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Adolescent Mothers' Implementation of Strategies to Enhance Their Children's Early Language and Emergent Literacy Skills

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ADOLESCENT MOTHERS' IMPLEMENTATION OF STRATEGIES TO ENHANCE THEIR CHILDREN'S EARLY LANGUAGE AND EMERGENT LITERACY SKILLS

by

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ABSTRACT

Previous studies have examined how the language skills of children with adolescent mothers differs from children of older mothers. However, there is limited information on what specific strategies adolescent mothers utilize to increase early language and emergent literacy skills in their children. The aim of the present study is to examine adolescent mothers' use of strategies to increase the early language and emergent literacy skills of their young children. A sample of 14 adolescent mothers enrolled in a teen parenting program were surveyed on their use of common strategies that are shown to facilitate early development of language and literacy skills in young children, and they provided a self-report of their child's language development using a norm-referenced tool. A researcher developed questionnaire was used to determine the frequency of strategies used by the adolescent mothers. The MacArthur Bates Communicative Development Inventories were used to gather child language development data to compare with the frequency of strategy usage. The measures were analyzed with ANOVAs, Pearson Correlations and Spearman's rank-order correlations to determine the significance and relationship between variables. Adolescent mothers were found to generally score low on the Self-Assessment of Language and Literacy Implementation (SALLI), with deficits specifically in the areas of Directiveness and Home Environment. The CDIs showed that the children were reported to have below average language development, and their scores were significantly related to aspects of the adolescent mother's reported implementation.

Keywords: adolescent motherhood, child development, language, literacy

TABLE OF CONTENTS

LIST OF TABLES

Literature Review

The United States has a higher adolescent birth rate than other first world countries, including 1 in 6 adolescent females ages 15-19 having more than one child (US Department of Health and Human Services, 2016). Children of adolescent parents score lower on both literacy and math skills before kindergarten than children born to older parents, and are 2-3 times more likely to be uneducated and poor in early adulthood (Fagan & Lee, 2013; Jaffee, Caspi, Moffitt, Belsky & Silva, 2001). Significant differences in measures of early language expression and comprehension between children of adolescent mothers and children of older mothers appear before age 3, with some studies showing differences as early as 18 months (Huang, Costeines, Kaufman, & Ayala, 2014; Keown, Woodward & Field, 2001). It has been consistently found that adolescent mothers tend to be less verbally stimulating and less responsive towards their children (Emery, Paquette, & Bigras 2008; Keown et al., 2001). Adolescent mothers who are less verbally stimulating to their children are putting them at an early disadvantage for language skills and vocabulary growth (Hart, & Risley 2003; Masur, Flynn, & Eichorst, 2005). This finding highlights the importance of educating adolescent mothers on how to provide language opportunities during daily routines, thereby allowing their children the ability to develop their language and literacy skills.

A review of the relevant literature is presented to support the significance of the problem of adolescent mothers' disadvantage in supporting their children's language and emergent literacy development. The prevalence of adolescent motherhood in the United States is outlined, as well as the occurrence for black, Hispanic, and white females. Next, the impact of adolescent

motherhood on their child's development will be described. Common risk factors such as maternal depression, lower education levels, and high parenting stress will be related to poorer child outcomes. Finally, the importance of early child language and emergent literacy skills will be reviewed to emphasize the implications of adolescent motherhood on early child development. Specific strategies such as reading aloud, providing opportunities for language in a range of contexts, and using child-directed play to encourage early language and emergent literacy skills will be discussed and supported.

Prevalence of Adolescent Motherhood

In 2015, more than 229,000 babies were born to adolescent mothers in the United States (Hamilton, Martin, & Osterman, 2016). Although this trend is gradually decreasing, the United States consistently has a higher teenage birth rate than other developed countries (US Department of Health and Human Services, 2016). Globally, about 16 million women aged 15-19 give birth each year, primarily in developing countries (World Health Organization, 2016). According to the data from US Department of Health and Human Services (2016), teenage mothers are defined as adolescents 15-19 years of age. Birth rates for adolescents ages 10-14 years were about 2,500 in 2015, however, most data focuses on ages 15-19 years because of the high prevalence within that age group (US Department of Health and Human Services, 2016). Daughters of adolescent mothers are 66% more likely to become teenage mother themselves, therefore creating a multigenerational cycle. This cycle may be attributed to lower parental monitoring, poor school performance, and fewer resources given to the children of adolescent parents (Meade, Kershaw, & Ickovics, 2008). Due to these statistics, research should not only focus on preventing teen pregnancy, but it must also emphasis supporting adolescent mothers and their children (Jaffee et al., 2001). The prevalence of adolescent motherhood in the United States remains a concern, especially when examining the specific patterns in which they arise.

Prevalence of Adolescent Motherhood across Populations

The frequency of adolescent motherhood varies across different races and ethnicities. Since 1996, Hispanic adolescent females have had the highest birth rate, followed by black adolescent females, and finally white adolescent females. In 2014, the birth rates (per 1,000 females) for each race were 38, 34.9, and 17.3, respectively (US Department of Health and

Human Services, 2016). Furthermore, based on the 2014 National Vital Statistics Reports, 17% of Hispanic females will give birth as a teenager, as well as 16% of black females and 8% of white females (US Department of Health and Human Services, 2016). Overall, Hispanic and black females are more likely to become pregnant as teenagers compared to white females. The high birth rate for Hispanic adolescents may be influenced by cultural family values. In some Hispanic cultures, motherhood is an ideal gender role that gives women status and fulfillment (Meade et al., 2008). Despite slight differences in prevalence across populations, there are still consistent issues among adolescent mothers that must be examined.

Factors Influencing Children of Adolescent Mothers

Maternal Depression

Adolescent mothers ages 19 or younger are found to report depression more frequently compared to adult mothers ages 22-35 (Lanzi, Bert & Jacobs, 2009). Maternal depression in adolescent mothers can have an adverse effect on early child development. Although maternal depression can be found in both older parents and adolescent mothers, adolescent mothers are more likely to experience depression because of their added social and economic stress. This is especially true in black and Hispanic adolescent mothers (Campbell-Grossman et al., 2016; Huang et al., 2014). Children of mothers with depression are less likely to reach their developmental milestones at the appropriate time and also may have difficulty forming secure bonds with their mothers (Field et al., 1996). A study by Huang and colleagues (2014) showed that infants of adolescent mothers with maternal depression demonstrated developmental delays by eighteen months of age.

Researchers also found that as depression increased, maternal parenting behaviors decreased, including general verbalness and contingent responsiveness (Lanzi et al., 2009). Decreased responsiveness by the mothers can have detrimental effects on their children's language development, as quantity and quality of verbal input for young children are related to early language development (Hart & Risley, 2003). In a study by Field and colleagues (1996) mothers with depression were found to discourage exploratory play with their children, consistent with other studies that show that depressed mothers interact less with their children (Lanzi et al., 2009).

Education Level and Parenting Stress

Adolescent motherhood is associated with decreased education levels. Although there has been an increase in assistive programs for adolescent mothers, they remain educationally disadvantaged when compared to age-matched peers who delay childbearing (Hofferth, Reid & Mott, 2001; Levine & Painter, 2003). Only 30% of adolescent mothers obtain a high school diploma by age 30 compared to 85% of women who delay childbearing (Hoffman & Maynard 2008). Adolescent mothers who drop out of high school are less likely to have a steady income, and only earn about 58% of the income of age-matched woman who delay childbearing (Barnet, Arroyo, Devoe, & Duggan, 2004; Hoffman & Maynard, 2008). These factors combined lead to increased levels of stress that can affect multiple stages of their child's development.

Influences on development at infancy. Maternal education begins to play a role even before childbirth in terms of prenatal care and the impact on the developing fetus. Education level remains to have a crucial influence on child development after birth and throughout infancy (Koniak-Griffin & Turner-Pluta, 2001). In fact, there is evidence that a strong predictor of infant security is mothers' years of education, overall intelligence and readiness to parent (Emery et al., 2008; Lounds, Borkowski, Whitman, Maxwell & Weed, 2005; Sommer et al., 2000). Additional factors such as parenting stress and social support were also found to be significantly associated with a secure-infant attachment (Emery et al., 2008). Since adolescent mothers are more likely to have a lower education level than older mothers and are subsequently associated with higher levels of stress, this can affect the strength of their mother-infant attachment (Emery et al., 2008; Huang et al., 2014). Likewise, a study by Ayoub and colleagues (2009) found that maternal

education less than high school level was associated with a decline in the cognitive skills of their infants. This contributes to the indication that adolescent mothers are at a disadvantage during their child's infancy due to the difficulty to continue their education and its associated risk factors negatively affect infant attachment (Emery et al., 2008). A study by Elardo, Bradley and Caldwell (1977) found significant associations between environmental stimulation as measured by the Home Observation Measures of the Environment scales, and child language development. These associations began at as young as 6 months old, and the strength of the correlations increased as the children got older (Elardo et al., 1977).

Providing enriching environments in early childhood. Adolescent mothers are at a greater risk for not completing school than women who delay childbearing (US Department of Health and Human Services, 2016). A study by Burgess (2005) measured the at-home literacy environments of mothers and their preschool children. Overall, adolescent mothers provided less opportunities for literacy development with their children when compared to older mothers in the same study. Specific differences included less parent modeling of reading, poorer vocabulary exposure, and greater exposure to television, and this disadvantage was significantly related to education level (Burgess, 2005). This study provides evidence that poorer language and literacy environments for young children are due to the limited resources and education which are common issues in adolescent motherhood (Burgess, 2005). Researchers suggest that adolescent mothers have difficulty providing developmentally enriching language opportunities at home (Mollborn & Dennis, 2011). This decreased language and literacy environment is likely to lead to poorer school performance as their children progress through school, often leading to early

dropout (Burgess, 2005; Jaffee et al., 2001). Adolescent mothers with lower education levels will also have less individual print exposure, and this can negatively impact the way that their children gain literacy skills through incidental learning and observation (Stainthorp & Hughes, 2000).

Importance of Early Childhood Language and Emergent Literacy Skills

Early language and literacy skills in preschool children are strong predictors of stable reading, writing, and overall academic skills in elementary school (Biemiller 2003; Lonigan & Shanahan, 2009; Oxford & Spieker 2006). A literature review by Oxford and Speiker (2006) found four maternal behaviors that were advantageous to child language development: maternal responsiveness (Tamis-LeMonda, Bornstein, & Baumwell, 2001), nondirective parenting style (Murray & Hornbaker, 1997), stimulating home environments (Morisset, Barnard, & Booth, 1995), and stimulating maternal speech (Hoff-Ginsberg, 1990). These four behaviors will be examined in depth to determine how they can impact child language development. These parenting behaviors will be labeled as: Responsiveness, Directiveness, Home Environment, and Stimulation.

Responsiveness

Increasing the rate of maternal behaviors can have a positive effect on child language and emergent literacy development. Maternal responsiveness refers to Maternal responsiveness has been found to be a predictor of children reaching their language milestones at an appropriate time (Tamis-LeMonda et al., 2001). Beginning in infancy, maternal responsiveness is intertwined with joint attention, and the degree of maternal responsive language has been found to be a predictor of early child language skills (Carpenter, Nagell, Tomasello, Butterworth & Moore, 1998). Constructive instances of maternal responsiveness include imitations, descriptions, demonstrations, affirmations, and exploratory prompts (Tamis-LeMonda et al., 2001). By increasing these types of responses, adolescent mothers can elicit more language from their children.

Directiveness

Maternal behaviors can influence the type of language opportunities that children are involved in. An important aspect of supportive home environments is the amount of directing by the mother. Unfortunately, adolescent mothers have been found to be more likely to direct their children, therefore giving them less opportunities to question or comment on their environment (Keown et al., 2001). In a study by Schmitt and colleagues (2011) a negative correlation between maternal redirection and child expressive language was found. Examples of maternal directiveness include using physical guidance to control their child during play and persistently demanding behaviors from their child (Murray & Hornbaker, 1997). This is consistent with another study by Landry, Smith, Swank and Guttentag (2008) suggesting that avoiding maternal redirection can increase children's language development and engagement.

Home Environment

There are a variety of strategies that can be used by mothers to change the nature of mother-child involvement and increase early language and emergent literacy development in young children. Such strategies include reading aloud and providing opportunities for language in a range of contexts (Baumwell et al., 1997; Elley, 1989; Wood, 2002). A study by Wood (2002) provided evidence that the most effective way to increase emergent literacy skills was to provide a variety of at-home activities, rather than focusing exclusively on one aspect of development. Different activities stimulate various aspects of language and emergent literacy development. Storybook reading increases vocabulary and child reading attainment, while singing activities increase rhyme awareness (Wood, 2002). Multiple studies have shown that the

success of language and emergent literacy strategies lies not in the frequency of activities, but in the variety of environments in which they occur (Schmitt et al., 2011; Wood, 2002). By simultaneously adjusting the types of interactions that adolescent mothers have with their children and incorporating activities that promote language and emergent literacy, adolescent mothers can help their children develop appropriate skills that will benefit them before and during their school-aged years.

A strong home literacy environment has been shown to increase vocabulary and reading comprehension, especially when included with child-directed activities (Kim, Im, & Kwon, 2015; Steensel, 2006). Not only should mothers exposure their children to early literacy by reading to them, but parents should also model positive literacy behaviors such as reading for pleasure, talking about books, and visiting the library together (Umek, Podlesek, & Fekonja, 2005). Providing enriching home literacy environments starting during infancy can have a positive influence on toddler language production (Schmitt et al., 2011).

Stimulation

Maternal Stimulation of cognition and language is an important aspect of early language and literacy development. Brady-Smith et al. (2000) examined maternal stimulation as one of their parent-interaction rating scales for a 36-month assessment. Brady-Smith defines maternal stimulation as the mother's understanding of her child's developmental level, and therefore always encouraging the child's language to be up to that standard. Stimulation can be done in any setting. An example of moderately stimulating behavior from the parent-interaction rating scales is expanding on actions (e.g. "Yes, you can put the food in the basket") while a highly

stimulating behavior would be relating the child's play activity to their own experiences (e.g. "you are playing with a toy banana just like the one you ate yesterday") (Brady-Smith et al., 2000). To be stimulating, the parent has to be aware of the child's developmental language needs and actively working to enhance those needs. Keown, Woodward & Field (2001) found a statistically significant difference between the amount of verbal stimulation that adolescent mothers give to their children compared to older mothers. In that study, adolescent mothers provide less complex language and cues when interacting with their children. Less verbal stimulation during play can have a negative influence on preschool language outcomes (Keown, Woodward & Field, 2001).

Purpose

The aim of the present study is to examine adolescent mothers' use of strategies to increase the language and emergent literacy skills of their young children. Given the importance of early child language and literacy development, it is necessary to examine how adolescent mothers perceive they are using language and literacy strategies when interacting with their children. While there are some studies that have focused on the language development of children of adolescent parents versus children of older parents, none were found that examine the specific language and literacy strategies used by mothers to promote the language and emergent literacy of their children. The present study will add to the literature by evaluating what specific strategies should be taught to adolescent mothers to increase their children's overall language and emergent literacy skills, and what potential factors can influence these strategies.

Research Questions

Research Question One

What specific strategies are implemented by adolescent mothers to enhance their young child's early language and emergent literacy skills?

Research Question Two

What are the relationships between (a) adolescent mothers' age at their child's birth, years of formal schooling, whether they live with their parents, race/ethnicity, reported depression, maternal family background and (b) their reported implementation of strategies to increase language and emergent literacy with their children?

Research Question Three

What are the relationships between adolescent mothers' report of their child's language level and use of single words, phrases and sentences and their reported implementation of strategies to increase language and literacy skills with their children?

Methods

A quantitative within and between-subjects design was used to answer the three research questions. The University of Central Florida Institution Review Board approved this study before any procedures took place. Adolescent mothers with children ages birth-3 years were recruited from students currently enrolled in the United Cerebral Palsy (UCP) BETA Center Teen Parent Program. Participants were asked to complete three items: (a) demographic information on themselves and their child, (b) a survey of their implementation of language and literacy strategies, and (c) a standardized checklist of their child's language development. Out of the 20 participants who consented to be in the study, 14 completed all three items.

Participants

Results are presented for the 14 adolescent mothers who completed all three survey materials within the two-day visit to UCP BETA Center. Adolescent mothers enrolled in this study attended high school at the UCP BETA Downtown campus and attend parenting elective classes and parenting labs in addition to regular public school courses. Adolescent mothers were defined as mothers 19 years of age or younger at the time of their first child's birth. Of the 20 participants that agreed to take part in the study, four participants returned unfinished surveys and were therefore excluded from the data analysis. Two additional surveys were not returned.

Demographic information was collected on age, race, SES, family background, and pregnancy. The mean age of the adolescent mothers at the time of the survey was 17.09 years (*SD* = 1.14) with a range of 15 to 19 years. The mean age of the adolescent mothers at the birth of their child reported to be 16.28 years (*SD* = 1.20) with a range of 14 to 18 years. See Table 2 for additional adolescent mother demographics.

Procedures

Following IRB approval, the researchers visited the classrooms with one of the school counselors to meet the students and review the study procedures and consent forms. There were two classes, one with parents of toddlers and the second classroom contained students with infants. On the first visit, the student PI gave a verbal summary of the research goals and procedures, and then explained the consenting process. For adolescent mothers under the age of 18, consent forms explaining the study were sent home requiring a parent or guardian's signature. For adolescent mothers 18 years of age or older, an explanation of research document was given out but no signature from the parent or guardian was required. Out of the 35 students enrolled at the BETA center, 29 were eligible to participate in this study based on inclusion criteria that the participants must currently have a child. The 6 excluded students were currently pregnant and thus did not meet the inclusionary criteria for participation in the study. Consent forms were collected from the school counselors and obtained by the researchers on the second visit. Twenty students (70%) consented to participate. The nine students who did not participate either did not return their consent form or did not express interest in the study.

Each consented participant completed a survey to assess their use of strategies to encourage early language and emergent literacy skills. On the second visit to the BETA Center, the student PI collected all the returned consent forms from the school counselor and distributed survey instruments. The survey was given in two groups. The first group contained adolescent mothers with toddler aged children. The researchers attended their class for 48 minutes, and then switched to a different classroom that contained adolescent mothers with infants to present the survey materials. The student researcher presented the demographic forms and the SALLI to the adolescent mothers, and then gave out the MacArthur-Bates depending on the specific ages of each participant's child. Before the adolescent mothers began filling out the survey materials, the researcher noted that the participants were not required to answer any question that they did not feel comfortable answering, and the adolescent mothers were reminded that all information would be kept confidential. The researchers answered questions about the survey materials as needed throughout the session. Students who had difficulty with reading English were assisted by the school counselor. The school counselor had no prior training on the content of the study materials, therefore any translations given were not predetermined by the researchers. After administering the survey on day one, the researchers came back the next day so that the participants who did not complete all three items on the first day could complete the surveys. Folders containing survey materials were collected after day one and redistributed to students on day two so that they could be completed. No folders were left in the possession of the participants overnight. Seven of the participants completed their survey materials on the first day, with an additional seven completing materials on the second day.

Setting

The BETA Center at the UCP Downtown Campus is located in an urban city in the southeastern United States and is a non-profit organization offering services to teenage mothers and at-risk families. The BETA Center is an optional high school program for pregnant and parenting adolescents. Adolescents may choose to enroll at the BETA Center or continue their degree at their "home school", i.e., the high school that they were attending before the pregnancy. The survey was conducted in a classroom during their regular schedule. There were two different classrooms that the research was conducted in, one for mothers with toddlers, and the second for mothers with infants. The classrooms were divided so that the adolescent mothers could rotate between having lunch and having a play lab and/or parenting classes based on the age of their child. Therefore, the group of girls with toddlers were seen at one time, and the group of girls with infants were seen afterwards.

Measures

Survey materials included a standardized child language checklist for children ages birth to three, a researcher-developed tool, and demographic information. The standardized tests were selected for their validity, reliability, and the criteria for the assessments to be self-reported as opposed to objective. The researchers chose to include self-reported assessments instead of child language samples because of the exploratory nature of the study design. Self-reported assessments, while subjective, provided an indication of the adolescent mother's knowledge of their child's development. The researcher developed tool was used to gather information on

specific parenting strategies that target language and literacy, as there were no standardized tests that commonly report this information.

Mother-child characteristics. The adolescent mothers completed a demographic questionnaire to gather information related to themselves and their child (See appendix A). For the adolescent mothers, demographic information included the adolescent mother's education level, employment, race/ethnicity, age at their first child's birth, languages spoken at home and any previous training on parenting and child development (See table 2). Additionally, the mothers were asked to report information about their pregnancy, including prenatal care, birth weight, and any reports of postpartum depression. Descriptive data for the children included the child's age and ethnicity/race (See table 3). Information was also collected on the child's birth, medical diagnoses and medications, and receipt of special services (i.e., speech-language, physical or occupation therapies, counseling, and special education) (See appendix B).

Maternal family background. A questionnaire was used to gather information on the adolescent mother's own developmental background. The questionnaire was created based on studies that have shown the effect that background has on early parenthood. Previous research on the multigenerational teen parenthood cycle suggests an association between the mother's family background and her own parenting style (Meade et al., 2008). Specific variables examined included: (a) the maternal grandmother's highest education, (b) the maternal grandmother's age at first childbirth, (c) the relationship between the adolescent participant and her mother. The adolescent participant-mother relationship questionnaire was developed based on past studies that had collected similar information using questions that evaluate the strength of the adolescent's relationship with her mother (e.g. "Do you consider your mother a role model?")

Similar variables were assessed by Oxford and Spiker (2006). The relationship between the adolescent participant and her mother was assessed using a 4 question, 5 point Likert scale questionnaire.

Self-Assessment of Language and Literacy Implementation (SALLI). A researcher-developed questionnaire created for this study was used for the mothers to report their use of strategies to promote language and emergent literacy with their child. A review of the literature guided selection of strategies that have been shown to support the early language and emergent literacy skills of children. The survey included four maternal behaviors that were found to increase child language development: maternal responsiveness (Tamis-LeMonda, Bornstein, & Baumwell, 2001), nondirective parenting style (Murray & Hornbaker, 1997), stimulating home environments (Morisset et al., 1995), and stimulating maternal speech (Hoff-Ginsberg, 1990). The four behaviors were labeled Responsiveness, Directiveness, Home Environment, and Stimulation. Each of the four behaviors had five questions associated with them to determine the overall strength of that behavior. The survey was developed by adapting previously used questionnaires that evaluated each of the above mentioned behaviors. The questions on home language/literacy environment were adapted from the Home Literacy Environment Questionnaire (HLEQ) by Umek and colleagues (2005), while questions on Responsiveness, Directiveness, and Stimulation were adapted from the Self-Assessment of Language Facilitation Practices for Preschool Teachers created by Wilcox, Murphy, Bacon, and Thomas (2000), and the Child-Parent Interaction Rating Scales for the Three-Bag Assessment: 36-month Wave (Brady-Smith et al., 2000). Each behavior had five questions that were assess on a 5 point Likert frequency scale. The scale ranged from “never” to “one or more times daily” (See appendix C).

Four of the questions were inverted to prevent any reporting bias (Questions 2, 5, 9, 13) and the scores were inverted prior to data analysis. The SALLI was developed primarily for children 9 months of age or older, who are beginning to use early gestures or words.

Child language development. The MacArthur-Bates Communicative Development Inventories (CDI, Fenson et al., 2007) were selected to measure young children's language skills. The CDIs are parent-reported questionnaires for children ages 8-30 months. The MacArthur-Bates CDI: Words and Gestures was used for children ages 8-18 months and the CDI: Words and Sentences was used for children ages 16-30 months. The CDI III was used as an extension for children over 31-37 months of age. The CDIs were chosen for their inclusion of a wide age range, self-reporting style, and validity. The validity of the MacArthur-Bates CDI has been widely reported. Validity studies have presented evidence that the MacArthur-Bates inventory is effective at identifying children with lower and higher language abilities and discriminating between typically developing children and children with language impairments due to the specificity and sensitivity of the inventory (Heilmann, Weismer, Evans & Hollar, 2005; Skarakis-Doyle, Campbell, & Dempsey, 2009). Furthermore, when reporting children from families of low socioeconomic status, the MacArthur-Bates is still a valid measure. The newest edition of the CDIs used for this study was composed with more non-white participants than the first edition, including mothers who completed 12 years of schooling or less, and expanded geographically to include a more diverse population (Fenson et al., 2007).

Furthermore, Fenson and colleagues (2007) stated that the CDIs may be used to assess children whose chronological age exceeds the limits of the checklist when their language skills are comparable to that age group. Studies have shown validity of using the Words and Sentences

CDIs for children ages 39-49 months when their language does not developmentally match their chronological age norms, such as in children with language delays or developmental delays (Thal, O'Hanlon, Clemmons & Frailin, 1999; Yoder, Warren & Biggar, 1997). These findings report that in this case, the CDI scores of the older children can be described validity if they are below or at the median for the oldest group in the norming sample. For the children in this study over 30 months of age, both of their scores fell below the median scores for a 30-month old child.

Data Analysis

All of the participant's information was de-identified and assigned a number when put into a database. The researcher scored the CDIs according to the standardized information provided in the manual. Data was analyzed using SPSS software (SPSS; IBM, 2011). The demographic characteristics of both the adolescent mothers and their children are presented using descriptive statistics to summarize the characteristics of the participants. Further statistical analysis answered each specific research questions.

Research Question One. Descriptive statistics including mean and standard deviation were used to examine the scores on the researcher-developed Self-Assessment of Language and Literacy Implementation (SALLI). Descriptive statistics were also run on the SALLI for each question and by question category (Responsiveness, Directiveness, Home Environment, Stimulation), and the total score, as well as to describe differences between groups.

Research Question Two. Pearson correlations examined the relationships between multiple variables such as mother's age, living situation conditions [living with biological mother ($n = 8$) or living with other ($n = 3$)], and total score on the SALLI. Pearson's bivariate

correlations examined the relationships between multiple variables such as (a) adolescent mothers' age at their child's birth, year in school, living conditions, race/ethnicity, reported depression, maternal family background, and (b) their reported implementation of strategies to increase language and communication with their children. ANOVAs were used to determine the significance of the differences. Results on the researcher-developed SALLI were analyzed and bivariate correlations were used to examine relationships between the overall total score on the SALLI and various demographic background information. ANOVAs were conducted to compare the effect of the adolescent mother's age, years in high school, living conditions [living with biological mother ($n = 8$) or living with other ($n = 3$)], race/ethnicity, total maternal background score, and reported depression (none, mild, moderate, or severe) on the implementation total score to determine if there were any significant differences between these groups.

Research Question Three. Pearson correlations were used to examine the relationships between adolescent mothers' report of their child's language development and their reported implementation of language and literacy strategies with their child. Pearson bivariate correlations were used to measure the strength of the relationships and an ANOVA was used to determine the significance of the differences. A Spearman's rank-order correlation was run to determine the relationship between non continuous percentile scores on the CDIs, while Pearson Correlations were run to analyze the raw scores on the CDIs. To analyze this research question, the data was divided into groups based on the children's age and version of the CDIs that their mother completed. For this question, children younger than 8 months ($n = 5$) were excluded because the CDIs do not provide standardized scores for this age group. Furthermore, children age 16-30 months and children age 31 months or older were collapsed into one group in order to correlate

scores to the SALLI. For the purpose of data analysis there were two group of child ages; 8-15 months at the time of survey (*n = 3*), and older than 15 months at the time of survey (*n = 6*). Five children younger than 8 months were excluded from analysis. Adolescent mothers of children age 8-15 months reported their child's language development using the Words and Gestures CDIs. Adolescent mothers of children age 16 months or older reported their child's language development using the Words and Sentences CDIs.

The MacArthur Bates CDIs were analyzed using both the raw scores and the percentiles. The groups were divided by child's age (less than 8 months, 8-15 months, 16-30 months, and older than 30 months) in order to analyze the data within these ages. Participant data of children less than 8 months old was excluded from this analysis because the MacArthur-Bates does not offer norms for children under 8 months. Participant data for 16-30 months and older than 30 months were collapsed into one group for data analysis because of the small sample size. A Pearson's bivariate correlations were used to determine correlations between total scores on the SALLI and raw scores from the CDIs. Spearman's rank-order correlation was used for non-continuous percentiles on the child development inventories. A Univariate Analysis of Variance (ANOVA) was used to determine between subject factors.

CDI III. For the purpose of data analysis, the extension for children age 31 months or older was combined into the 16-30 month group to provide a more appropriate sample size. The two participants with children age 31 months or older completed both the Words and Sentences checklist as well as the CDI III so their scores could be compared in either group.

Table 1

Adolescent Mother-Child Dyad Demographics

Dyad	Age Group	Mother Age (years)	Child Age (Months)	Race/Ethnicity	SALLI Score
1	<8 months	17	4	Hispanic	n/a
2	<8 months	16	6	Black	n/a
3	<8 months	17	2	Multiracial	n/a
4	<8 months	17	5	Hispanic	n/a
5	<8 months	18	6	Black	n/a
6	8-15 months	15	14	Hispanic	82
7	8-15 months	19	10	Black	51
8	8-15 months	18	15	Black	82
9	16+ months	17	25	Black	68
10	16+ months	17	17	Black	66
11	16+ months	16	20	Multiracial	67
12	16+ months	19	35	Black	n/a
13	16+ months	18	18	Black	57
14	16+ months	17	40	Haitian	98

Table 2

Adolescent Mother Characteristics (*N=14*)

Characteristic	N	%
Year in High School		
10th grade	2	14.30
11th grade	11	78.60
12th grade	1	7.10
Race/Ethnicity		
Black	8	57.10
Multiracial	2	14.30
Hispanic	3	21.40
Haitian	1	7.10
Language spoken at home		
English	7	50.00
Spanish	2	14.30
English and Spanish	2	14.30
English and Creole	1	7.10
English and Patois	1	7.10
Haitian Creole French	1	7.10
Full-Term Pregnancy (37-40 weeks)	13	98.85
Premature Pregnancy (< 37 weeks)	1	7.14
Current Parenting Class at BETA		

None	3	21.40
Health for Expectant Parents	4	28.60
Parenting 1	5	35.70
Parenting 2	2	14.30
Taken other parenting courses	2	14.30
Currently employed	4	28.60
Annual Family Income ($)		
Less than 25,000	5	35.70
25,000-49,999	2	14.30
50,000-74,999	1	7.10
Not reported	6	42.90
Prenatal care during pregnancy	14	100.00
Depression		
No Depression	8	57.10
Mild Depression	4	28.60
Severe Depression	2	14.30

Table 3

Demographic Characteristics of Participant's Children (N = 14)

Characteristic	N	%	M	SD
Age at time of survey (months)	14	100.00	15.36	11.54
Birth Weight (ounces)	14	100.00	105.00	21.13
Race/Ethnicity				
Black	8	57.10		
Multiracial	2	14.30		
Hispanic	3	21.40		
Haitian	1	7.10		
Medical Diagnosis				
Chronic Respiratory Infection	1	7.14		
Low Iron	1	7.14		
Special Education Services				
Speech Therapy	1	7.14		

Table 4

Characteristics of Adolescent Mother's Maternal Background (N=14)

Characteristic	N	%	M	SD
Living Conditions				
Mother*	10	71.40		
Father	3	21.40		
Grandparent	1	7.10		
Mother Education*				
Some High School	6	42.90		
High School Degree	3	21.40		
Some College	1	7.10		
College Degree	1	7.10		
Mother's Age of Childbirth*	9	64.30	18.33	2.12
Mother Relationship Score	14	100.00	15.14	4.96

*Referring to the adolescent participant's biological mother

Results

Three research questions were presented for this study. The questions aimed to discover what factors play a role in the documented disadvantage of children of young mothers. Each question was related to an aspect of parenting that could influence the outcomes of children of adolescent mothers: what strategies do adolescent mothers report using with their children, what environment or biological factors influence the frequency of implementation, and whether these

strategies playing a role in the language and literacy development of their children. The strategies chosen for the SALLI were previously found to have an influence on child development in infancy and toddlerhood. The language development of the children was measured using a standardized checklist for young children. The MacArthur Bates CDIs assessed the language development of children ages 8 months and older. The frequency of implementation was measured using a researcher-developed questionnaire scored from 0-100 to determine how often adolescent mothers are using strategies to increase language and emergent literacy in their children.

Research Question One. What specific strategies are implemented by adolescent mothers to enhance their young child's early language and emergent literacy skills?

Results of Research Question One. To answer the first research question, descriptive statistics such as mean and standard deviation were used to examine the scores of the SALLI. The survey responses were analyzed in two ways; the total score on the survey and the scores by question category (i.e., Responsiveness, Directiveness, Home Environment, and Stimulation). Each category was composed of five questions relating to that maternal behavior. The implementation score was out of 100 total points possible (*M=62.00, SD=17.22*) with a maximum reported score of 86 and a minimum reported score of 36. When grouping the questions into categories it was found that out of a possible 25, Responsiveness (*M=13.57, SD=5.42*) had a maximum score of 21 and a minimum score of 4.20, Directiveness (*M=11.02, SD=4.58*) had a maximum score of 20 and a minimum score of 5, Stimulation (*M=14.35, SD=5.45*) had a maximum score of 21 and a minimum score of 4.20, and Home Environment

(*M=11.88, SD=5.96*) had a maximum score of 21 and a minimum score of 4.20. The participants scored highest on measures of Stimulation, and lowest on Directiveness.

The descriptive statistics can be further divided into the children's age group. There were three major age groups analyzed. One group was participants with children younger than 8 months, the next group was participants with children ages 8-15 months, and the third group was participants with children older than 16 months. For the participants with children under 8 months old (n = 4), there was a mean total score of 32.75 (*SD = 11.53*), a mean Responsiveness score of 8.20 (*SD = 2.83),* a mean Directiveness score of 16.27 (*SD = 4.47),* a mean Stimulation score of 8.95 (*SD = 4.27),* and a mean Home Environment score of 5.20 (*SD = 1.41).* As a group, adolescent mothers with infants younger than 8 months scored lower than the participants of older children, and had particularly lower scores in areas of Home Environment and Responsiveness.

For adolescent mothers of children ages 8-15 months (*n = 3*), there was a mean total implementation score of 71.67 (*SD = 17.90*), a mean Responsiveness score of 17.40 (*SD = 6.23*), a mean Directiveness score of 7.53 (*SD = 3.56*), a mean Stimulation score of 18.07 (*SD = 5.08*) and a mean Home Environment score of 15.33 (*SD = 5.50*). This group had the highest total implementation score, and a relatively high Home Environment score as well. For adolescent mothers of children ages 16 months or older (*n = 5*), there was a mean total implementation score of 68.80 (*SD = 10.57*), a mean Responsiveness score of 15.56 (*SD = 3.27*), a mean Directiveness score of 9.96 (*SD = 2.21*), a mean Stimulation score of 16.44 (*SD = 3.19*) and a mean Home Environment score of 15.16 (*SD = 3.73*).

Research Question Two. What are the relationships between (a) adolescent mothers' age at their child's birth, year in school, living conditions, race/ethnicity, reported depression, maternal family background and (b) their reported implementation of strategies to increase language and emergent literacy with their children?

Results of Research Question Two.

Bivariate correlations were used to determine a relationship between the score on the mother relationship questionnaire and the adolescent mother's reported implementation of strategies *(r = .146, n = 11, p = .667*). There were no significant correlations found. The researchers also analyzed the relationship between the adolescent participant's biological mother's age of childbearing and the participant's total implementation score (*r = -.437, n = 6, p = .386*). There were no significant correlations found. Taken together, these two variables attempted to find a relationship between the adolescent mother's background (her relationship with her biological mother and her mother's age of childbearing) and the participant's use of strategies. However, no correlations were found. This contrasts from the literature that says maternal background has an effect on her own childbearing behaviors, however, the small sample size may have skewed any possible correlations.

There was a statistically significant effect on the total implementation score for the two living conditions [$F(2,11) = 6.37$, $p = 0.022$]. These results suggest that the influence of an adolescent parent living with her biological mother could have a positive effect on her implementation of language strategies.

When further evaluating the differences between groups for living conditions, it was found that the mean implementation score of adolescent mothers living with their biological

mother (*M = 69.87, SD = 12.55, n =8*) was higher than adolescent mothers living with the father of their child (*M = 40.50, SD = 6.36, n =3*), or with their grandparents (*M = 42, n = 1*). Specifically, adolescent mothers had a higher score on all aspects of the SALLI except for Directiveness (M = 9.05, SD = 2.83, n = 8).

Research Question Three. What are the relationships between adolescent mothers' report of their child's understanding and use of single words, phrases and sentences and their reported implementation of strategies to increase language and literacy skills with their children?

Results of Research Question Three. Results from the adolescent mother reported standardized checklist (MacArthur-Bates CDIs) were compared to the self-assessed SALLI to examine any relationships between the two surveys.

Words and Gestures. To determine a relationship between the adolescent mother's total implementation score and their reported understanding of their child's language development for children age 8-15 months (*n = 3*), both percentile and raw scores from the Words and Gestures CDIs were analyzed. Specific portions of the Words and Gestures checklist included Phrases Understood (raw and percentile score), Words Understood (raw and percentile scores), Words Produced (raw and percentile score), Early Gestures (raw and percentile scores), Later Gestures (raw and percentile score) and Total Gestures (raw and percentile scores). The Phrases Understood portion of the CDIs is a report of the child's comprehension of everyday phases and routines (28 items). The Words Understood and Words Produced portions come from a checklist of 396 items in 19 semantic categories. Categories include nouns (animal names, vehicles, toys, food and drink, clothing, body parts, furniture and rooms, small household items, outside things and places to go, and people) and additional sections (sound effects and animal sounds, games

and routines, verbs, words about time, adjectives, pronouns, question words, prepositions and locations, and quantifiers and adverbs). Adolescent mothers reported whether their child understood, or understood and produced each word. Early Gestures represented first communicative gestures and games and routines (18 items), Later Gestures represent actions with objects, pretending to be a parent, and imitating other adult actions (45 items). Total Gestures refer to the combined score of Early and Later Gestures out of 63 total items (Fenson et al., 2007). All percentile scores were determined using both sexes combined percentile tables due to the lack of adolescent mothers reporting of their child's gender.

Spearman's rank-order correlation was conducted to examine the relationship between the adolescent mother's total score and the child's percentile score**.** There was a positive correlation between the Words Produced percentile score and the Home Environment score ($r = .86, n = 3, p = .33$). Adolescent participants who frequently implement Home Environment strategies may also report an increase of words produced by their child. A positive correlation was found between percentile score of Phrases Understood and Stimulation implementation strategies ($r = .86, n = 3, p = .33$). Mothers who provide their children with more stimulating language may report that their children understand more everyday phrases. There were no statistically significant relationships between percentile scores and the total SALLI scores.

Pearson Correlations were conducted to assess the relationship between adolescent mother implementation score and the raw score on the Words and Gestures CDIs. Patterns emerged when subgrouping the SALLI into four question types (Responsiveness, Directiveness, Home Environment, and Stimulation). There was a significant, negative correlation between Directiveness and Total Gestures ($r = -.99, n = 3, p = .021$). Participants who report lower on

average on the Directiveness section of the SALLI are correlated to a higher reported number of Total Gestures. There was a significant, positive correlation between Home Environment and Later Gestures ($r = .998$, $n = 3$, $p = .039$), and with Total Gestures ($r = 1.000$, $n = 3$, $p = .011$). A higher score on the Home Environment questions were correlated to a high reported number of Later Gestures and Total Gestures. Adolescent participants who reported a frequency of Home Environment strategies may also see an increase of gestures with their child. Furthermore, significant correlations were found between Responsiveness and Later Gestures ($r = 1.000$, $n = 3$, $p = .019$) and between Stimulation and Later Gestures ($r = 1.000$, $n = 3$, $p = .019$). Overall, participant's report of Later Gestures was significantly correlated to all implementation question categories except for Directiveness. Adolescent mother's use of Directiveness has no known correlation to their report of their child's Later Gestures. See table 5 for the Pearson Correlations between SALLI categories and CDI raw scores. Despite these findings, these results should be interpreted with caution due to the small sample size ($n = 3$). No other significant correlations were identified.

Table 5

Bivariate Correlations between Implementation Categories and CDI Raw Scores

Implementation Categories	Responsiveness	Directiveness	Home Environment	Stimulation
CDIs Raw Scores	R	r	r	R
Early Gestures	.69	-.78	.75	.69
Later Gestures	1.00*	-.99	.99*	1.00*
Total Gestures	.99	-.99*	1.00*	.99

*$p < .05$

The descriptive statistics for the child age group 8 to 15 months (*n = 3*) were also examined. For the Words Understood portion of the CDIs, the adolescent mothers reported a minimum score of 64 and a maximum score of 355 out of 396 total options (*M = 178.67, SD = 154.99*). In the Words Produced section, mothers reported a minimum score of 1 and a maximum score of 41 out of 396 total options (*M = 18.33, SD = 20.53*). The CDIs Early Gestures were reported with a minimum score of 12 and a maximum score of 16 out of 18 total items (*M = 13.67, SD = 2.08*), Later Gestures had a minimum score of 4 and a maximum score of 34 out of 45 total items (*M = 23.67, SD = 17.04*). Total Gestures had a minimum score of 16 and a maximum score of 50 (*M = 37.33, SD = 18.60*).

Words and Sentences. To analyze the correlation between the adolescent mother's total implementation score and the reported language development of their children age 16 months or older (*n = 5*), both percentiles and raw scores from the Words and Sentences CDIs were examined. Specific aspects of the scored CDIs included Words Produced (raw and percentile score), Word Forms (raw and percentile score), M3L Mean (raw and percentile score), and Complexity (raw and percentile score). The Word Forms percentile scores represented a list of 5 irregular plural nouns and 20 irregular past tense verbs that the mother's reported their child saying with a "not" "sometimes" or "often" frequency. The Complexity percentile score consisted of 37 sentence pairs, one with simple syntax and one that was more complex. The adolescent mothers reported which type (simple or complex) sounded most like the way their child talked. Words Produced counted the amount of total words that the child could produce in various semantic categories (animal sounds, household objects, etc.) out of 680 total items. The M3L percentile score represented the mean length of the three longest sentences that the

adolescent mothers reported their children saying recently compared to a standardized group of children within that age group, both sexes combined (Fenson et al., 2007). All percentile scores were determined using both sexes combined percentile tables due to the lack of reporting of their child's gender.

Spearman's rank-order correlation was conducted to examine the relationship between the adolescent mother's total score and the child's percentile score. There was a strong, negative relationship found between total implementation score and Word Forms percentile score, but it was not statistically significant (r = -.949, n = 4, p = .051). When dividing the implementation total score into subgroups (Responsiveness, Directiveness, Home Environment, Stimulation) a significant, negative relationship was found between M3L Percentile scores and the Directiveness total score (r = -.949, n = 5, p = .014). There was also a strong, negative relationship found between Word Forms percentile scores and a total Home Environment score (r = -.949, n = 4, p = .051).

Pearson Correlations were conducted to assess the relationship because adolescent mother implementation score and the raw score on the Words and Sentences CDIs. Patterns emerged when subgrouping the SALLI into four question types (i.e., Responsiveness, Directiveness, Home Environment, and Stimulation). There was a significant positive correlation between the adolescent mother's Home Environment score and their child's raw Complexity score (r = .999, n = 3, p = .024). Increases in a Home Environment score were positively correlated to an increase in the complexity of sentence types of children age 16 months or older. There was also a strong, positive correlation between a Responsiveness score and a raw Complexity score (r = .996, n =3, p = .058), however this was not found to be statistically

significant. Pearson correlation was also computed to assess a relationship between implementation total score and a raw score for Words Produced. There was a significant, positive correlation between the two variables (r = .908, n = 5, p = .033). Increases in implementation of language and literacy strategies correlates to more Words Produced for children age 16 months or older. Furthermore, there was a significant positive correlation between a high Responsiveness score and a raw score on Words Produced (r = .911, n = 5, p = .031). Adolescent mothers who score highly on the Responsiveness portion of the SALLI are correlated with reporting a higher number of words produced by their children.

Overall, adolescent mothers of children age 16 months or older reported a minimum Words Produced raw score of 27 out of 680 and a maximum raw score of 501 out of 680 (*M = 128.33, SD = 183.43, n = 6*). For the Word Forms portion of the CDIs, a minimum raw score of 0 was reported and a maximum raw score of 1 out of 25 total *(M = .50, SD = .55, n = 6).* For M3L, adolescent mothers in this age group reported a raw minimum score of 2-word sentence lengths and a maximum score of 2.5-word sentence lengths (*M = 2.26, SD = .25, n = 3*). Only three adolescent mothers reported sentence lengths for their child in this age group. Adolescent mothers also reported a minimum Complexity raw score of 0 and a maximum score of 27 out of 37 possible points (*M = 9.00, SD = 15.59, n = 3*).

Summary of Results. Overall, it was found that the adolescent mothers performed poorly on the SALLI, especially in the areas of Directiveness and Home Environment. A poor score on the Directiveness portion of the SALLI represents a high frequency of negative directive behaviors. There were significant differences found between adolescent mothers who

lived with their biological mother and adolescent mothers who live with someone else (e.g., father, grandparent). There were significant correlations between MacArthur Bates CDI scores for Words Produced, Complexity, Total Gestures, Later Gestures and the adolescent mother's score on the SALLI.

Table 6

Means and Standard Deviations of SALLI Scores by Question

Question	n	%	M	SD
I imitate my child's sounds/words	14	100.00	4.28	1.44
I try to continue an activity that my child has lost interest in	14	100.00	3.28	1.54
I encourage and engage in pretend play	14	100.00	4.07	1.38
I respond to my child with descriptions of an object, event, or activity	14	100.00	3.93	1.54
I give my child constant toys to keep their attention	14	100.00	1.86	1.46
I talk about what's going on in pictures in books	14	100.00	3.64	1.45
I talk about events that happened in the past	14	100.00	2.28	1.49
I respond to my child with questions about an object, event, or activity	14	100.00	2.64	1.98
I try to influence the focus of my child's play the majority of the time	13	92.86	2.15	1.46
I relate book reading to my child's experiences	12	85.71	2.58	1.97
I tell the meanings of words out loud to my child	12	85.71	2.50	1.88

I respond to my child with questions that help them explore	12	85.71	2.41	1.78
I encourage my child to respond to questions right away	12	85.71	3.25	1.66
I label actions for my child	12	85.71	2.50	1.88
I repeat new words often during an activity	12	85.71	3.25	2.00
I repeat my child's words using longer sentences	12	85.71	2.83	1.95
I let my child start an activity and join in on the activity	12	85.71	3.50	1.78
I ask my child "what" questions	12	85.71	3.50	1.88
I read books to my child at home	12	85.71	3.25	1.76
I show my child examples of print	12	85.71	2.75	1.91

Table 7

Minimum, Maximum, Mean, and Standard Deviation of SALLI Score by Question Category

Implementation Category	n	Min	max	M	SD
Total Score	11	36.00	86.00	62.00	17.22
Responsiveness	12	4.20	21.00	13.57	5.42
Directiveness	11	5.00	20.20	11.02	4.58
Stimulation	12	4.20	21.00	14.35	5.45
Home Environment	12	5.00	21.00	11.88	5.96

Table 8

Mean Scores on the SALLI by the Living Conditions of the Adolescent Mother

	Biological Mother			Father of the Child		
Implementation Score	M	SD	N	M	SD	n
Total Score	69.87	12.55	8	40.50	6.36	2
Responsiveness	16.25	4.26	8	7.53	3.05	3
Directiveness	9.05	2.83	8	15.80	6.22	2
Stimulation	17.05	3.73	8	9.53	5.03	3
Home Environment	15.22	4.07	8	5.53	1.53	3

Table 9

Means and Standard Deviations of Mother Relationship Questions

Question	n	%	M	SD
My mother helps me care for my child	14	100.00	4.07	1.44
I model my parenting style after my mother	14	100.00	3.00	1.47
My mother helps me with things I want to do	14	100.00	4.07	1.33
I view my mother as a role model	14	100.00	3.93	1.33

Discussion

The purpose of this study was to examine the implementation of language and early literacy strategies by adolescent mothers with children ages birth to 3 years. Adolescent mothers reported their frequency of strategy usage with a researcher-developed survey and also reported their child's language development using a standardized checklist. The researcher-developed survey was created to focus on four specific maternal behaviors categorized as: Responsiveness, Directiveness, Stimulation, and Home Environment. The MacArthur Bates CDIs were used for the adolescent mothers to report their child's language skills and were compared with age-matched norms and percentiles. Demographic information was collected to determine if other variables influenced the results of the surveys.

The present study evaluated how often adolescent mothers are implementing various types of language and literacy strategies. It was found that the average score on the SALLI was 62 out of 100 possible points, suggesting that, on average, adolescent mothers utilize language and literacy strategies 1-3 times per week. Furthermore, adolescent mothers of children age 0-8 months had lower averages on all aspects on the survey. This could suggest that adolescent mothers may not think it is necessary to start promoting language with their children until they reach toddlerhood. In contrast, studies have shown that infants began to learn language very early, and can be affected by maternal behaviors before age one (Elardo et al., 1977). This finding could also indicate that the strategies selected for the SALLI were less appropriate for this age group.

When the results of the survey were divided into categories (i.e., Responsiveness, Directiveness, Home Environment, and Stimulation), it was found that adolescent mothers had the most difficulty with Directiveness and Home Environment. The questions on Directiveness focused on behaviors such as constantly giving their child more toys to play with, and trying to continue an activity in which the child has lost interest. When analyzing the results of the Directiveness questions, the scores were inverted, so that a higher score is equivalent to less negative directive behaviors. For example, the answer "never" to the strategy "I constantly direct my child's play" would be given 5 points, and an answer of "1 or more times per day" would be given 1 point. This was done to keep consistency that higher scores on the survey represent positive and frequency behaviors. Although these strategies may seem positive because the parent is focused on giving their child attention, this maternal Directiveness can actually decrease the language opportunities for a child (Keown et al., 2001). The finding that adolescent mothers scored low in the Directiveness section may suggest that adolescent mothers provide too much direction as an attempt to entertain their child, without letting the child direct the play or explore their environment on their own. This is consistent with Hart and Risley (2003) who found that parents from lower SES use more directive speech with twice as many discouragements as encouragements during interaction with their children. The poor score on the Directiveness section may relate to the low scores seen on the Home Environment section as the two maternal behaviors complement each other. For example, if an adolescent mother is trying to continue an activity that their child has lost interest in (Directiveness) then they are probably not asking their child questions to help them explore their environment (Home Environment). Home Environment questions included strategies such as book reading with their children, and showing

them examples of print. Adolescent mothers in this sample may not be aware of the effect that early print exposure has on young children. Implementing positive literacy behaviors with young children has been shown to have a positive influence on language production in toddlerhood (Schmitt et al., 2011; Stainthorp & Hughes, 2000). Interestingly, it was found that adolescent mothers who live with their biological mothers actually scored poorly on the Directiveness aspect of the SALLI, compared to adolescent mothers who reporting living with someone else. As stated above, a lower score on the Directiveness section represents frequent use of negative, directional behaviors. It is possible that the biological parent of the adolescent mother may be encouraging the adolescent mother to direct her child instead of just allowing the child to explore the environment. This could be due a decreased educational background of this sample.

The present study did not find any significant correlations between variables such as grade in school, race/ethnicity, self-reported depression, or maternal family background and their reported implementation of language and literacy strategies. This is contrary to other studies that show that education and depression are strong determiners of maternal behaviors (Koniak-Griffin & Turner-Pluta, 2001; Lanzi et al., 2009). The lack of evidence that the adolescent mother's year in school correlates to implementation of strategies within the broad group of adolescent mothers (ages 19 years or younger), may suggest that it does not make a difference whether they are 14 or 18, they will display the same frequency of strategy use. Furthermore, it did not appear to matter if the mothers were in 10^{th} grade or 12^{th} grade, as there were no increases in education that impact their parenting skills.

This study differed from the literature that says that the background of an adolescent mother (such as her mother's education and age of childbearing) could have a multigenerational

effect on the maternal behaviors of the adolescent (Meade, Kershaw, Ickovics, 2008). Although this study found no statistical indicators that the maternal family background had an effect on the reported implementation of language and literacy strategies, it is interesting to note that the average score on the questions from the mother relationship questionnaire was 15.14 (*SD* = 4.96) out of 20 possible points. The questionnaire was a Likert scale survey beginning with "strongly disagree" and ranging to "strongly agree". This finding suggests that the adolescent mothers in this sample had fairly positive relationships with their mothers. Furthermore, although the participants reported generally positive feelings about their mothers, the statement "I model my parenting after my mother" had an average score of 3.00 (*SD* = 1.47) out of 5 total, indicating an average response of "neutral". It is interesting that although adolescent participants reported positively about their mothers, as seen on the mother relationship questionnaire, they do not attempt to model their parenting styles or strategies (see table 9).

One of the aims of the present study was to determine whether the reported implementation of language and literacy strategies had a correlation to the parent reported child language development. We found that the raw scores on both the Words and Gestures and Words and Sentences forms of the CDIs had significant correlations with Home Environment. For children ages 8-15 months, there was a positive correlation between Home Environment scores and Word Production. This is consistent with the literature that states parents who expose their children to more language at home will see greater success in language in preschool and beyond (Hart & Risley, 2003). Similarly, Home Environment scores were significantly associated with sentence Complexity for children ages 16 months and older in this sample. However, despite these findings, the raw and percentile scores for the children in this study were extremely low.

The children in this study ages 16 months or older (n = 6) were reported to produce an average of 128.33 (*SD = 183.43)* words and had an average sentence length of 2.26 (*SD = .25).*

Although the two older children (ages 35 months and 40 months) were not analyzed as a group for the data analysis, it is still worth noting their scores on the CDI III extension for older children. For the purpose of data analysis, these two children were collapsed into the 16-30-month group because of their low scores on the CDI III. Both adolescent mothers filled out the CDI III and the CDI Words and Sentences to gain an accurate portrayal of their children's language development. Child A (40 months) was scored in the 40th percentile for word production and sentence complexity for a 30-month old child. Child B (35 months) was scored in the less than 5th percentile for words produced, and had not yet begun combining sentences. It's important to note these differences so that we can begin to see the effect that adolescent motherhood may have on child language development. Although younger children may not show any signs of delay, these two older children from this particular sample were below the average for their age group. In general, the scores from the MacArthur-Bates CDIs showed that the children of adolescent mothers have low word production rates compared to standardized norms.

Implications

The present study evaluated the specific language and emergent literacy strategies that adolescent mothers reporting implementing with their children. Although many other studies have concluded that adolescent mothers provide less enriching language environments for their children, few have determined what specific aspects of language and literacy strategies should be emphasized. Despite the exploratory nature of the study data, some conclusions can still be

drawn from this research. Based on the findings, there are several implications for high school teachers of adolescent mothers, speech-language pathologists working with children of adolescent mothers, or other professions working with this population: 1) Adolescent mothers would benefit from education on the difference between directive behaviors and stimulating play time. Young mothers may assume that the only way to entertain their child is to constantly give them toys, attention, and direction. However, research tells us that this does not provide ample time for children to develop language. 2) Adolescent mother parenting classes should focus on the overall importance of early language and emergent literacy skills and how to target communication or word production and understanding before age three.

Limitations

The purpose of this study was to evaluate adolescent mothers on their usage of strategies that facilitate early language and emergent literacy skills in their young children, as well as to assess their children's language development using both researcher-developed questionnaires and a widely accepted language assessment. Although the results from this study were insightful in guiding further research for adolescent mothers and their children, there are several limitations that need to be addressed. The data found is primarily exploratory and requires further research and analysis in order to be generalizable to other populations. The adolescent mothers in this sample were already enrolled in a teen parenting program and for that reason they may already have knowledge of language and emergent literacy strategies that is not available to adolescent mothers in public high schools or not enrolled in school at all. This is due to the parenting elective courses and child play labs that they had access to at the BETA Center. The BETA

Center is an optional program for parenting adolescents, therefore, enrolling in the program itself presents a sense of motivation and proactivity from this sample of teen mothers that may not be seen in other samples. During the study, a school counselor translated survey materials for two students who were primary Spanish speakers. This could present an issue in analyzing the results due to mistranslations or misunderstanding from these students. Another limitation of this study is that the results are based on self-reported questionnaires and surveys, therefore the reliability of the answers may be skewed. While parents are generally good reporters, it has been found that mothers with low education levels will overestimate or over report their child's language skills between ages 8-12 months and also in toddlers (Feldman et al., 2000; Fenson et al., 2007). In the present study we relied on self-reported measures, however, objective measures such as observations of adolescent mothers interacting with their children may yield different results. The SALLI was developed primarily for children 9 months of age or older. Therefore, some of the questions may not have been applicable for the mothers in this study with infants. This could explain some of the low scores seen on the SALLI by these mothers. When evaluating the scores of mothers with children 8 months of age or younger, it should be noted that some of the strategies would not be appropriate for this age group.

The most significant limitation of this study was the small sample size. Specifically, when stratifying the sample by child age to analyze the child language development, the groups did not contain many participants due to the variety of ages. The sample was selected from one teen parenting program in the southeastern United States, and may not generalize beyond this study due to the sample size.

Future Directions

The results of this study provide information on how adolescent mothers are interacting with their young child and what specific language and literacy strategies they are implementing. Taken together with the correlations to their children's low standardized language scores, this study implores future researchers investigating intervention approaches to focus on educating adolescent mothers in the area of early language and literacy to improve child outcomes. The most crucial direction for future studies is to increase the sample size when surveying for strategy usage. The next step for research should be to replicate this study with a larger and more diverse sample size. A wider variety of participants would increase the significance and validity of the results found. Since the small sample size was a limitation of this study, researchers should increase the sample size in order to determine if the same correlations and results would generalize to a larger sample.

It would be advantageous to conduct an intervention study using pretest and posttest child measures to determine whether or not educating adolescent mothers on early language and literacy strategies would improve child outcomes over time. In the present study, adolescent mothers reported particularly high frequencies of negative directive behavior and poor home environment strategies. Future researchers could develop a program focused on these strategies, specifically in educating mothers that communication begins in infancy, therefore they should begin working to promote communication at birth.

It would be beneficial to run a longitudinal study to follow child outcomes into preschool and school-aged years. Since previous studies (Biemiller 2003; Lonigan & Shanahan, 2009; Oxford & Spieker 2006) have suggested that early child language delays have a negative

influence on later academic success, it would be worthwhile to follow a group of children of adolescent mothers to see how their language improves over time.

Home Environment behaviors such as print exposure and book reading was found to be a statistically significant indicator of between group differences, and poorly implemented by the adolescent participants. Future research could consider conducting home studies of adolescent mothers. This type of research would have two benefits. The first benefit would be the ability to observe the home environment instead of relying on a self-reported assessment. This would increase the reliability of the results and allow researchers to focus on specific aspects within the home. Secondly, this type of study could allow researchers to gather objective child data rather than a subjective parent report of language development. Overall, the present study should be used as a preliminary guide for the gaps in parenting education of young mothers.

Conclusion

In conclusion, this exploratory study provided descriptive data for a sample of adolescent mothers and their children. Consistent with previous research on adolescent motherhood, this sample was evidence of a low frequency of maternal behaviors due to a variety of factors. It was found to be significant that the SALLI scores correlated to lower child outcomes on a parent reported language checklist, including vocabulary production. The present study adds to the literature by reporting the specific ways that adolescent mothers are interacting with their children in the areas of language and emergent literacy. Few studies have evaluated this specific information. The results of this study provide evidence for the need to increase the education of adolescent mothers with children birth to three, specifically focusing on language and literacy strategies.

APPENDIX A.

Appendix A. *Mother Demographic Information Form*

Current Age (in years):_____ Race/Ethnicity: _____

Your age when your first child was born: _____

Highest grade completed in school (circle one): 6th grade 7th grade 8th grade 9th grade

10th grade 11th grade 12th grade

Current Parenting Classes being taken at BETA :_____

_____

_____

Languages spoken at home (list all): _____

Have you had any other parenting courses/education outside of BETA?

☐ YES ☐ NO ☐ NOT SURE

If yes, what was it?

_____

Do you currently have a job?

☐ YES ☐ NO

How much money does your family make each year (circle one)?

Less than $25,000 $25,000-49,999 $50,000-74,999 More than $75,000

Did you have prenatal care during pregnancy (ex: doctor's appointments, vitamins, etc)?

☐ YES ☐ NO ☐ NOT SURE

Did you experience any feelings of depression after giving birth?

☐ No Depression ☐ Mild Depression ☐ Moderate Depression ☐ Severe Depression

Maternal Background Information

Do you currently live with your biological mother?

☐ YES ☐ NO, I live with _____

Years of school completed by your mother (circle one):

Some high school

High School degree

Some college

College degree

Your mother's age when she had her first baby: _____

Read each sentence and check the box that best describes how much you agree or disagree with each one.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
My mother helps me care for my child					
I model my parenting style after my mother					
My mother helps me with things I want to do					
I view my mother as a role model					

APPENDIX B.

Appendix B. *Student Demographic Information Form*

Child's Current Age (in months):_____ Race/Ethnicity: _____

Primary Language: _____

Birth Weight :_____

Was your baby:

Full-Term (37-40 week)

Premature (<37 weeks). If yes, how many weeks? _____

Medical Diagnosis (if any)?

_____

Special Education Services (Include how often):

☐ Special Instruction: _____

☐ Speech-Language Therapy: _____

☐ Occupational Therapy: _____

☐ Physical Therapy: _____

☐ Other: _____

APPENDIX C.

Appendix C. *Self-Assessment of Language and Literacy Implementation (SALLI)*

Self-Assessment of Language and Literacy Implementation (SALLI)

Directions: This survey is designed to identify the language and emergent literacy strategies used by mothers with young children. Read each strategy and example and circle the number that best describes how often you use the strategy with your child. Only circle one choice per question.

Strategy	Example	Frequency				
		Never	**1-3 times per month**	**1-3 times a week**	**4-6 times a week**	**One or more times per day**
1. I imitate my child's sounds/words	Saying "ball" after child says "ball" or saying "bababa" after child says "bababa"	1	2	3	4	5
2. I try to continue an activity that my child has lost interest in	Giving your child more blocks to build with if they try to play with cars instead	1	2	3	4	5
3. I encourage and engage in pretend play	"Let's feed the doll and put it to bed like a baby" or using a pretend phone to call a friend	1	2	3	4	5
4. I respond to my child with descriptions of an object, event, or activity	"You're holding a spoon" or "That dog is running"	1	2	3	4	5
5. I give my child constant toys to keep their attention	Giving your child blocks, cars, and dolls and keeping them interested without a break	1	2	3	4	5
6. I talk about what's going on in pictures in books	"The girl in the picture is feeding her dog"	1	2	3	4	5
7. I talk about events that happened in the past	"Where did we go yesterday?" or "What did you eat this morning?"	1	2	3	4	5

8.	I respond to my child with questions about an object, event, or activity	When your child hands you a doll you say: “What color dress is the doll wearing?”	1	2	3	4	5
9.	I try to influence the focus of my child’s play the majority of the time	“Let’s put the cars over here and after that we can move the balls into the bin”	1	2	3	4	5
10.	I relate book reading to my child’s experiences	“The girl in the book is wearing blue, just like you”	1	2	3	4	5
11.	I tell the meaning of words out loud to my child	“Joyful means happy”	1	2	3	4	5
12.	I respond to my child with questions that help them explore	“What else can we do with the bubbles?”	1	2	3	4	5
13.	I encourage my child to respond to my questions right away	Asking your child a question and giving them the answer quickly when they don’t respond right away	1	2	3	4	5
14.	I label actions for my child	“The boy is jumping”	1	2	3	4	5
15.	I repeat new words often during an activity	“The ball is bouncy” and “Look at the ball bounce”	1	2	3	4	5

16.	I repeat my child's words using longer sentences	When your child says "cat" you repeat "Cat says meow"	1	2	3	4	5
17.	I let my child start an activity and join in on the activity	If your child picks up a crayon, you give them a piece of paper to color with	1	2	3	4	5
18.	I ask my child "what" questions	"What did you eat for lunch?" or "What are we playing with?"	1	2	3	4	5
19.	I read books to my child at home	Reading books out loud to your child	1	2	3	4	5
20.	I show my child examples of print	Pointing to the word "Cheerios" on a cereal box or showing your child a grocery list	1	2	3	4	5

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