

6-28-2019

# How Does Living in Poverty Affect Infant and Toddlers' Development?

Megan Aalgaard  
aalgaarm@csp.edu

Follow this and additional works at: [https://digitalcommons.csp.edu/teacher-education\\_masters](https://digitalcommons.csp.edu/teacher-education_masters)



Part of the [Early Childhood Education Commons](#), and the [Social Work Commons](#)

---

## Recommended Citation

Aalgaard, M. (2019). *How Does Living in Poverty Affect Infant and Toddlers' Development?* (Thesis, Concordia University, St. Paul). Retrieved from [https://digitalcommons.csp.edu/teacher-education\\_masters/14](https://digitalcommons.csp.edu/teacher-education_masters/14)

How Does Living in Poverty Affect Infant and Toddlers' Development?

Megan Aalgaard

Concordia University, St. Paul

MA in Education: Early Childhood Education

ED 590: Course Instructor: Dr. Kelly Sadlovsky

Second Reader: S. Wueste, Faculty of Practice MAED

June 17, 2019

## Table of Contents

Abstract.....	4
Chapter One: Introduction.....	5
Chapter Two: Review of Literature.....	9
Poverty Statistics.....	9
Typical Infant and Toddler Development.....	11
Impacts of Poverty on Children.....	11
Language Development.....	15
Physical Health.....	18
Social-Emotional.....	19
Cognitive and Brain Development.....	19
School-Readiness.....	24
Long-Term Effects.....	26
Impacts of Poverty on Parenting.....	27
Home Environment and Reduced Resources.....	30
Supports for Children.....	32
Parent Involvement at Home.....	34
Head Start and Early Childhood Programs.....	36
Conclusion.....	38
Chapter Three: Research Summary and Conclusions.....	39
Poverty Statistics.....	39
Typical Infant and Toddler Development.....	40
Impacts of Poverty on Children.....	40
Language Development.....	42
Physical Health.....	43
Social-Emotional.....	43
Cognitive and Brain Development.....	44
School-Readiness.....	45

Long-Term Effects.....	45
Impacts of Poverty on Parenting.....	46
Home Environment and Reduced Resources.....	46
Supports for Children and Families.....	47
Parent Involvement at Home.....	48
Head Start and Early Childhood Programs.....	48
Conclusion.....	48
Chapter Four: Discussion and Applications.....	50
Instructional Practices and Educational Policies.....	50
Home Visits.....	50
Access to High-Quality Education.....	50
Studying Children’s Development.....	51
Supports for Parents.....	51
Suggestions and Limitations.....	52
Home Visits.....	52
Access to High-Quality Education.....	53
Studying Children’s Development.....	53
Supports for Parents.....	54
Conclusion.....	55
References.....	57

### Abstract

Research findings showed that significant development takes place during the infant and toddler years of children's lives, however, children who lived in poverty were often faced with many challenges and life adversities that affected development (Brewer, 2007). Children's language development, physical health, cognitive development, and social-emotional skills were often negatively impacted when children grew up and lived in poverty (Brito, 2017). Also, distress among parents from the exposure to poverty negatively affected the quality of parent and child interactions (Evans & Kim, 2013). This paper synthesized various available research on poverty's negative effects on children's development, as well as discussed strategies that helped support children and families. Research found that there was a strong link between childhood poverty and had worse outcomes for children that involved health, education, and behavior compared to children who were not poor (Chaudry & Wimer, 2016). Research also discovered that children's development advanced when parents spent more time engaging, teaching, reading to children, and when families were involved in early childhood programs (Bierman, Morris, & Abenavoli (2017). The research addressed the negative effects of poverty on children's development and parenting skills, and offered suggestions for supports for children and families. Addressing the negative impacts of poverty on children's development and on parenting benefitted children, parents, and educators.

*Keywords:* poverty, socioeconomic status, child development, cognitive development, executive function, chaos

## Chapter One: Introduction

Poverty plays a significant factor in affecting infant and toddlers' overall development that has lifelong adverse effects for children. Children that were exposed to limited resources, chaotic home environments, and experienced a lack of educational experiences tended to be behind peers compared to children that lived in middle and upper classes (Chaudry & Wimer, 2016). The paper sought to address the question, "How does living in poverty affect infant and toddlers' development?" The research also addressed current poverty statistics, typical infant and toddler development, long-term effects, how poverty affected parents and interactions with children, the home environment, and early childhood programs for families. To answer the question, educators and parents needed to understand the effects that poverty had on children's development, how educators could support children and families, and what parents could do to become more involved in young children's educational experiences.

Research on how poverty negatively affected children's development was important to research being that many children were, and are currently impacted by poverty, and also to promote the need for supports and early childhood programs for children and families who were low-income. (Bierman et al., 2017). Next, important keywords from the research are listed. Following the keywords, effects of poverty on children's development is discussed.

### **Keywords**

***Poverty:*** The expanse to which people do without resources. Involves financial, mental, emotional, physical, and support systems (Cuthrell, Stapleton, & Ledford, 2010).

***Socioeconomic status:*** Characterized by occupational status, family income, parent education, neighborhood and home quality, and predicted children's later academic achievement (Brito, 2017).

***Child development:*** Children's growth and changes in terms of intellectual, social-emotional, and physical development. Each area of development often follows predictable patterns and allows for individual rates of growth and development in each developmental domain (Brewer, 2007).

***Cognitive development:*** Development of children's reasoning, thinking, symbolizing, problem-solving, and remembering (Brewer, 2007).

***Executive function:*** Involves cognitive and social competence and is essential for self-regulation and school-readiness skills (Blair & Raver, 2016).

***Chaos:*** Described as lack of structure, hectic activity, high levels of environment stimulation, and unpredictability in everyday situations and activities (Vernon-Feagans, Garrett-Peters, Willoughby, Mills-Koonce, & The Family Life Project Key Investigators, 2011).

### **Effects on Children**

Research indicated that poverty negatively affected childhood outcomes that were caused by poor living environments, lack of materials, family stress, and absence of parental and cognitive involvement (Chaudry & Wimer, 2016). According to Evans and Kim (2012), "Poverty is a powerful factor that can alter lifetime developmental trajectories in cognitive, socioemotional, and physical health outcomes" (p.43). The paper sought to further investigate the negative effects of poverty on infant and toddlers' overall development. Parent involvement was also impacted by poverty.

### **Effects on Parenting**

Low-income families often faced many barriers that prevented children from experiencing high-quality early educational opportunities. As a consequence, there was a wide achievement gap between children from low-income families compared to children from high-

income families (Biermann et al., 2017). When parents were not able to take care of personal needs and faced many barriers, parents often did not provide as many educational opportunities for children (Biermann et al., 2017). Parenting techniques were one of the most significant factors intervening between childhood outcomes and poverty (Guo & Mullan Harris, 2000). This paper intended to explore more in-depth into how barriers parents faced affected children's development. The research also explored educational supports for families that lived in poverty.

### **Supports for Families**

When educators worked to help care for and guide families, children who lived in poverty were given positive experiences and supports that promoted children's growth and development (Mistry, Benner, Biensanz, Clark, & Howes, 2010). Best practices involved working with parents to help support families in meeting basic needs (food, housing, safety needs) and then progressed towards supporting parents in best practices that enhanced children's language, physical health, cognitive development, and social-emotional development (Mistry et al., 2010). Further resources such as Early Head Start and other early childhood programs were discovered within the research that helped support children and families (Mistry et al., 2010). The organization of the literature review is discussed next.

### **Literature Review Organization**

In chapter two, the review of literature explored in-depth how poverty affected infant and toddlers' overall development. The review of literature listed up-to-date poverty statistics and discussed children's typical development during the infant and toddler years. The impact of poverty on children's development was broken down into sub-topics of how poverty affected children's language development, physical health, cognitive and brain development, social-emotional skills, and school-readiness. The review also discussed how poverty negatively



affected children's long-term development, parents' skills and abilities to provide experiences for their children, and options for early childhood programs. The review explored how educators and parents could both work towards helping children who lived in poverty to achieve success and catch up to peers from higher-socioeconomic statuses.

### **Conclusion**

The research question asks: "How does living in poverty affect infant and toddlers' development?" Poverty played a significant factor in children's development and had lifelong impacts on children. Children and families who lived in poverty often faced many barriers that significantly contributed to all of the negative effects that poverty had on children's development (Chaudry & Wimer, 2016). The early childhood program essential question asked "In light of early childhood theories and philosophies and current research in the field regarding best practice, what is the future of programming and practice in early education?" The research question asked how poverty affected infant and toddlers' development which tied into the essential question regarding best practices and how future programming helped support children that lived in poverty. Research examined how children's language, physical health, social-emotional, and cognitive brain development were affected by living in poverty. With education and understanding, children and families can be supported and guided to help reduce the achievement gap for children. The next chapter discussed the overall literature review that synthesized and summarized information from research studies and provided in-depth information regarding the overall topic of how poverty affected children's development.

## Chapter Two: Literature Review

Infant and toddlers' development is significantly impacted by living in poverty. Children's language, physical health, social-emotional skills, and brain development are all negatively impacted from the adverse effects of poverty (Evans & Kim, 2013). Therefore, this paper addressed the question, "In light of early childhood theories and philosophies and current research in the field regarding best practice, what is the future of programming and practice in early education?" In order to be effective in this regard, educators need to understand current research in regards to infant and toddlers' development and how poverty affected development, the effects that poverty had on parent involvement, supports for children and families, and the roles that parents and educators played in enhancing children's learning experiences. In the next section, poverty statistics are discussed to gain insight into how impactful poverty was during the early formative years.

### **Poverty Statistics**

Poverty is a significant issue that impacts young children. According to Payne (2005), poverty is defined as "The extent to which an individual does without resources" (as cited in Cuthrell et al., 2010, p. 102). Experts that worked in the field of poverty discussed that poverty determination included: financial, mental, emotional, support systems, relationships and role models; the types of supports that families received reduced or enhanced the burden of poverty (Cuthrell et al., 2010). Children who grew up in a socioeconomically disadvantaged environment experienced worse health conditions and decreased cognitive, emotional, and psychological development throughout the lifespan (Brito, 2017).

Statistics regarding the number of children and families affected by living in low-socioeconomic status were listed to demonstrate the prevalence of poverty in the United States.

Brito (2017) indicated from 2017 statistics that 15.5 million children (one in five children) in the United States (21%) lived in poverty (2017). Similarly, other authors indicated that the 15 million children lived in families with incomes below the federal poverty level and that another 23 percent lived in low-income families (Bierman et al., 2017). The U.S. Department of Health (2019) indicated that the federal poverty guidelines and level were used to determine financial eligibility to available federal programs such as food stamps or housing. The 2019 poverty guidelines to determine poverty levels for all 48 states (not including Alaska and Hawaii) are:

- Family of one: \$12,490
- Family of two: \$16,910
- Family of three: \$21,330
- Family of four: \$25,750
- Family of five: \$30,170
- Family of six: \$34,590
- Family of seven: \$39,010
- Family of eight: \$43,430.

Families that included more than eight people in a household had \$4,420 added for each additional person (U.S. Department of Health and Human Services, 2019). According to the Minnesota Head Start Association (2019), there were 69,310 children under the age of five who lived in poverty in Minnesota from 2017-2018. Poverty rates were the highest among American Indian, Hispanic, and African American children (Brito, 2017). Next, typical infant and toddler development is discussed.

### **Typical Infant and Toddler Development**

Infants and toddlers experience significant developmental changes during the first three years of life (Brewer, 2007). Infants and toddlers are considered birth to three years old. Brewer (2007) discussed the characteristics of typical development of infants and toddlers and described that birth to three year olds develop the use of language skills, physical skills (i.e. crawling, walking, feeding themselves), and social-emotional skills (i.e. played alongside others and imitated actions). The authors indicated that infants and toddlers need routines and security, are able to perceive the emotions of others, and increase in cognitive development of understanding concepts while investigating the environment (Brewer, 2007).

Important changes occurred during the infant and toddler years of communicating and learning about the world. Infant and toddlers' thinking and language skills advanced, children began to have longer attention spans for learning and play experiences, and became more social (Bierman et al., 2017). Children's frontal part of the brain rapidly matured and strengthened children's abilities to solve problems, share ideas, control attention, and manage feelings (Bierman et al., 2017). Significant development took place during the infant and toddler years, however, researchers indicated that children were especially vulnerable to the negative effects of growing up in poverty with limited resources during the early childhood years (Chaudry & Wimer, 2016). Next, the impacts of poverty on children is discussed.

### **Impacts of Poverty on Children**

There were many factors that negatively impacted children that lived in poverty. The first impact discussed how chaos and environmental stressors impacted children's development.

### **Chaos and Environmental Stressors**

In a quantitative study, researchers indicated that children's early and later academic achievement were harmed by environmental stressors at the critical period during the early childhood years (Garrett-Peters, Mokrova, Vernon-Feagans, Willoughby, Pan, & Family Life Project Key Investigators, 2016). The authors conducted a longitudinal study (6-58 months) that considered the role of household chaos associated between early poverty and children's later academic success in kindergarten (Garrett-Peters et al., 2016). Participants were African American children (42% of participants), 51% of the children were males, and home visits were conducted when children were six, 15, 24, 36, 48, and 58 months of age (Garrett-Peters et al., 2016). Chaotic homes served as one example of many other factors that impacted children's development. Chaotic homes were considered to be noisy, crowded, have limited routines and structure, and involved frequent moves or changes in family structure that impacted children's ability to develop pre-academic and regulatory skills (Garrett-Peters et al., 2016). The study found that high levels of chaos prior to school entry affected children's academic achievement in kindergarten (Garrett-Peters et al., 2016). Additionally, young children generally had fewer opportunities to interact with others outside of the family context compared to school-age children. Less opportunities to interact with others created risks during early childhood that impacted children's development (Garrett-Peters et al., 2016).

Vernon-Feagans et al. (2016) and Zvara et al. (2014) indicated that the study had limitations where the researchers did not include other potential causes of children's delay in academic achievement such as: children's temperament, self-regulatory skills, establishment of learning opportunities, and parental beliefs and values (Garrett-Peters et al., 2016). The study focused on studying children up to 58 months of age but the use of longer studies may have

revealed more important links between instability and children's development (Garrett-Peters et al., 2016). The study's findings related to the research question being that the study discussed how living in poverty and chaotic homes impacted young children's development. Other authors also discussed how poverty impacted children's development.

Researchers indicated through qualitative evidence research that when children experienced chaos and stress, children had an impaired ability to adapt to the environment that in turn impacted children's long-term development (Chaudry & Wimer, 2016). The authors also identified how poverty impacted children's developmental outcomes based off of material hardships, parent stress, and limitations on parenting abilities. The authors concluded that poor childhood outcomes, especially education and cognitive skills, were affected by poverty. Further, family stress, reduced parental input, spending, and material hardships all contributed to reducing children's well-being (Chaudry & Wimer, 2016).

Limitations of the research indicated that there was an ongoing need for innovative and rigorous research for academic pediatricians to discuss the biological effects of poverty, and how to address the effects through medical practice (Chaudry & Wimer, 2016). The article and research related to the research question being the authors sought to understand the effects of poverty on children's well-being and development. Furthermore, other research also indicated how poverty impacted children's development.

### **Lack of Resources & Environmental Stressors**

Poverty also impacted children for various reasons based on quantitative research by Evans and Kim (2013). Children that lived in poverty had less available print media, fewer learning environments, less cognitively stimulating environments, fewer age-appropriate toys, less educational materials, and more exposure to television than children that did not live in

poverty (Evans & Kim, 2013). Children that lived in poverty often resided in homes that had more noise, crowding, greater structural problems, toxins, allergens, and were chaotic. The authors also specified that children that grew up in poverty also had less access to healthy foods, fewer places to engage in physical activities, and were exposed to more crime and street traffic than children that did not live in poverty (Evans & Kim, 2013). The authors indicated that there were many physical and social stressors that were correlated with low-income that included: family dissolution, maternal depression, family conflict and turmoil, exposure to violence, diminished parental responsiveness, and higher parental harshness in families (Evans & Kim, 2013).

Limitations from the research indicated that the authors had little data on developmental trajectories in relation to early childhood poverty unlike most other poverty studies that were cross-sectional (Evans & Kim, 2016). The authors also indicated that more research was needed to examine if certain types of stressors such as family, peers, physical, and psychosocial stressors across different domains related to poverty accounted for some of the consequences of poverty (Evans & Kim, 2016). The research related to the research question in that poverty affected children's development cognitively, socioemotionally, and physically. Next, the impacts on children's overall development is discussed.

### **Children's Development**

While there were many factors of poverty that impacted children, poverty also had been demonstrated to have affected specific and various developmental areas of children's development including: language, physical health, social-emotional, cognitive and brain development, and school-readiness (Evans & Kim, 2013). Children's language development is one area of development impacted by poverty.

**Language development.** Children's language development is significantly impacted by living in poverty. In one qualitative study, Hart and Risley (1995) stated, "Children in low-income homes heard 30 million fewer words than children in more affluent families by the time the child reached the age of three years" (as cited in Brito, 2017, p.157). Children had reduced vocabulary, language development, and reading comprehension before children had started preschool (Stark, 2016).

Brito's (2017) qualitative research article examined how emerging language skills were impacted by socioeconomic status disparities and in what way that contributed to gaps in academic achievement and school readiness. Researchers found that children from lower-income households tended to experience less cognitive, linguistic, and social stimulation than children from higher-income homes (Brito, 2017). One notable study by Noble, Engelhardt et al. (2015) involved a sample of 189 infants that were tested on developmental measures of memory and language (Brito, 2017). Research found that socioeconomic status disparities in language emerged sometime between 15 to 21 months of age with children from less educated parents scoring lower in language and memory than children of highly educated parents (Brito, 2017). Parent-child interactions and literacy resources partially accounted for language disparities, but not memory. Research also indicated that children had lower vocabulary scores that involved less efficient processing which was correlated with vocabulary processing (Brito, 2017). Research specified that socioeconomic status predicted language outcomes and persisted across cultures, heritage languages, and diverse ethnicities (Brito, 2017).

Research indicated that interventions could support positive language environments during early childhood by training mothers to respond predictably and positively to children's communication signals (Brito, 2017). Limitations of the research and study indicated that most



high-quality interventions were costly and sometimes impractical that prevented implementation. The author also indicated even though studies linked socioeconomic status and language skills, there was not much known about the pathways through which socioeconomic status shaped language development (Brito, 2017). The article relates to the research question on how children's development was impacted by poverty as the article discussed ways in which living in poverty impacted children's early language development. Other researchers found similar findings.

Perkins, Finegood, and Swain (2013) indicated in a qualitative study that deficits in brain physiology in regions associated with typical language development were associated with low-socioeconomic status as a stressful condition. The authors reviewed how low-socioeconomic status and environmental and behavioral mediators were affected, as well as how poverty and language development outcomes related to brain physiology (Perkins et al., 2013). The study found language learning was dependent on executive functioning and memory of which were vulnerable to stress, and was associated with poverty and language learning. Researchers indicated decreases in phonological awareness, vocabulary, and language processing were affected at various developmental stages by poverty. Further, neurobiological, social, and cognitive influences were fundamentally related to reading development (Perkins et al., 2013). Overall, the study indicated that poverty was predictive of deviations from normal language development and were connected to poverty through home language use, the home literacy environment, self-regulation, and stress (Perkins et al., 2013).

Limitations of the study included inquiring about how other factors such as stress and parenting factors affected language development (Perkins et al., 2013). The authors indicated that studies were still necessary to understand risks associated with caregiving, motivation, and

responding to children's cues, and that there was limited knowledge on how parenting thoughts and behaviors were impacted by growing up in poverty (Perkins et al., 2013). The article related to the research topic and question in that it discussed poverty and language development and how children's development was impacted by poverty, parenting, and stress. Another study also discussed the effects of poverty on children's language development.

A quantitative study by Vernon-Feagans et al., (2012) conducted research to understand how chaotic experiences that children experienced over the first three years of life were related to receptive and expressive language at 36 months, and also tested childhood outcomes at age three. The children in the study were 37 months old when outcomes were measured and approximately half (49%) of children were female. Children and families were visited twice when children were six, 24, and 36 months of age, and once when children were 15 months of age, for a total of seven home visits (Vernon-Feagans et al., 2012). Six indicators of household chaos were collected when children were approximately two, six, 15, 24, and 36 months old, and were collected at all five home visit periods. The indicators included: total number of times a child physically moved to another residence, the number of changes in the primary caregiver (i.e. mom, dad), total changes of a secondary caregiver (i.e. parent, grandparent), the number of different people in the household, total number of times members moved into or out of the household, and the average number of hours that the television was on each day (Vernon-Feagans et al., 2012). At 36 months of age, children were given an expressive and receptive language (Vernon-Feagans et al., 2012). Chaos is defined to further explain the study's findings.

According to Bronfenbrenner and Evans (2000), "The household chaos construct can be described as systems of frenetic activity, lack of structure, unpredictability in everyday activities, and high levels of ambient stimulation" (as cited in Vernon-Feagans et al., 2012, p.339).

Findings suggested that daily household chaos of families living in poverty over children's first three years of life were a pathway to children's poorer language development and indicated that household chaos predicted child language development (Vernon-Feagans et al., 2012). The authors indicated limitations to the study that social and emotional development should have been examined in relation to chaos to understand if household chaos was related to other important early developmental skills. The researchers also sought to further understand whether parenting, language, and relationships among chaos were maintained over time and if children's development was affected during periods in children's lives when chaos and other family processes were more or less significant (Vernon-Feagans et al., 2012). The article related to the research question in that the information suggested that poverty and household chaos contributed to children's language development. Next, the impacts of poverty on children's physical health is discussed.

**Physical health.** Living in poverty impacts children's physical health. Several health welfare issues were caused from living in poverty that included: growth stunting, lead poisoning, low birth weight, infant mortality, learning disabilities, and developmental delays (Cuthrell et al., 2010). Chaudry and Wimer (2016) stated, "Among health measures, childhood obesity was 40% more prevalent among poor families; asthma was 30% more common, and, children in poor families were four times more likely to be in fair or poor health" (p. 24). Health conditions were more prevalent among the poor than the non-poor, children experienced more vision and hearing difficulties, had more lead poisoning and non-fatal injuries, and acquired more intentional injuries (Guo & Harris, 2000).

Children that lived in poverty experienced more health issues due to families finding it difficult to have adequate and safe housing, were unable to afford to buy enough food or healthy

food, and had limited access to prescribed medications and medical supplies. Children were also less likely to maintain a healthy diet or engage in physical fitness and recreational activities (Guo & Harris, 2000). Parents that lived in poverty often engaged in more unhealthy behaviors such as: illegal drug use, smoking, and excessive drinking than parents that did not live in poverty (Guo & Harris, 2000). Children's social and emotional development is also impacted from living in poverty.

**Social-emotional.** Children's social and emotional skills are affected when living in poverty. Children that lived in poverty experienced chronic physiological stress, symptoms of anxiety, depression, aggression, learned helplessness, and self-regulatory abilities (Evans & Kim, 2013). Similarly, psychological distress, learned helplessness, internalizing problems, and self-regulating behaviors were caused by living in poverty and chaotic homes (Garrett-Peters, et al., 2016). Children had poorer self-regulatory skills and higher problematic behaviors when children experienced greater levels of social and family risk as infants compared to children who experienced lower levels of risk during the first year of life (Mistry et al., 2010). According to Brooks-Gunn and Duncan (1997), "Children from families in poverty experience more emotional and behavior problems than do children from middle-and-upper-class families" (as cited in Cuthrell et al., 2010, p. 105). Children's cognitive and brain development are also significantly impacted from living in poverty.

**Cognitive and brain development.** Young children's brain development and cognitive skills are significantly impacted from living in poverty.

***Effects on the brain.*** In qualitative research described by Blair and Raver (2016), the researchers sought to review growing evidence of the effects of poverty to children's brain development and cognitive ability, and also discussed the negative consequences of poverty

early in children's lives. Toxic effects of stress on the brain affected the health and well-being of children and adults that lived in poverty (Blair & Raver, 2016). The authors further discussed that chronic stressors such as noise associated with television, household chaos, and conflict among family members altered children's responses to stress that disturbed children's stress-related hormones that negatively influenced children's brain development and function. The authors also indicated that children tended to be more reactive and defensive rather than reflective and approach-oriented towards responses to stimulation when brain functions were altered under conditions of stress (Blair & Raver, 2016).

One research study involved using rats where poverty-like conditions were created by restricting the availability of material for nesting. The study concluded that the rats' caregiving skills went down and the offspring rats struggled with stress regulation, and experienced adverse cognitive and behavioral outcomes (Blair & Raver, 2016). Another study discussed by the authors studied the effects of poverty on brain development. The study was a longitudinal analysis of 77 children from the early postnatal period and age four years that participated in the National Institutes of Health (NIH) MRI Study of Normal Brain Development (Blair & Raver, 2016). The study found that children from low-income and poor families were found to have had total gray matter volumes in the brain that were almost half a standard deviation smaller than children from higher-incomes (Blair & Raver, 2016). Gray tissue in the brain contains dendrites and synapses that supported the execution of actions and processing of information and was affected more by the environment than by white matter in the brain (Hanson, Hair, Shen, Shi, Gilmore, Wolfe, & Pollak, 2013). The authors explained that white matter is also another major tissue in the brain that helps parts of the brain work together (Hanson et al., 2013).

Limitations of the studies indicated that children's sensitivity to the effects of caregiving by adults and experiences during specific points in development were not fully yet known. The authors continued to explain that those in the fields of child psychology, pediatrics, neuroscience, and developmental science needed to focus more on biological, interpersonal, and sociologic aspects of poverty adversity and move past the broad recognition of the negative effects of poverty adversity on brain development (Blair & Raver, 2016). The studies by Blair and Raver (2016) related to the research question in that the studies and research explained how children's brain development was affected by living in poverty. Similarly, other researchers found comparable findings.

Authors from another research study indicated that evidence showed that socioeconomic influenced children's executive function and memory skills (Hanson et al., 2013). Hanson et al. (2013) stated, "Exposure to poverty has been associated with decrements in attentional processes, working memory, and inhibitory control during infancy, childhood and adolescence, and also into adulthood" (p. 2). The quantitative study by Hanson et al. (2013) was a multi-site longitudinal study that examined changes in brain structure from birth through the toddler years ranging from five months to four years of age to cover the significant time period of brain growth. The authors indicated that gray matter in the brain accounted for most of the brain's growth during the first few years of life and the authors predicted that children from low-socioeconomic status would have had lower volumes in total gray matter in the brain (Hanson et al., 2013). The researchers analyzed 203 MRI scans from 77 infants and toddlers that lived in lower socioeconomic households and were from families with incomes ranging from 4% to over 400% of the federal poverty level (Hanson et al., 2013).

The research study found that children from poor and near poor households had significantly lower average total gray matter volumes than children from high-socioeconomic families and that low-socioeconomic status environments influenced the rate of infant brain development (Hanson et al., 2013). The research also demonstrated that infants from low-income families were born with similar gray matter volumes, but by toddlerhood had lower gray matter compared to children from higher-income households (Hanson et al., 2013). The authors indicated that as children aged, there was more exposure to the effects of the environment. Brain volume differences between poor children and higher-income children widened which correlated to more behavioral problems during the preschool years (Hanson et al., 2013).

The researchers indicated that there were limitations to the study and further research was needed to determine if multiple factors such as: household resources, crowding, parental stress, nutrition, and environmental stimulation impacted children's brain development or if just one critical aspect of the environment affected children's brain development. The researchers also indicated that more was to be understood about the level when environments became toxic for children and specified that healthy developing children were only analyzed in the study where research may have under-represented the true effects of socioeconomic status (Hanson et al., 2013). The research study related to the research question in that the study discussed how children's brain development was impacted by living in poverty. Further information is discussed in regards to children's brain development affected by living in poverty.

***Behavioral and self-regulatory effects.*** Relating to brain development, children's self-regulatory skills were affected by living in poverty (Evans & Kim, 2013). Children that lived in poverty had more difficulty delaying gratification, were less competent in self-control, had attention problems, exhibited weaker inhibitory control, and had a diminished capacity for

working memory and planning, all of which were compromised by chronic stress (Evans & Kim, 2013). Researchers also indicated that excessive crowding and noise in chaotic homes impacted children's ability to be able to engage in activities that required focus and attention, which in turn diminished opportunities for positive interactions between adults and children that were important for children's learning skills (Garrett-Peters et al., 2016). Research indicated that children's cognitive and non-cognitive competencies such as language development, persistence, and attention regulation that were essential to children's later success were hindered due to living in chaotic home environments (Garrett-Peters et al., 2016). Next, another study provided valuable information in regards to poverty's effects on children's brain development.

In a quantitative research study conducted by Luby, Belden, Botteron, Marrus, Harms, Babb, Nishino, and Barch (2013) the researchers investigated the effects of poverty on childhood brain development to understand the mediating mechanisms of the negative effects, as well as evaluated children on psychosocial, behavioral, and other developmental dimensions. Participants of the study were 145 preschool children aged three to six years of age and were from day care sites in the St Louis metropolitan area; they were assessed behaviorally annually for five to ten years (Luby et al., 2013). The researchers found that the human amygdala and hippocampal brain regions associated with stress regulation and emotional processing were negatively affected when children had lived in poverty (Luby et al., 2013). The study also found that when measured during the school age and early adolescence years, smaller white and gray matter along with amygdala and hippocampal volumes were found in the brain when children were exposed to poverty during the early childhood years (Luby et al., 2013).

Limitations from the study indicated that future studies would be needed with more detailed assessments regarding poverty such as: genetic factors, nutrition, and parental



psychopathology. The researchers also indicated that the current data was oversampled with preschoolers with symptoms of depression which limited generalizability (Luby et al., 2013). The researchers indicated that parenting education, support, and quality caregiving or preschool programs could have provided quality caregiving to vulnerable children (Luby et al., 2013). The research article related to the research question in that the research discussed how brain development was impacted when children had lived in poverty. Next, the impacts of poverty on children's school readiness skills is discussed.

**School Readiness.** Children's school readiness skills were impacted when children grew up in poverty. Quantitative research conducted by Mistry et al. (2010) indicated that at kindergarten entry, children who experienced multiple social and family risk factors (i.e. single parent households, were on welfare, level of mother's education) did not fare as well in assessments of general knowledge, math, and reading skills, compared to children who experienced fewer risk factors. Konold and Pianta (2005), Raver (2002), and West, Denton, and Germino-Hausken (2000) stated, "Children who enter school without the requisite academic or socioemotional skills exhibit greater academic and behavioral difficulties during kindergarten and beyond compared to their more "school ready" peers" (as cited in Mistry et al., 2010, p. 432).

In the research study, researchers examined the magnitude to which children's early exposure to social and family risk factors affected children's school-readiness competencies. The participants were predominately from low-income, ethnically diverse families and assessments were conducted when children were approximately 14, 24, and 36 months old (Mistry et al., 2010). A total of 3,001 families were recruited and a total of 2,063 families participated in the prekindergarten follow-up (Mistry et al., 2010). The focus of the study was not to compare

differences of school readiness abilities between poor and non-poor families, but to rather understand the relations among social and family risk, children's prekindergarten achievement, self-regulatory skills, and problematic behavior. Researchers tested if the factors were mediated through responsive parenting and literacy practices (Mistry et al., 2010). Children's school-related outcomes were assessed across three developmental domains: social behavior, attention/behavioral regulation, and cognitive/academic achievement (Mistry et al., 2010). Response rates of interviews ranged from 68% to 84% across the multiple time points (Mistry et al., 2010).

Findings from the study indicated that children's experiences of social and family risk during infancy created a negative toll on all three domains (social behavior, attention/behavioral regulation, & cognitive/academic achievement) of school-readiness skills. The researchers also found that higher levels of academic achievement, self-regulatory abilities at prekindergarten, and problematic social behaviors were associated with more parental warmth, responsiveness, linguistic, and literacy stimulation (Mistry et al., 2010). Strengths of the study indicated that the research design included multiple informants that used data from parents, teachers, and observers that helped to minimize some of the method bias in child outcomes (Mistry et al., 2010). Limitations of the study indicated that there were not any studies conducted on how child care impacted children's developmental outcomes beyond the home environment, and that there were risk cutoffs that limited the generalizability of the study's findings (Mistry et al., 2010). This research article and study related to the research question by demonstrating that children's cognitive and academic development were impacted by living in poverty. Other researchers shared similar findings.

Blair and Raver (2016) indicated that poverty was associated with gaps in school readiness and academic achievement due to the effects that poverty had on brain development and executive functioning skills. Children also experienced less stimulating activities for learning academic skills associated with living in poverty (Blair & Raver, 2016). Researchers also specified that even though poverty is stable, children that experienced poverty in the first five years of life had consequences for later academic achievement, experienced stress-related disorders, and had generally poorer life outcomes into adulthood (Garrett-Peters et al., 2016). Children that lived in poverty for at least one year experienced worse outcomes on average compared to children who were never poor, indicating that poverty was a damaging experience for children (Chaudry & Wimer, 2016). Overall, poverty significantly impacted children's overall language, physical, social-emotional, and cognitive development. In the next section, poverty's effects on parenting skills will be discussed to further understand the impacts that poverty has on caregivers and the impacts on children.

**Long-Term Effects.** Children who experienced living in poverty during the early childhood years often experienced long-term effects from poverty. Even though all children attended school, poverty put children behind peers academically from the start of school (Cuthrell et al., 2010). Strickland (2001) stated, "Impoverished students are far more likely to enter school as linguistically disadvantaged because they have not had experiences that promote literacy and reading readiness" (as cited in Cuthrell et al., 2010, p. 105). Children from low-income families missed out on experiences that promoted children's intellectual and social development, such as museums and camps, that middle and upper-income children were able to attend (Cuthrell et al., 2010). Children who lived in poverty were almost seven times more

likely to become a teen mother, and poor children were twice as likely as non-poor children to repeat a grade or drop out of high school (Chaudry & Wimer, 2016).

Research also discussed the effects of when children did not participate in high-quality education programs. Children were 40% more likely to become a teen parent, 50% more likely to be placed in special education, 25% more likely to drop out of school, 60% to never attend college, and 70% more likely to be arrested for a violent crime (Stark, 2016). Research indicated that even though children from low-income families faced higher odds of experiencing school-related difficulties, many children were able to remain engaged in school and completed high school despite adversities faced at school and home (Mistry et al., 2010). Next, the content will discuss the impacts of poverty on parenting that further describes how parenting affects children's development.

### **Impacts of Poverty on Parenting**

Children's lives are significantly impacted by poverty, however, parents and caregivers' warmth, responsiveness, and engagement towards children are also considerably impacted from the effects of poverty. Evans and Kim (2013) stated, "Exposure to poverty increases distress among parents, which negatively affects the quality of parent-child interactions" (p. 46). Further, parents who were less engaged, sensitive, and verbally stimulating during interactions with their children were more likely to be less educated, know less about parenting, and were poor (Vernon-Feagans et al., 2012).

Poverty had been found to compromise the family process of relationship quality and added parental stress conducive to healthy child development and raising children (Chaudry & Wimer, 2016). Parents' responses and interactions with children were affected by higher levels of maternal depression and other mental health challenges that were contributed by poverty and

economic insecurity (Chaudry & Wimer, 2016). The authors indicated that living in poverty impacted relationships between caregivers and children that included: less attention, warmth, secure attachment, harder discipline, and negative mood. The authors also specified that warm and responsive interactions were key in stimulating children's growth, development, and socioemotional security (Chaudry & Wimer, 2016).

Less sensitive parenting was suggested to have been one of the main processes that accounted for relations between children's achievement and income poverty (Garrett-Peters et al., 2016). Similarly, maternal stress had been shown to negatively influence infants and small children and indicated that multiple sources of stress negatively impacted language and cognition skills (Perkins et al., 2013). Indications were also made that less educated parents (i.e. high school drop-out; did not attend college) said fewer words, used less complicated grammar, and made fewer references to events when communicating with children, which in turn affected children's vocabulary growth (Perkins et al., 2013).

A quantitative longitudinal study by Rodriguez, Tamis-LeMonda, Spellmann, Pan, Raikes, Lugo-Gil, and Luze (2009) investigated the language and cognitive abilities in relation to the quality of mother's engagement with children and participation in literacy activities. Hart and Risley (1995) stated, "On average, children in poverty enter kindergarten with a vocabulary of about 5,000 words as compared to 20,000 words for children from higher-income families" (as cited in Rodriguez et al., 2009, p.678). For the study, home visits were conducted with mothers and children when children were 14, 24, and 36 months of age. Child gender and birth order, maternal age at focus child's birth, maternal years of education, maternal employment, father residency status (if mother was living with a partner), and the mother's ethnicity and race were demographic information that was collected (Rodriguez et al., 2009). During each home

visit, children's early literacy experiences (i.e. quality of maternal engagement, learning materials available, and literacy activities) were assessed and were based on items from mother and child play sessions, interviews, and the Home Observation for Measurement of the Environment (Rodriguez et al., 2009). The primary goal of the research was to examine the literacy and language experiences of young children from low-income families and to further understand the relationships between children's development and early experiences during children's first three years of life (Rodriguez et al., 2009).

Study findings indicated that the multidimensional longitudinal examination of children's literacy and language environments showed that literacy activities, learning materials, and maternal quality of engagement were uniquely associated with children's outcomes (Rodriguez et al., 2009). Findings suggested that younger mothers tended to display less stimulation compared to older mothers, and maternal education was a predictor of the quality of children's early learning experiences. Maternal employment was also positively associated with children's outcomes and the literacy environment (Rodriguez et al., 2009). One limitation to the study was that the focus was primarily on literacy experiences provided by mothers and not with fathers, siblings, extended family members, or child care providers. Another limitation was that the authors indicated that future studies should take a more inclusive approach to understanding how multiple people influenced children's literacy development (Rodriguez et al., 2009).

According to other researchers, the presence of the toxic aspects of poverty impacted impacted the quality of caregiving provided by adults that impaired rather than alleviated the effects of stress on children's brains (Blair & Raver, 2016). In the next section, the effects on parenting caused by the home environment and lack of resources is discussed.

### **Home Environment and Reduced Resources**

Families who lived in poverty experienced more stress in regards to the home environment, and had reduced resources. Parents experienced maternal hardships such as the inability to afford adequate and nutritious food, and were incompetent to meet other basic needs that included housing, paying bills and utilities, and access to medical care (Chaudry & Wimer, 2016). Poverty directly reduced resources available for day-to-day consumption. The authors also indicated that parents were less likely to invest in developmental efforts such as educational books, toys, and high-quality early care and education that contributed to children's development and educational outcomes (Chaudry & Wimer, 2016).

A quantitative longitudinal study by Schmitt, Simpson, and Friend (2011) assessed the relationship between the home literacy environment and early language acquisition during the infant and toddler years. DeBaryshe (1993), Deckner et al. (2006), Frijters et al. (2000), and Payne et al. (1994) stated, "Age of onset of shared reading, visits to the library, number of books in the home, and the quality of reading interactions are associated with child language" (as cited in Schmitt et al., 2011, p.411). The first study conducted included 24 male and 26 female typically developing infants that ranged from 16 to 21 months of age. Selection criteria for participation of the infants was normal hearing and vision, from full-term pregnancies, and a parent report of English language exposure greater than or equal to 75% total weekly exposure (Schmitt et al., 2011). The first study evaluated the relative effectiveness of the home literacy environment that predicted language comprehension prior to when children turned two. The study found that maternal responsiveness and shared attention with literacy behaviors was effective in predicting early comprehension vocabulary (Schmitt et al., 2011).

The second study included 12 males and 15 females between the ages of 24 and 40 months from the first study (Schmitt et al., 2011). The purpose of the second study was to

observe parent and child interactions and the authors hypothesized that home literacy experiences related to toddlers' expressive language (Schmitt et al., 2011). The study found that measures from the home literacy environment during children's second year predicted later language production during the third year, and that active engagement at home with infants was more strongly associated with cognitive and language development in the first years of life than are explicit instructional activities (Schmitt et al., 2011). Limitations to the studies indicated that further research with larger samples of children was needed, and data with children during the preschool period would have been beneficial to document more explicit literacy activities (i.e. shared book reading) (Schmitt et al., 2011). The study's findings related to the research question in that the information discussed how the home environment and parent involvement impacted children's early language skills.

Other researchers indicated that studies have shown that when families were faced with physical and psychosocial stressful conditions within the home, parents had a higher risk of becoming less warm and sensitive in caregiving techniques. In turn, the conditions caused children to demonstrate higher cortisol levels and lower executive function skills that contributed to difficulty in regulating emotions and behaviors (Blair & Raver, 2016). Another factor considered was that many families often moved from one home to another in order to have continued living together and afford housing, which created chaos in children's lives (Vernon-Feagans et al., 2011). Poverty is associated with less access to transportation and childcare, more non-standard work hours, and higher instability of families which created chaos in low-income families and impacted parents' caregiving techniques (Vernon-Feagans et al., 2011). The research will now focus on resources and early education programs that are offered for



children, and how educators can best support children and families to enhance children's developmental outcomes.

### **Supports for Children and Families**

Families that are considered to be low-income and live in poverty often need extra emotional and educational support from community resources. Children's outcomes, the achievement gap, and long-term benefits for children in school and life could have been improved by participating in high-quality early education programs (Stark, 2016). In a qualitative research article, Stark (2016) described the role of chief state school officers and research that coincided with the mission of the officers. The author described in the article how chief state school officers were public officials who headed departments of elementary and secondary education in the states; the officers provided advocacy and leadership regarding major educational issues and sought to close achievement gaps in the early childhood years (Stark, 2016).

The author discussed that low-income children entered kindergarten lacking skills necessary for a strong start in school, and indicated that early differences compared to children who were not low-income widened over the course of children's educational years (Stark, 2016). Chiefs in the article identified five action steps that influenced the value of early childhood education. The five actions steps included: increase investment to provide quality, voluntary early education for all children; build a high performing early childhood workforce; connect early childhood programs and elementary schools; accelerate improvement and innovation in early childhood programs; and engage families and communities in learning (Stark, 2016). The author discussed that community partners played a vital role in supporting young children and families by providing children with learning opportunities such as: mentoring, tutoring, and

attending enrichment opportunities offered at parks, libraries, and community centers (Stark, 2016).

Limitations of information in the article indicated that family engagement strategies were practiced unequally, and many elementary schools lacked on constructing successful early childhood family engagement practices, such as home visits from teachers (Stark, 2016). The author discussed that strategies needed to be incorporated to increase funding that reflected the high costs of early childhood education during the birth-third grade year; to work with legislators to incorporate Pre-K funding for the state's finance systems; and work with the government to increase reimbursement rates for child care subsidy systems. With more funding, low-income families would have more high-quality options for educational experiences and help paying for child care (Stark, 2016). The article related to the research question in that support and funding need to be incorporated into education to help support families that live in poverty.

A qualitative study by Cuthrell et al. (2010) discussed poverty's effects on children during the early childhood years and also discussed strategies for working with school-age students and families that lived in poverty. The researchers that conducted the study worked to identify strategies to best serve children who lived in poverty as well as explored the effect of poverty in the role of families, teachers, and schools (Cuthrell et al., 2010). Grissmer, Flannagan, Kawata, and Williamson (2000) stated, "The achievement gap could be addressed by targeting resources to disadvantaged families and schools, lowering class size in early grades, strengthening early childhood and early intervention programming, and improving teacher education and professional development" (as cited in Cuthrell et al., 2010, p. 105).

The authors indicated that strong academic gains could be created for students when parents, teachers, and schools worked together. Research further indicated that educators

specified that early childhood education was the most effective intervention for closing the achievement gap between low-income and middle-to-upper-income children (Cuthrell et al., 2010). The authors noted that the United States is the only industrialized nation that did not offer universal child care and preschool programs (Cuthrell et al., 2010).

Limitations and further research indicated that it was important that educators and parents worked together to include parents as the primary education of children, parents and community members were advocates and supporters of educating children, and parents and community members participated in the education of all children. The authors also indicated that teachers and programs continued to explore effects and strategies that affected the development of children (i.e. poverty factors) (Cuthrell et al., 2010). The research article related to the research question in that the article discussed the culture of poverty and how educators and programs could further understand and support children who lived in poverty. Similar findings were discussed regarding the importance of supporting families through early childhood programs.

### **Parent Involvement at Home**

Parent involvement with children in the home environment is vital in promoting children's development, however, there are often barriers that prevent parent involvement. One qualitative research article by Bierman et al. (2017) addressed the role parents played in supporting children's early learning and school readiness skills. The authors expressed the importance of supporting parents' efforts to help children develop which helped improve children's school readiness skills, enhanced social skills, reduced behavioral problems, and promoted academic success (Bierman et al., 2017). "Positive parent involvement and support for learning can improve disadvantaged children's school readiness and start to close this gap in school success" (Bierman et al., 2017, p. 4). The authors indicated that parents played the lead

role of supporting children's school readiness and overall early development (Bierman et al., 2017).

The authors continued to discuss that even though parents put high emotional investment in their children, parents that lived in poverty lacked resources, supports, and faced disproportionate burdens that impaired positive parenting practices and limited parental involvement in children's schooling. Burdens and lack of resources included: unsafe and overcrowded living conditions, frequent single-parenting, elevated parental health and mental health disabilities, and low levels of parental education (Bierman et al., 2017). Disadvantaged children's school readiness skills could have been improved and the gap could have started to close between low-income and middle-class children with positive parent involvement and support for learning (Bierman et al., 2017).

Limitations and challenges from the research indicated that a gap still existed as socioeconomic disadvantages and stress often undermined parent engagement by burdening parents with other pressing priorities (paying bills, stressful home conditions, etc.). Research from the studies indicated that programs that promoted parent-engagement practices needed to be more strategic, intensive, and more involved than the practices that were currently in place (Bierman et al., 2017). This article related to the research question in that parent involvement played a significant factor in children's cognitive, social-emotional, language, and physical health development.

Other authors shared similar findings. Parents played a tremendous influence on their children's education trajectory based off of interactions families had with their children during the critical period of early brain development and based off of the choices families made about education (Stark, 2016). The most effective forms of parent involvement were those that

engaged families on working directly with children on learning activities in the home, and the earlier that family involvement began in a child's educational process, the more influential were the effects (Cuthrell et al., 2010). Next, early childhood programs will be discussed to describe ways in which parents can gain extra support in the education of children.

### **Head Start and Early Childhood Programs**

Children that live in poverty need educational supports to support overall development. One program that supported low-income children and families was Early Head Start (EHS), which is a free comprehensive federal program that enrolls pregnant women and children (infants and toddlers) that moderates the relationship between school readiness skills and children's cumulative risk exposure (Mistry et al., 2010). Early Head Start offers children and families support in education, nutrition, social-emotional skills, and health resources (Mistry et al., 2010). The National Head Start Association (NHSA) (2019) indicated in the United States in 2017 that there were 154,352 funded spots for Early Head Start (pregnant moms-three year olds) and only seven percent of eligible children under the age of three had access to Early Head Start. In Minnesota, 3,098 children were enrolled in Early Head Start during the 2017-2018 school year and only nine percent of children under the age of three had access to Early Head Start (National Head Start Association, 2019).

The National Head Start Association (2019) listed statistics from 2017 on how the program supported low-income families who were involved in Early Head Start (pregnant moms-three years old) and Head Start (three-five year olds) in the United States:

- 1,02,102 children had continuous access to health care
- 404,950 children participated in health education
- 944,808 children had continuous access to dental care

- 15,290 pregnant women were served

The National Head Start Association (2019) also listed statistics in Minnesota from the 2017-2018 school year that involved families and children under the age of five that included:

- 71% of families had access to family services including crisis intervention, parenting education, and job training
- 97% of children were up-to-date on immunizations
- 99% of children had access to a medical home
- 88% of children had access to a dental home

Overall, Early Head Start was a vital program for families and children that supported children's development, as well as family health needs. Further discussion regarding supportive programs for families is discussed.

Similarly, home visit programs were offered (i.e. Early Head Start) individually in families' homes where families were given learning materials and showed how to use the materials to encourage children to enjoy learning at home (Bierman et al., 2017). The home visit programs enhanced child development and school readiness skills by improving the quality of child and parent interactions that nurtured learning motivation and thinking skills, and supported children's self-regulation and social competence skills, while enriching the learning materials in the home environment (Bierman et al., 2017).

The importance of providing supportive programs for families is also discussed. Authors discussed that if preschool-based efforts by educators did not attract families as well as helped to improve parent behaviors and attitudes, then the efforts did not reduce socioeconomic disparities or improve child school readiness and success (Bierman et al., 2017). Overall, children and

families needed extra supports that helped support children's development and parents' caregiving techniques. Next, the conclusion to the literature review.

### **Conclusion**

In conclusion, poverty significantly impacted infant and toddlers' overall development. Children's language, physical health, social-emotional, and cognitive brain development were all affected from living in poverty (Evans & Kim, 2013). Poverty also significantly impacted parent's parenting skills, involvement at home, and families' home environments (Perkins et al., 2013). Poverty statistics proved that poverty is prevalent in the United States (Brito, 2017). Research demonstrated that Early Head Start helped support low-income children and families with education and health needs (Mistry et al., 2010). The literature review discussed how further support for children and families from early childhood programs and educators was helpful in supporting children and families who were low-income (Stark, 2016). It is vital for educators and communities to understand the significant detrimental effects that poverty has on children's development, education, and on parent involvement. Poverty impacts families in every community and school; there is much work to be done to further understand how children and families could best be supported. The next chapter will discuss a summary of the insights gained from the literature review research to further lead to improved practices, policies, and instruction in education. The chapter will provide descriptions of how research should inform education policies and instructional practice, limitations discovered in the research, and suggestions for future studies.

### Chapter Three: Research Summary and Conclusions

In order to answer the question, “In light of early childhood theories and philosophies and current research in the field regarding best practice, what is the future of programming and practice in early education?” educators must consider the available research on poverty’s effects on children and families. Poverty proved to be a significant factor that affected infant and toddlers’ overall development that included: language, physical health, social-emotional, and cognitive skills (Brito, 2017). Poverty statistics from 2017-2018 specified federal poverty guidelines that were used to determine eligibility for federal programs such as food support, housing, or to enroll in Early Head Start (U.S. Department of Health and Human Services, 2019). Parenting skills were also considerably impacted by living in poverty that in turn affected children’s development and school readiness skills (Garrett-Peters et al., 2016). Research on poverty was important to discuss to help support future programming of early childhood programs and for teachers to gain knowledge on how to best support young children’s learning and development. The review will discuss the 15 studies that were discussed in the literature review. The first section discusses poverty statistics.

#### **Poverty Statistics**

Poverty statistics that were discussed within the literature review gave insight into how poverty was defined and the deciding factors that contributed to families living in poverty. Poverty statistics identified that poverty was determined by a lack of resources and included financial, mental, emotional, family support systems, and relationships (Cuthrell et al., 2010). The statistics from 2017 indicated that 15.5 million children lived in poverty (Brito, 2017). The U.S. Department of Health’s (2019) poverty guidelines helped to understand income levels that determined whether or not a family was considered to be low-income. This section in the



literature review connected to the research question by discussing how significantly poverty impacted children and families. Educators need to understand the negative effects of poverty to best support children's development and skills. Next, the summary discusses the research regarding typical infant and toddler development.

### **Infant and Toddler Development**

In the literature review, Bierman et al. (2017) discussed typical infant and toddler development to explain what development and changes happened during birth to three years old. The authors discussed how children's brains rapidly grew during the infant and toddler years, and significant language, social-emotional, and cognitive skills emerged (Bierman et al., 2017). The infant and toddler development section described typical development for infants and toddlers (birth to three) to further understand in the following sections how significantly poverty affected children's development. The following section discussed the overall impacts of poverty on children.

### **Impacts of Poverty on Children**

Research discovered that children's later academic success in kindergarten was affected from environmental stressors and chaotic homes when children lived in poverty (Garret-Peters et al., 2016). The study indicated that children's pre-academic and regulatory skills were impacted when children had lived in chaotic homes. The research related to the research question in that poverty impacted children's pre-academic and regulatory skills which was related to the research topic of how poverty affected children's development (Garrett-Peters et al., 2016). Findings that did not support the research question included limitations to the study where children were not assessed based on other potential causes of children's delay in academic achievement that involved the establishment of learning opportunities within a child's home (Garrett-Peters et al., 2016).

Research indicated that children's education and cognitive skills were affected by poverty, and children had a challenging time adapting to the environment which then impacted children's long-term development (Chaudry and Wimer, 2016). The research related to the research question after investigating how children's developmental outcomes were affected by poverty. The research indicated how children's education and developmental outcomes were affected by poverty which related to the question of how poverty affected children's development (Chaudry & Wimer, 2016). The research did not determine biological effects of poverty on children's development; this would have been beneficial to learn more how poverty affected children's physical health and biology.

Other important research discussed factors that negatively impacted children's development that included: more exposure to television, fewer age-appropriate toys, less cognitively stimulating environments, crowded homes, toxins, less access to healthy foods, fewer places to engage in physical activities, and more exposure to crime (Evans and Kim, 2013). The research related to the research question in that the research discussed how various factors impacted children which in turn affected children's development. The research also indicated that parental harshness and responsiveness to children was affected by living in poverty. Poverty not only impacted children directly, but also impacted parents which in turn created environments that were not as stimulating or beneficial for young children (Evans & Kim, 2013). Findings from the research that did not support the research question is that there was little data on developmental trajectories related to early childhood poverty compared to other studies that were cross-sectional (Evans & Kim, 2013). Next, research on language development is discussed.

### **Language Development**

Research found that children's emerging language skills were impacted by living in poverty and researchers also sought to discover how socioeconomic disparities contributed to gaps in academic achievement and school readiness skills compared to children from higher-income socioeconomic status. The research also found that children had lower vocabulary scores, and that disparities in language emerged sometime between 15 to 21 months of age (Brito, 2017). The research related to the research question in that the findings from the research indicated that children's language development was impacted from living in poverty. The research did not discover how pathways through which socioeconomic status shaped language development, but rather only indicated that socioeconomic status was linked to language development (Brito, 2017). Further insight of how socioeconomic status impacted children's language development would have been important to learn more about.

Perkins et al. (2013) indicated through research that children's phonological awareness, vocabulary, and language processing skills were impacted at various developmental stages by poverty. The research discovered that poverty predicted deviations from normal language development (Perkins et al., 2013). The research related to the research question by researching how children's language development was impacted by living in poverty. The study did not further investigate how stress and parenting factors affected language development as the factors would have likely significantly impacted children's language development.

Vernon-Feagans et al. (2012) indicated through research that household chaos during children's first three years of life was a pathway to children's poorer language development and suggested that household chaos predicted children's language development. When children lived in chaotic environments, there were less opportunities for children to develop language skills. The research related to the research question in that the research discussed how chaotic home

environments from living in poverty affected children's receptive and expressive language skills. The study did not provide any research in regards to how poverty affected children's other developmental skills, such as social-emotional or cognitive (Vernon-Feagans et al., 2012). Next, research on physical health is discussed.

### **Physical Health**

Various researchers discovered how poverty impacted children's physical health. Children that lived in poverty experienced more learning disabilities, developmental delays, lead poisoning, low birth weight, and growth stunting (Cuthrell et al., 2010). Children experienced more health issues that in turn impacted children's physical and health development (Guo & Harris, 2000). Further, childhood obesity was 40% more prevalent among poor families compared to families from higher-socioeconomic status (Chaudry & Wimer, 2016). Research within the research articles gave insight into how poverty affected children's physical health which provided information for the research question of how poverty affected children's development. Limitations from the fifteen research articles did not fully discover how children's health was impacted by living in poverty but focused more on children's cognitive, social-emotional, and language development. Next, research is reviewed on the impacts of poverty on children's social-emotional skills.

### **Social-Emotional**

Research articles revealed that poverty impacted children's social and emotional skills. Research indicated that children had more problematic behaviors and poorer self-regulatory skills when children were exposed to higher levels of social and family risks (Mistry et al., 2010). Children's self-regulating behaviors were impacted by poverty as well as children's psychological stress (Garrett-Peters et al., 2016). Research also discussed how children experienced more physiological stress, anxiety, depression, aggression, and reduced self-

regulatory abilities (Evans & Kim, 2013). Research related to the research question by discovering how poverty impacted children's social and emotional development. While many of the articles discussed how poverty impacted children's social and emotional skills, further research could have been beneficial to dig deeper into what factors caused children to lack in social and emotional skills. Next, research is discussed on children's cognitive and brain development.

### **Cognitive and Brain Development**

Several research articles discussed how poverty impacted children's cognitive and brain development. Blair and Raver (2016) revealed through research that children who lived in poverty had less gray matter in the brain (supported execution of actions and processing of information). Chronic stressors (i.e. household chaos, conflicts with family members) disturbed children's stress-related hormones that negatively impacted children's brain development and function (Blair & Raver, 2016). The research related to the research question of how poverty impacted children's development by discovering how children's brain development was impacted by living in poverty. The findings from this research did not indicate at what points during children's brain development were most significantly impacted by caregiving of adults.

Research found that poor household environments influenced the rate of infant's brain development. The authors also concluded that brain differences widened between children in low-socioeconomic status and higher-socioeconomic status as children aged (Hanson et al., 2013). The research related to the research question by describing how children's cognitive and brain development were impacted by living in poverty. The research did not indicate how other factors (i.e. parental stress, nutrition) impacted children's brain development, but rather only focused on the environment.

Other research found that brain regions (amygdala & hippocampal) associated with stress regulation and emotional processing were negatively affected when children lived in poverty. The researchers also discovered that children that were school-age had smaller white and gray matter when exposed to poverty during the early childhood years (Luby et al., 2013). The research related to the research question by providing information on how children's brain development was impacted after having lived in poverty. Further research on how genetic factors impacted children's brain development could have contributed more in-depth details of how poverty impacted children's brain development. Next, research is discussed on the impacts of children's school-readiness skills.

### **School-Readiness**

Research indicated that children's social behavior, attention, behavioral regulation, cognitive, and academic achievement were impacted by children's social and family risks which negatively affected children's school readiness skills (Mistry et al., 2010). The research related to the research question of how poverty affected children's development by discussing how children's cognitive and social-emotional skills were impacted by living in poverty. Further research could have been beneficial regarding how children's experiences (i.e. childcare, preschool) outside of the home may have impacted children's developmental outcomes. Next, long-term effects of poverty.

### **Long-Term Effects**

Children who grew up in poverty often also experienced long-term negative effects of living in poverty. Research found that children were impacted into adulthood and throughout a lifetime after experiencing poverty during the early childhood years. Also, children who lived in poverty were more likely to be behind academically than peers, were more likely to be placed in special education, drop out of school, and likely to never attend college (Stark, 2016). Children were

also more likely to become a teen parent and be arrested for a violent crime (Stark, 2016). Findings that did not support the research were if there were differences between males and females regarding long-term outcomes and what percentage of children were able to break out of the cycle of poverty if positive and engaging early childhood programs were provided to children as infants, toddlers, or preschoolers. Next, research summaries on the impacts of poverty on parenting.

### **Impacts of Poverty on Parenting**

Researchers discovered that not only did poverty affect children's development, but poverty affected parents' responsiveness and caregiving skills, which in turn affected children's overall development (Rodriguez et al., 2009). Research indicated that quality of engagement, as well as children's literacy and language environments were associated with children's outcomes. Findings also found that a mother's maternal education and employment was a predictor of the quality of children's early learning experiences, children's outcomes, and the literacy environment (Rodriguez et al., 2009). The research related to the research question by discussing how mothers impacted children's early learning experiences when having lived in poverty. Findings that did not support the research was research on how the male figure in children's lives impacted children's development, and if the male figure positively or negatively impacted children's development. Next, research is discussed on the impacts of the home environment and the reduced resources for families.

### **Home Environment and Reduced Resources**

Children's home environments with reduced resources impacted children's development (Schmitt et al., 2011). Research indicated that maternal responsiveness and time spent on literacy activities was effective in predicting children's early comprehension vocabulary. The

study also found that active engagement of literacy activities in the home environment was strongly associated with cognitive and language development during the first five years of life (Schmitt et al., 2011). The study related to the research question by discovering how engagement of literacy activities in the home of children who were poor impacted children's language and vocabulary development. Findings from this article to support the research question more in-depth could have included how the home environment also impacted children's cognitive, social-emotional, or physical health. Next, research is summarized regarding supports for children and families.

### **Supports for Children and Families**

Research indicated that low-income children entered kindergarten lacking skills, and that educational differences widened between children who were lower-socioeconomic status compared to children from higher-socioeconomic status (Stark, 2016). The article related to the research question by explaining how children who lived in poverty lacked educational skills when entering kindergarten, and how community partners could further support parents and children to enhance children's development. The author did not conduct a research study which would have been beneficial to learn how community partners positively impacted parenting skills and children's development.

Researchers discussed poverty's effects on children's development during the early childhood years and discussed the importance for parents, teachers, and schools to work together to help promote strong academic gains for children (Cuthrell et al., 2010). This study related to the research question in that the research discussed poverty's effects on children and described how schools and parents could have worked together to help reduce the learning gap between children who lived in low-socioeconomic status compared to higher-socioeconomic status. The research did not fully support the research question due to the fact that the article focused more



on school-aged children rather than infant and toddler age children. Next, research is discussed regarding parent involvement at home.

### **Parent Involvement at Home**

Research is important to understand how parents' involvement affected young children's development. Educators that supported parents' efforts helped improve children's school readiness skills, reduced behavioral problems, and promoted academic success (Biermann et al., 2017). The article related to the research question being that the research discovered that the effectiveness of parent involvement impacted children's overall development. Further research could have been conducted to have learned more statistics regarding positive outcomes for parent involvement or related to burdens and lack of resources that impacted children's development. Head start and early childhood programs are discussed next.

### **Head Start and Early Childhood Programs**

Researchers described that the Early Head Start program was a free program for children and families who were low-income to help with school readiness skills and reduce families' cumulative risks (Mistry et al., 2010). The research related to the research question by discussing how Early Head Start helped reduce children's risks from exposure of living in poverty and helped improve children's developmental outcomes (Mistry et al., 2010). Further statistics from Early Head Start on how this program has helped children improve academically would have been beneficial for the current research. Next, the conclusion for chapter three.

### **Conclusion**

The research articles that were referenced for research for the literature review indicated that children's overall development was impacted by living in poverty. Researchers found that children's physical health, social-emotional, cognitive and brain development, and language

were affected by living in poverty (Brito, 2017). The research studies also discovered that parenting warmth and effectiveness were impacted negatively by poverty and in turn impacted children's development (Rodriguez, 2009). The research indicated that children's home environment was a factor that negatively impacted children's development (Schmitt et al., 2011). The research discussed how community programs, including Early Head Start could have supported and positively impacted children's development and helped guide parents regarding positive parenting techniques (Mistry et al., 2010). All of the research articles helped to provide important findings that connected to the research question.

Next, chapter four will discuss insights gained from research. The insights will help lead to improved instruction, practices, and policies in education. Suggestions will be given based on limitations and gaps in research for ideas for possible future studies.

## Chapter Four: Discussion and Application

There are many suggestions and practices that informed instruction of how research could lead to improved practices and policies in education regarding the impacts of poverty on infant and toddlers' development. The first section discusses instructional practices and educational policies.

### **Instructional Practices and Educational Policies**

When educators understand the effects that poverty has on children's overall development, educators could be more aware of children's behaviors and understand why children were behind on academic skills. If educators are able to look beyond the classroom and learn about children's home lives, educators can then create instructional practices that generate a positive and beneficial learning environment for children. One suggestion is the implementation of home visits.

#### **Home Visits**

While not always feasible, it would be beneficial for all early childhood educators to conduct a home visit at least once or twice a year with each family to best understand children's experiences and home lives, as well as get to know parents at a more personal level. Further, home visits also would help enhance children's development when conducted on a frequent basis. Research indicated that home visits were effective programs that promoted learning readiness skills by enriching learning materials at home, helped encourage children to use thinking skills, and improved parent and child interactions (Biermann et al., 2017). Access to high-quality educational programs were also beneficial for children and families.

#### **Access to High-Quality Education**

Research should inform instructional and educational practices that promote how vital it is for low-income children to participate in programs or have access to affordable high-quality

care. Unfortunately, high-quality infant and toddler care is limited or extremely expensive for most low-income families, except the families that qualify for Early Head Start or receive child care assistance (Mistry et al., 2010). Research should continue to advocate how important it is for all families that live in poverty to be able to have access to educational programming, whether that is through childcare, home visits, or attending parent and child classes. Children's development should continue to be studied to understand how poverty affected children's typical development.

### **Studying Children's Development**

Research from the literature review indicated that infant and toddlers' development was negatively impacted when having grown up in poverty (Chaudry & Wimer, 2016). Poverty affected children's physical, social-emotional, cognitive, and language developmental outcomes (Evans & Kim, 2013). Children's overall development needs to be understood in order to grasp how poverty impacts children's normal development. Parents that live in poverty also need support.

### **Supports for Parents**

Research is also important to understand how poverty affected parents' capabilities for parenting that in turn affected children's development. Poverty had been found to impact family experiences that were important for healthy child development to take place (Chaudry & Wimer, 2016). Poverty added to parental stress and relationship qualities for raising children, contributed to distress, and reduced parents' ability to engage in responsive and warm interactions with children that were imperative to stimulating children's development and growth (Chaudry & Wimer, 2016). Instructional practices and policies need to go beyond focusing on children who live in poverty and also support and focus on parents who live in poverty since

parents are the direct source for children's development. Next, suggestions and limitations from the research are discussed.

### **Suggestions and Limitations**

In order to best support children and families who live in poverty, suggestions of supports for early childhood programs and guidance for parents is important to discuss. The first suggestion is the importance of home visits for families to take part in.

#### **Home Visits**

While home visits are a fundamental program within the Early Head Start program, home visits likely are not conducted elsewhere such as at childcare sites, or within preschools at public schools. Research should inform educational policies that all programs that serve infants and toddlers should conduct at least one to two home visits per year in order to fully understand children's home lives to best meet the developmental needs of every child. Further, home visits should be used to support communication, support, and collaboration (Biermann et al., 2017). The authors also suggested that programs that support socioeconomic disadvantaged children and families needed to be strategic, intensive, and more involved than the programs that are widespread currently (Biermann et al., 2017).

There are many benefits of parents and children taking part in home visits. Parents learn how to more positively interact with children, engage in play and literacy activities, and more language use often takes place during home visits (Biermann et al., 2017). Parents are also given the tools to enhance children's learning and promote school readiness skills before children enter into school. If educators can support children and families in the home environment, children will then likely have more school readiness skills when entering into school (Biermann et al., 2017).

Limitations included the lack of funding, parents unwilling to have teachers come to their homes, or teachers being uncomfortable with going to families' homes. Research indicated that it is vital to strengthen early childhood and early intervention programming to help address and reduce the achievement gap. The authors also indicated that strong academic gains for children could be created when educators and families worked together (Cuthrell et al., 2010). Next, the importance of access to high-quality education for children is discussed.

### **Access to High-Quality Education**

Future studies should examine how children's development was positively impacted by attending early childhood programs, participation in parent-child classes and consistent home visit programs. The studies could in turn help promote the idea of providing more funding to help families participate in educational experiences or provide quality childcare for children. Policy and intervention efforts to lessen families' experiences of economic risk during children's formative years were vital and important to foster relationships between infants and the caregivers (Mistry et al., 2010). Policies need to be in place to educate teachers and community members (i.e. social workers) on the effects of poverty on children's development to be able to provide high-quality care and education for children and families (Cuthrell et al., 2010). Programs that support children and families will help reduce the negative impact of poverty on children's development and on parent involvement. Next, suggestions and limitations are discussed for studying children's development.

### **Studying Children's Development**

Further research that is more current is needed to fully understand the effects of poverty on infant and toddlers' development. More research is needed to understand how children's brain development is impacted by stress, chaos, and limited experiences in the home

environment. Research is also needed to gain more understanding of how children's social-emotional, health, and language skills are affected by poverty in order for educators to have a better understanding of how to best support children's development. Policies need to promote the importance of early childhood programs for children who live in poverty and to provide parenting education and support to parents (Luby et al., 2013). Educators need to have training on how children's development is impacted by the home environment (i.e. chaotic homes, crowded, poor conditions) and parent involvement. Educators need to be aware that all children do not come from calm, safe, and enriching homes and that in turn the negative home environments impact children's ability to learn language, cognitive, and social-emotional skills (Garrett-Peters et al., 2016).

Gaps in the research articles did not indicate information on what types of programs or training was helpful or beneficial for educators in order to best understand poverty's effects on children's development. While it is important for childcare teachers and educators to take training for infants and toddlers, it is also important for educators who teach older children to have an understanding of poverty being that poverty affects children of all ages. Next, suggestions and limitations for supporting parents is discussed.

### **Supports for Parents**

While many of the research articles discussed how poverty impacted parents, there is much more research that is needed to understand in-depth how educators can best support parents who live in poverty. Training and education for educators regarding how poverty impacts parents would be beneficial so that educators could have a clearer understanding of parents' parenting techniques, attitudes, and reasons for lack of involvement.

Families who live in poverty often focus more on stresses in the environment and are unable to give full effort into promoting child development skills with children (Garrett-Peters et al., 2016). Research needs to further understand the implications of chaotic conditions and poor environments to understand more in-depth the impacts on family and child functioning (Garrett-Peters et al., 2016). Further research could focus on what effective programs or tactics helped parents to become more involved and less stressed in the home environment. Gaps in research did not focus on father involvement but rather only on mother involvement (Garrett-Peters et al., 2016). Further research could focus on poverty's effects on father figures and how children's development was affected. Research did not indicate any information on successful outcomes for parents when given resources from sources such as home visits, parenting classes, or involvement in parent-child classes (Garrett-Peters et al., 2016). When parents are guided and supported, then children have more of an opportunity to flourish even when growing up in poverty. Next, the conclusion to the capstone research paper.

### **Conclusion**

The research question asked: "How does poverty affect infant and toddlers' development?" The research explored how poverty impacted parents' techniques, influences of the home environment on children's development, and discussed effective early childhood programs that could support children and parents to reduce the academic achievement gap between children who are low-socioeconomic status and children from higher-socioeconomic status. This paper synthesized various available research on poverty's effects on children's development in order to gain a significant understanding of the effects of poverty as well suggestions to help support children and families. Significant learning took place during the infant and toddlers years and research found that poverty negatively affected children's



development and academic skills (Chaudry & Wimer, 2016). Poverty negatively affected infant and toddlers' cognitive, physical health, language, brain development, and social-emotional skills (Brito, 2017). Children and families who lived in poverty often faced barriers that contributed to various negative effects that affected children's development and had lifelong impacts on children. Poverty also impacted parent involvement and techniques, and created chaotic home environments (Garrett-Peters et al., 2016). The research found that when parents spent more time engaging, teaching, and reading to their child, along with involvement in early childhood programs helped children develop closer to other children who lived in a higher socioeconomic status (Biermann et al., 2017).

With education and understanding from educators, children and families can be supported and guided to help reduce the achievement gap for children. Effective early childhood programs were found to be beneficial and supportive for children and parents that lived in low-socioeconomic status (Biermann et al., 2017). Even though poverty impacted children's development and parenting in a negative way, research indicated that Early Head Start supported families with parenting, education, and health needs that helped reduce the achievement gap between children in low-socioeconomic status compared to children from higher-socioeconomic status (Mistry et al., 2010). Poverty continues to be a significant factor that impacts children and families in the United States (U.S. Department of Health and Human Services, 2019). "Growing up in a socioeconomically disadvantaged environment is associated with substantially worse health and impaired psychological, cognitive, and emotional development throughout the life span" (Brito, 2017, p. 155). Children are impacted for a lifetime from the adverse effects of poverty, however, children's lives can be improved beginning during the infant and toddler years.

## References

- Bierman, K.L., Morris, P.A., Abenavoli, R.M. (2017). Parent engagement practices improve outcomes for preschool children. *Edna Bennett Pierce Prevention Research Center*, 1-10.
- Blair, C. & Raver, C. (2016). Poverty, stress, and brain development: New directions for prevention and intervention. *Academic Pediatrics*, 16(3), 30-36.
- Brito, N. H. (2017). Influence of the home linguistic environment on early language development. *Policy Insights from the Behavioral and Brain Sciences*, 4(2), 155-162.
- Brooks, J. (2008). *The process of parenting*. New York, NY: The McGraw-Hill Companies, Inc.
- Chaudry, A. & Wimer, C. (2016). Poverty is not just an indicator: The relationship between income, poverty, and child well-being. *Academic Pediatric Association*, 16(3), 23-29.
- Cuthrell, K., Stapleton, J., & Ledford, C. (2010). Examining the culture of poverty: Promising practices. *Heldref Publications*, 54(2), 104-110.
- Evans, G.W. & Kim, P. (2013). Childhood poverty, chronic stress, self-regulation, and coping. *Child Development Perspectives*, 7(1), 43-48.
- Garrett-Peters, P.T., Mokrova, I., Vernon-Feagans, L., Willoughby, M., Pan, Y., & The Family Life Project Key Investigators (2016). The role of household chaos in understanding relations between early poverty and children's academic achievement. *Early Childhood Research Quarterly*, 37, 16-25.
- Guo, G. & Mullan Harris, K. (2000). The mechanisms mediating the effects of poverty on children's intellectual development. *Demography*, 37(4), 431-447.

Hanson, J.L., Hair, N., Shen, D.G., Shi, F., Gilmore, J.H., Wolfe, B.L. & Pollak, S.D. (2013).

Family poverty affects the rate of human infant brain growth. *Plos One*, 8(12), 1-9.

Luby, J., Belden, A., Botteron, K., Marrus, N., Harms, M.P., Babb, C., Nishino, T., & Barch, D.

(2013). The effects of poverty on childhood brain development: The mediating effect of caregiving and stressful life events. *JAMA Pediatrics*, 167(12), 1135-1142.

Minnesota Head Start Association, Inc. (2019). Retrieved from <http://www.mnheadstart.org/>

Mistry, R.S., Benner, A.D., Biesanz, J.C., Clark, S.L., & Howes, C. (2010). Family and social risk, and parental investments during the early childhood years as predictors of low-income children's school readiness outcomes. *Early Childhood Research Quarterly*, 25, 432-449.

National Head Start Association (2017). Retrieved from <https://nhsa.org/national-head-start-fact-sheets>

Perkins, S.C., Finegood, E.D., & Swain, J.E. (2013). Poverty and language development: Roles of parenting and stress. *Innovations in Clinical Neuroscience*, 10(4), 10-19.

Rodriguez, E.T., Tamis-LeMonda, C.S., Spellmann, M.E., Pan, B.A., Raikes, H., Lugo-Gil, J., & Luze, G. (2009). The formative role of home literacy experiences across the first three years of life in children from low-income families. *Journal of Applied Developmental Psychology*, 30, 677-694.

Schmitt, S.A., Simpson, A.M., & Friend, M. (2011). A longitudinal assessment of the home literacy environment and early language. *Infant and Child Development*, 20, 409-431.

Stark, D.R. (2016). Equity starts early: How chiefs will build high-quality early education.

*Council of Chief State School Officers*, 3-22.

U.S. Department of Health and Human Services (2019). Retrieved from

<https://aspe.hhs.gov/poverty-guidelines>

Vernon-Feagans, L., Garrett-Peters, P., Willoughby, M., Mills-Koonce, R., & The Family Life

Project Key Investigators (2012). Chaos, poverty, and parenting: Predictors of early

language development. *Early Childhood Research Quarterly*, 27, 339-351.