

ABSTRACT

Title of dissertation: CHAOS AND COMMUNITY ATTACHMENT IN RURAL LOW-INCOME FAMILIES: INFLUENCE ON PARENTING AND EARLY CHILDHOOD LANGUAGE AND BEHAVIOR PROBLEMS

Aimée Drouin Duncan, Doctor of Philosophy, 2016

Directed By: Professor Brenda Jones Harden, Department of Human Development and Quantitative Methodology

Families in rural poverty are vulnerable to a range of environmental stressors that negatively impact early childhood outcomes. There is a need for comprehensive research on the context of rural poverty and its impact on a variety of family and developmental processes. This research would inform the development of parenting and early childhood programs by providing information on the risks rural low-income families face, the resources they have, and the services they need to promote the best possible outcomes for vulnerable children and families.

I intended to address the persistent gap in the empirical literature specific to family processes and child development in low-income, rural communities. My major goal was to enhance our understanding of the mechanisms which affect parenting within the context of rural poverty and their influence on child language and problem behaviors, specifically those related to school readiness.

Participants were low-income rural parents ($N = 97$) and their preschool age children ($M=42$ months). Data were collected at one time point in the participants' homes and included measures of chaos, community attachment, parenting stress,

parenting, and child language and behaviors. Hierarchical regression and measured variable path analysis were used to test the relationships between variables.

I found that chaos was significantly related to parenting stress. Community attachment was also found to be significantly related to parenting stress. In addition, positive parenting was significantly related to language outcomes but did not have a significant relationship with behavior problems. Finally, results from my study did not reveal a mediating role of parenting and parenting stress in the relationship between risk and protective factors and child language and behavior problems. My findings are considered in the context of the literature on rural low-income families, and of policy and practice.

CHAOS AND COMMUNITY ATTACHMENT IN RURAL LOW-INCOME
FAMILIES: INFLUENCES ON PARENTING AND EARLY CHILDHOOD
LANGUAGE AND BEHAVIOR PROBLEMS

By

Aimée Drouin Duncan

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Doctorate of Philosophy
2016

Advisory Committee:

Dr. Brenda Jones Harden, Chair
Dr. Rachel Chazan-Cohen
Dr. Elaine Anderson
Dr. Elisa Klein
Dr. Christy Tirrell-Corbin

Dedication

To my mum and dad,

for your unconditional love and your devotion to your children's health and happiness.

To Justin,

for your love, your broad shoulders, and for keeping your promise. JT.

To Alexandra and Adeline,

so you can write your own stories. I hope one day you find your callings and embrace the
journey.

Acknowledgements

I would first like to acknowledge my family and friends. Every one of them knows it has been a goal of mine to take my education as far as it would take me since the third grade. They have loved, supported, and sacrificed beside me for decades so I could get here. Their own journeys, challenges, and successes have inspired me countless times along the way. I am most grateful for their loyalty and devotion. Merci!

I have had the good fortune of many mentors over the years. Notably Dr. James Ferrare who invested in me like nobody before him. He opened my eyes to a new kind of science, and empowered me to seek out a path that utilized my joys and talents to contribute to science and service. That path led me to me to Dr. Deborah Youngman, my Master's advisor and the department chair who took me as a cohort of 1. She and fellow BU faculty member Dr. Thomas Cottle both challenged me and bridged my interdisciplinary training and education and helped me focus on those research interests I hold today. They also made it clear a doctorate was a "must do," and I am thankful for their confidence.

The biggest thanks goes to Dr. Brenda Jones Harden. The term mentor never encompassed quite so much. Thank you for your patience and your understanding. Your passion for your research, your dedication to the well-being of all families and those who serve them, as well as your commitment to your students are inspiring and uniquely authentic. I am proud to be your mentee, and I am grateful to know this work will tie us together professionally and in friendship for many years, and miles, to come. Merci!

Thank you to my dissertation committee for your contributions and commitment. I greatly appreciate your expertise, time, and flexibility in this process.

Thank you to my lab mates, cohort, and fellow graduate students. You make me proud to be a part of this program. I would also like to thank Tiffany Martoccio for her patience in helping me through path analysis and peaking my curiosity in other statistics analyses.

I would also like to acknowledge the other investigators of the ESSS Evaluation Project, Dr. Helen Raikes and Dr. Rachel Chazan-Cohen, as well as all the research and program staff I have worked with over the years. It has been an incredibly valuable experience.

Finally, the rural families across the country who participated in my study deserve thanks for their trust and contributions. Their strengths, challenges, and individuality all deserve to be recognized and heard in this field. I am grateful and look forward to the opportunity to share their stories.

Table of Contents

List of Tables	ix
List of Figures	xii
Chapter 1: Introduction	1
Overview of the Literature	2
The Context of Rural Poverty.....	2
The Effects of Rural Poverty on Family Processes and Parenting.....	7
The Effects of Rural Poverty on Child Outcomes	9
Conceptual Framework	11
Rationale and Goals of Current Study.....	13
Statement of Problem and Research Questions	14
Definition of Terms	16
Conclusion	19
Chapter 2: Literature Review.....	20
Theoretical Framework: Family Stress Theory	21
Poverty	23
Employment.....	24
Rural Kin Networks & Social Supports	25
Neighborhoods.....	28
Childcare.....	29
Home Environment.....	30
Community Attachment among Rural Impoverished Families.....	33

Economic Ties and Social Capital	33
Dependable Social Interactions with Community Members.....	35
Investment in Cultural Traditions and Beliefs.....	36
Community Involvement and Political Engagement.....	37
Parenting	38
Positive Parenting.....	39
Negative Parenting.....	41
Developmental Consequences	43
Cognitive/Language Outcomes	44
Social Emotional Outcomes	49
Research Directions.....	53
Conclusion	56
Chapter 3: Methods.....	58
Research Design.....	58
Study Participant Communities	59
Study Participants.....	62
Data Collection Procedures.....	65
Recruitment.....	66
Home Visit.....	67
Protection of Human Subjects	67
Measures.....	68
Summary.....	77
Chapter IV: Results	78
Data Scoring and Reliability Analyses	78

Missing Data.....	79
Sample Size and Power.....	79
Descriptive Analyses.....	79
Parent Risk and Protective Factors	80
Parenting Scores.....	80
Child Outcomes	81
Preliminary Group Comparisons	81
Correlation Analysis	82
Regression Analysis	88
Additional Analysis	112
Path Analysis.....	118
Summary of Results	121
Chapter 5: Discussion	123
Consideration of Findings.....	124
Risk and Protective Factors and Parenting Stress	124
Risk and Protective Factors, Parenting Stress, and Parenting	127
Parenting and Child Outcomes	128
Research Limitations and Future Directions.....	133
Design.....	133
Validity of Child Measures.....	134
Multiple Forms of Assessment for Parent/Family Constructs.....	136
Implications for Policy and Practice	139
Policy.....	139
Practice.....	144
Conclusion	147

APPENDIX A: EARLY STEPS TO SCHOOL SUCCESS EVALUATION	149
APPENDIX B: STUDY INSTRUMENTS	151
Background Questionnaire	151
Parenting Stress Index (Short Form).....	159
Confusion Hubbub and Order Scale (CHAOS)	162
Sense of Community Index II	163
Brief Infant Toddler Social Emotional Assessment.....	165
Parent-Child Interaction	167
Peabody Picture Vocabulary Test, Fourth Edition.....	176
Preschool Language Scales, Fifth Edition.....	177
APPENDIX C: IRB APPLICATION	178
APPENDIX D: PARENTAL INFORMED CONSENT FORM.....	179
References	181

List of Tables

Table 1 <i>Parent Demographic Descriptive Information</i>	64
Table 2 <i>Child Demographic Descriptive Information</i>	65
Table 3 <i>Measures used in ESSS Program Evaluation Project</i>	70
Table 4 <i>Summary of Dissertation Measures</i>	71
Table 5 <i>Correlations Between Parent Risk and Protective Factors, Parenting Stress, Parenting, and Parent Characteristics</i>	84
Table 6 <i>Correlations Between Parent Risk and Protective Factors, Parenting Stress, Parenting, and Child Characteristics</i>	85
Table 7 <i>Correlations Between Parent Risk and Protective Factors, Parenting Stress, Parenting, and Child Language and Behaviors</i>	86
Table 8 <i>Correlations Between Parent Characteristics, Child Characteristics, Child Language and Behaviors</i>	87
Table 9 <i>Summary of Hierarchical Regression Analysis for Environmental Chaos Predicting Parenting Stress</i>	89
Table 10 <i>Summary of Hierarchical Regression Analysis for Environmental Chaos and Parenting Stress Predicting Children’s PPVT Scores</i>	91
Table 11 <i>Summary of Hierarchical Regression Analysis for Environmental Chaos and Parenting Stress Predicting Children’s BITSEA Problem Behaviors</i>	92
Table 12 <i>Summary of Hierarchical Regression Analysis for Environmental Chaos Predicting Parental Sensitivity</i>	94
Table 13 <i>Summary of Hierarchical Regression Analysis for Environmental Chaos Predicting Parental Cognitive Stimulation</i>	95

Table 14 <i>Summary of Hierarchical Regression Analysis for Environmental Chaos Predicting Parental Positive Regard</i>	96
Table 15 <i>Summary of Hierarchical Regression Analysis for Environmental Chaos and Parenting Predicting Children’s PPVT Scores</i>	98
Table 16 <i>Summary of Hierarchical Regression Analysis for Environmental Chaos and Parenting Predicting Children’s BITSEA Problem Scores</i>	99
Table 17 <i>Summary of Hierarchical Regression Analysis for Community Attachment Predicting Parenting Stress</i>	101
Table 18 <i>Summary of Hierarchical Regression Analysis for Community Attachment and Parenting Stress Predicting Children’s PPVT Scores</i>	103
Table 19 <i>Summary of Hierarchical Regression Analysis for Community Attachment and Parenting Stress Predicting Children’s BITSEA Problem Scores</i>	104
Table 20 <i>Summary of Hierarchical Regression Analysis for Community Attachment Predicting Parental Sensitivity</i>	106
Table 21 <i>Summary of Hierarchical Regression Analysis for Community Attachment Predicting Parental Cognitive Stimulation</i>	107
Table 22 <i>Summary of Hierarchical Regression Analysis for Community Attachment Predicting Parental Positive Regard</i>	108
Table 23 <i>Summary of Hierarchical Regression Analysis for Community Attachment and Parenting Predicting Children’s PPVT Scores</i>	110
Table 24 <i>Summary of Hierarchical Regression Analysis for Community Attachment and Parenting Predicting Children’s BITSEA Problem Scores</i>	111

Table 25 <i>Bivariate Correlations Between Child Auditory and Expressive Language, Risk and Protective Factors, Parenting, and Child Language and Behavior</i>	113
Table 26 <i>Bivariate Correlations Between Child Auditory and Expressive Language, Parent Characteristics, and Child Characteristics</i>	114
Table 27 <i>Summary of Hierarchical Regression Analysis for Environmental Chaos and Parenting Predicting Children's PLS-5 Auditory Language Scores</i>	115
Table 28 <i>Summary of Hierarchical Regression Analysis for Community Attachment and Parenting Predicting Children's PLS-5 Auditory Language Scores</i>	117

List of Figures

<i>Figure 1.</i> Family Stress Model (Conger & Donnellan, 2007)	12
<i>Figure 2.</i> Study Conceptual Model.....	13
<i>Figure 3.</i> Standardized regression coefficients for the relationship between chaos, parenting stress, parenting, and child receptive vocabulary.	119
<i>Figure 4.</i> Standardized regression coefficients for the relationship between community attachment, parenting stress, parenting, and child receptive vocabulary.....	120

Chapter 1: Introduction

A major goal of early childhood policy, research and practice is to enhance the school readiness of children from low-income groups. Scholars have defined school readiness as promoting the capacities, such as language and behavioral skills, which allow children to benefit from formal school experiences (Britto, 2012; Pianta, Cox, & Snow, 2007). An abundance of research has documented the developmental and achievement gaps between low- and middle-income children prior to school entry (e.g., Halle et al., 2009; Reardon, 2012; Reynolds & Temple, 2006), as well as the distinctions between the environments in which low-income young children are reared and those of their more advantaged peers (Bradley, Corwyn, McAdoo, & Garcia Coll, 2001; Evans, 2004; Hart & Risley, 2003). However, the majority of studies on poverty and its effects on young children's development and school readiness have been conducted within the urban core (Blair et al., 2008; Burton, Lichter, Baker, & Eason, 2013). Thus, there is a need to understand the phenomenon of school readiness in rural communities, particularly the environmental factors that promote or hinder young children's development and potential academic and life-course gains.

My study represents an attempt to contribute to the literature on school readiness among rural children from low-income backgrounds, by examining the parenting and environmental risk and protective factors that are related to their language and behavioral skills. In this chapter, I will briefly provide an overview of the literature on rural poverty and the limited evidence about its impact on young children's development, with a particular focus on the developmental processes that promote school readiness. I will then discuss Family Stress Theory as a conceptual framework for studying the family and

development processes in the context of rural low-income families. Finally, I will address the current study, offering a rationale and a delineation of the research questions that guide it.

Overview of the Literature

Poverty impacts 15.5 million children in America (National Poverty Center, 2014) and is a leading risk factor for adverse developmental outcomes for affected children (Aber, Morris, & Raver, 2012; Yoshikawa, Aber, & Beardslee, 2012; National Institute of Child Health and Human Development Early Child Care Research Network, 2005). There are varying degrees of poverty in the U.S. based on geographical location. The U.S. Census Bureau's Annual Social and Economic Supplement reported that poverty among non-metro communities exceeded poverty among urban communities by 3% in 2014 (United States Department of Agriculture Economic Research Service, 2016). Given the high rates of poverty in rural areas, more research is needed to examine the relation of poverty to family, parenting, and child developmental processes among rural populations (Ayoub et al., 2009; Evans, et al., 2005; Raver, Blair, & Willoughby, 2013).

The Context of Rural Poverty

In recent decades, the United States has undergone a disproportionate geographic distribution of historically disadvantaged populations into segregated and isolated communities within urban, suburban, and rural areas (Grusky, Western, & Wimer, 2011; Lichter, Parisi, & Taquino, 2012; Lobao, Hooks, & Tickamyer, 2007). Since 2000, segments of the U.S. population residing in high-poverty urban neighborhoods (consisting of over 40% of residents residing in poverty) rose by one-third (Kneebone, Nadeau, & Berube, 2011). At the same time, America's upper income groups have

increasingly migrated to geographically separated communities (Park & Pellow, 2011), removing their capital and resources from many urban areas. This is a critical marker for increased socioeconomic and spatial inequality in America (Massey, 2007).

Socioeconomic and spatial inequality is an issue in the context of rural America as well (Weber et al., 2005). Today, 7.9 million Americans, or 17% of America's poor population, reside in rural, geographically isolated parts of Appalachia, the Delta, the Southern Black Belt, the Midwest and Great Plains, the Pacific Northwest, New England, the Alaskan panhandle, and American Indian Reservations in the upper Midwest and desert Southwest (Burton, Lichter, Baker, & Eason, 2013; Ulrich & Staley, 2011). These rural communities are rapidly transforming as a result of increasing economic interdependence with urban institutions and the world (Brown & Schafft, 2011; Lichter & Brown, 2011). For example, globalization has disproportionately affected American employment opportunities for rural adults and has reshaped the economic climate for rural family life (Lichter & Graefe, 2011; Smith & Tickamyer, 2011). The 'best and brightest' continue to flee economically depressed rural communities for education and jobs in urban labor markets (Carr & Kefalas, 2009), leaving behind a stratified, less educated, and aging population. This stratification is evident in the number of non-metro counties experiencing a natural population decrease, measured by the number of deaths exceeding births, that grew from 2010 through 2014 (United States Department of Agriculture Economic Research Service, 2016). Thus, over the last few decades, these rural communities have experienced loss of both economic and human capital.

Increasing economic interdependence with urban institutions and globalization have also resulted in the interconnection of racial, ethnic, and cultural groups (Lichter &

Brown, 2011). Whereas Hispanic enclaves have emerged in response to recent local government incentives for farmers in rural America (Massey & Pren, 2012), some of America's most impoverished racial and ethnic minority enclaves are generations old (Lichter, 2012), such as African Americans in the Mississippi Delta and the southern Black Belt (Lee & Singelmann, 2006), Mexican Americans in the lower Rio Grande Valley (Saenz & Torres, 2003), and American Indians on reservations in the Great Plains states and the American Southwest (Snipp, 1989). Current rural poor communities are experiencing changing race relations, transformed economic and political institutions, as well as racial and ethnic segregation which may match or exceed urban neighborhood patterns of segregation (Burton, Lichter, Baker & Eason, 2013).

The disadvantages rendered by poverty in rural communities may be distinct from those in urban communities. Rural communities are often characterized by high concentrations of poverty, social isolation, limited employment mobility, social disorganization, and racial stigma (Burton, Lichter, Baker & Eason, 2013). Physical characteristics of rural communities which may lead to stigma include poorly maintained housing such as what may exist in trailer parks and subsidized housing projects (MacTavish & Salamon, 2001; Twiss & Mueller, 2004). In addition, as the country's need for prisons, hazardous and toxic waste sites, landfills, slaughterhouses, and commercial feedlots increases, rural communities are becoming the sites for this development, which may increase the stigma against rural areas, as well as create health risks (Burton, Lichter, Baker & Eason, 2013). Studies suggest that stigma leads to physical and mental health vulnerabilities across both white and ethnic minority populations who reside within and just outside the boundaries of these rural communities

(Duncan, 1996; Keene & Padilla, 2010; Salamon, 2003). Therefore, it is important to see how these stressors may affect parent well-being, parenting, and child development.

Changing socioeconomic demographics and geographic isolation in rural communities also leads to challenges in providing supportive services to families. The migration of the most apt individuals away from rural communities toward urban prospects decreases the opportunity for grassroots supports to emerge (Carr & Kefalas, 2009). Historically, poor and ethnic minority families' access to quality healthcare and services in economically disadvantaged communities has been less than their more advantaged counterparts (Aday, Quilee, & Reyes-Gibby, 2001). Additionally, generational family composition and family structure affect services. For example, in rural immigrant communities where non-English speaking families have grown to majority status, school districts are not equipped with the appropriate ESL resources (Crowley, Lichter, & Qian, 2006; Lichter, 2012). Also, cash assistance programs are less utilized in rural areas (De Marco, Vernon-Feagans, Family Life Project Key Investigators, 2015), and there are more informal child-care providers (Smith 2006; Walker & Reschke, 2004) with less state oversight and regulations in rural communities (Magnuson and Waldfogel, 2005). There is still much to be learned about the state of rural communities, but these examples illustrate how these under-resourced communities are often unable to meet the evolving needs of these families, thereby contributing to the cycle of generational poverty within rural communities.

Despite the challenges noted in rural communities, protective factors do exist which may promote resilience among poor, rural community members. For example, proximity to family can facilitate network building among kinship groups (Kohler,

Anderson, & Oravec, 2004). Relatedly, rural families may be more dependent on their kin networks than urban families (Marotz-Baden, Hennon, & Brubaker, 1988). Similarly, rural children may benefit greatly from the resources of the family (Ames, Brosi, Damiano-Teixeira, 2006), rather than relying on institutional supports such as formal child care. There is evidence that rural parents are more likely to utilize informal and relative child care more than formal child care centers (Demarco, Crouter, Vernon-Feagans, & The Family Life Project Key Investigators, 2009).

Another potential protective factor that has been investigated to a limited extent among rural families is community attachment (Wilkinson, 1991). Community attachment refers to residents' emotional and sentimental attachments to a particular community (Beggs, Hurlbert & Haines 1996; Goudy, 1990; Kasarda & Janowitz, 1974; Theodori & Luloff, 2000). Parents' attachment to their community may be built on personal or other relationships that influence parenting stress and other aspects of parent well-being (Ames, Brosi, & Damiano-Teixeira, 2006). The research on community attachment has not typically examined the link between community attachment and psychological processes, such as parenting and child developmental outcomes, among rural poor families. Thus, a major contribution of the current study is to address the interrelations among community attachment, and parenting and child outcomes, within a sample of rural, poor families.

Further, examining family structures within rural, poor communities is important for understanding rural, poor families and their children's developmental outcomes. For example, the impact of women's roles in the workforce during the Great Recession affects both the previously mentioned economic stability outside the home as well as the

family dynamic inside the home (Lichter & Graefe, 2011; Smith & Mattingly, 2012). Women with children are becoming primary and/or sole providers, supplanting men as the traditional income-earners in many homes (Nelson, 2005; Tickamyer, & Henderson, 2003). This shift in gender roles coincides with changing family structures within rural communities, including a rise in single parent households, non-marital cohabitation, and multiple-partner fertility (Snyder & McLaughlin, 2006). These changes in family structure have been shown to result in intergenerational poverty and poor child outcomes (Mattingly, Johnson, & Schafer, 2011; Snyder, McLaughlin, & Findeis, 2006). In addition, such family structures often include members with less education, poor quality housing and health care, as well as fewer formal support services (Brody et al., 1994; Cochran, et al., 2002; Lichter & Johnson, 2007).

The Effects of Rural Poverty on Family Processes and Parenting

Similar to findings emanating from studies on the urban poor, there is a small body of evidence documenting that rural poverty adversely affects family processes and parenting. For example, in studies comparing middle- and upper-income families to low-income families, poor families are more likely to face chaotic living environments, characterized by instability, overcrowding, and significant noise volume (Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998; Evans et al., 2005). Importantly, instability has been documented to be greater in rural poor families than in urban poor families (O'Hare, 2009). Further, frequent moving by rural poor families is associated with exacerbated chaos (Vernon-Feagans et al., 2012), which can directly influence the caregiving environment and child outcomes (Evans, Saegert, & Harris, 2001; Supplee, Unikel, & Shaw, 2007). Though limited, extant evidence suggests that the rural poor

home is highly susceptible to factors that are detrimental to parenting and child outcomes (Conger & Conger, 2002).

Parenting as a process affects children's outcomes and thus reflects an important construct to address in studies of rural, low-income families. It is firmly established in the developmental literature that positive parenting can serve to mediate the effects of poverty on children's development (Brody, Murry, Kim, & Brown, 2002; Burchinal et al., 2008; Leinonen, Solantaus, & Punamäki, 2002; Linver et al., 2002), whereas negative parenting is a risk factor for children's outcomes. Sensitivity, warmth, and responsiveness to children's physical, social, and emotional cues are qualities of positive parenting that promote children's overall development (Berlin, Brady-Smith, & Brooks-Gunn, 2002; Bornstein, Putnick, & Suwalsky, 2012). In contrast, negative parenting has been linked to community disadvantage in rural areas (Pinderhughes, Nix, Foster, & Jones, 2001; Simons, Johnson, Conger, & Lorenz, 1997). A small body of research suggests that parenting is compromised in rural poor families (Burchinal et al., 2008; Waldfogel, Craigie, & Brooks-Gunn, 2010).

Further, parenting stress brought on by economic pressure often yields negative parenting (Conger et al., 1999; Evans, 2003; Newland et al., 2013). Working poor mothers of very young children struggle to meet the needs of their developing children in rural communities with limited and remote resources (Ontai, Sano, Hatton, Conger, 2008). The stress brought on by limited resources and changes in the home may lead to parenting stress that negatively influences parenting (Newland et al., 2013) and child outcomes (Vernon-Feagans, et al., 2012). Further research is needed to understand the

impacts of poverty-associated factors within the rural context that may influence parenting stress, parenting and subsequent child outcomes.

The Effects of Rural Poverty on Child Outcomes

Academic achievement and school readiness have been linked to children's language skills and their ability to readily extract meaning from social interactions (Burchinal, et al., 2008; Dickinson & Tabors, 2001; Snow, Burns, & Griffin, 1998; Vernon-Feagans, 1996). Although a preponderance of research documents lower language skills among poor children, language increases rapidly during the early childhood years across all socioeconomic status groups (Dickinson & Tabors, 1991). Extant data reflect a strong relation between language and parenting processes, as well as specific parental characteristics (Hoff, 2003; 2006; Hoff, Laursen, & Tardif, 2002). In addition, social-emotional skills develop exponentially during early childhood (Calkins, 1994; Calkins & Hill, 2007; Kopp, 1982). Preschool-aged children display more prosocial behaviors (i.e., helpfulness, kindness, sharing, and consideration), but also may exhibit more antisocial behaviors (i.e., aggression, impulsive, noncompliant, and compromised emotion regulation skills) (Blair et al., 2011; Evans & English, 2002; Towe-Goodman, Stifter, Coccia, & Cox, 2011; Towe-Goodman, Stifter, Mills-Koonce, & Granger, 2012). Young children's social-emotional functioning impacts parents, peers, siblings, and teachers (Resnick & Burt, 1996), and is related to school readiness, academic achievement, and relationships with peers and teachers (Wright, Diener, & Kay, 2000).

Very young children who experience poverty are at risk for adverse developmental outcomes in early and later childhood, as well as poorer life course

outcomes (Brooks-Gunn, 2003; Duncan et al., 2007). Poverty has been found to have deleterious impacts on child outcomes across developmental domains, including cognitive/language functioning (Cabrera, Fagan, Wight, & Schadler, 2011; Levanthal, Fauth, & Brooks-Gunn, 2005) as well as social emotional functioning (Rubin, Burgess, Dwyer, & Hastings, 2003; Teti et al., 2009; Yoshikawa et al., 2012). Low-income children perform below their higher income peers on standardized assessments related to literacy and math reasoning (Zhai, Brooks-Gunn, & Waldfogel, 2011) and have poorer vocabulary, grammar, memory, and attention (Hoff, 2006; Noble, McCandliss, & Farah, 2007). Further, poverty places children at increased risk for a range of poor social emotional outcomes that affect children's school readiness (NICHD, 2005; Eamon, 2011), including insecure attachment with parents (Weinfield et al., 2000), inappropriate aggressive responses (Bender, Fedor & Carlson, 2011; Hamre & Pianta, 2007), and lower self-esteem (Guest & Biasini, 2001).

Although there is limited research which examines developmental outcomes among rural poor children, the extant data suggests that, consistent with the findings on urban poor children, rural children's development is compromised as a result of poverty (Bender, Fedor, & Carlson, 2011). One of the few studies of rural poor children - the Family Life Project (FLP) - collected longitudinal data on children and families from rural Eastern North Carolina and three counties in rural Central Pennsylvania. Findings included that poor rural children had delayed vocabulary development (Vernon-Feagan et al., 2012), diminished executive function capacities (Ursache et al., 2013), and increased levels of conduct and behavior problems (Towe-Goodman et al., 2011). Given the importance of early developmental capacities for later development, school readiness,

academic achievement, and life-course outcomes (Grinstein-Weiss et al., 2014), it is important to explore possible mechanisms by which development may be bolstered for young children living in rural poverty.

Whereas both rural and urban poor children are at risk for maladaptive outcomes and experiences, it is important to examine family and parenting processes, and their impact on child development in the lesser studied rural low-income population.

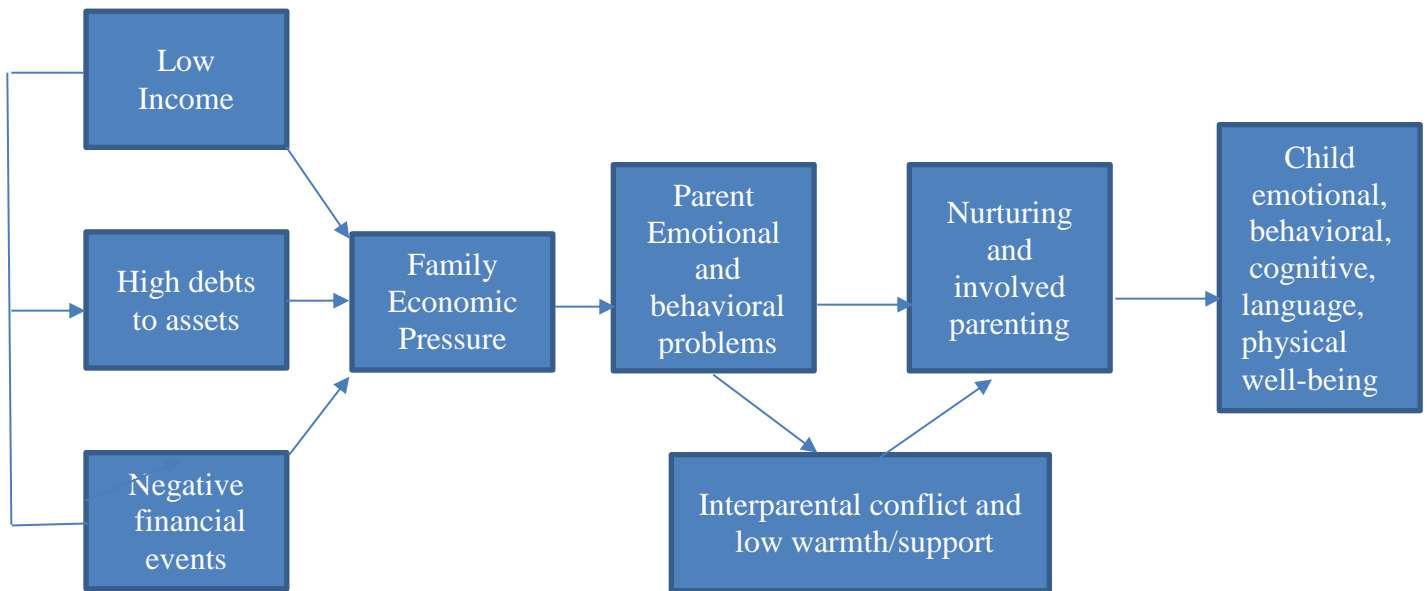
Therefore, my study attempts to fill the gap in the literature about particular aspects of rural poverty, specifically the influence of environmental chaos and community attachment on parenting stress and parenting in rural low-income families, and their ultimate influence on early childhood outcomes. I focus primarily on developmental processes that are highly predictive of school readiness, namely language and behavioral outcomes. Given that poverty is a predictor of compromised academic achievement (Reardon, 2012; Reynolds & Temple, 2006), an important question for research is whether this relation holds for rural poor children, and what factors promote or impede school readiness among this population.

Conceptual Framework

My study is grounded in Family Stress Theory (Figure 1), which hypothesizes that economic stress may exacerbate existing problems in families and may increase conflict and stress levels within the family. These family challenges may precipitate negative parenting practices which contribute to maladaptive developmental outcomes (Elder, 1974), including cognitive deficits and behavioral problems (Conger & Donnellan, 2007; Conger, et al., 2002). Based on this theory, the effects of financial stress, brought on by poverty, on parenting can be examined independently, and in terms

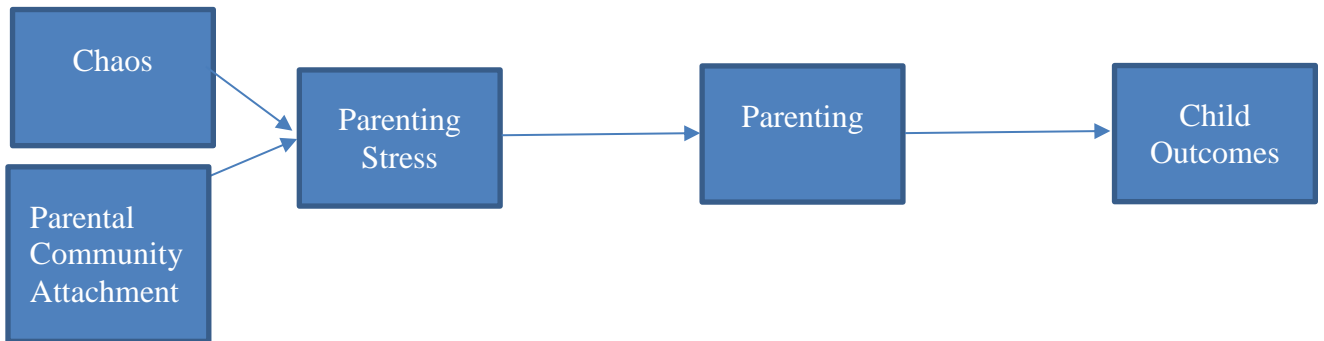
of its impact on child outcomes. Parents who perceive that they are experiencing economic pressures are less able to obtain resources that support the family (Ge et al., 1992). The absence of resources, such as food, childcare, or other daily necessities, may lead to deleterious psychological outcomes for parents, and subsequently affect their parenting.

Figure 1. Family Stress Model (Conger & Donnellan, 2007)



Family Stress Theory highlights the complexities of the relations between person-specific and environmental variables and provides a framework for examining how rural poverty impacts family processes, as well as parenting and child development. This theory also allows for an examination of the risk and protective factors that may promote or hinder parent and child outcomes. Figure 2 depicts the conceptual model on which the current study is based, which integrates Family Stress Theory with key study variables, highlighting environmental chaos and parental community attachment as potential pathways of risk and resilience, respectively

Figure 2. Study Conceptual Model



Rationale and Goals of Current Study

My study was intended to address the persistent gap in the empirical literature specific to family processes and child development in low-income, rural communities. My major goal was to enhance the field's understanding of the mechanisms which affect parenting within the context of rural poverty and their influence on child outcomes, specifically those related to school readiness. This knowledge can inform interventions for children in low-income rural environments by improving our understanding of the potential risk and protective factors for developmental outcomes during early childhood, which can be addressed in such interventions. Specifically, I examined the role of parenting stress and parenting, as well as environmental chaos and community attachment, relative to children's language and behavior.

It should be noted that the current study was part of a larger evaluation study. The study was one of the first evaluations to examine the effects of a rural home-based intervention implemented by the organization Save the Children. The goals of the evaluation are to help the organization advance its program objectives and to add to the literature on empirically-based home visitation intervention programs (Paulsell et al, 2010). My study is distinct from the evaluation study in that it is a descriptive study that

does not address intervention effects. Guided by Family Stress Theory, I had three main goals. My first goal was to examine early childhood language and behavior problems among a sample of rural, low-income children. My second goal was to examine how parenting stress and parenting may affect the development of children within the context of poverty. My third goal was to investigate the role of risk and protective factors in the lives of parents and young children who are residing in rural, low-income communities. Specifically, I examined environmental stress (i.e., chaos) experienced by parents, their community attachment, parenting stress, parenting behaviors, and child language and behavior problems.

Statement of Problem and Research Questions

Although there is abundant evidence that adverse environmental factors are more prevalent in low-income populations, little research has examined these factors in rural populations. Further, limited empirical attention has been devoted to the impact of parenting processes on child outcomes in this population. Thus, my central focus was to examine parenting as a mediator between family processes and child outcomes among rural, low-income families. Specifically, I investigated the role of risk and protective factors in the lives of these families, and how these affected parenting and children's development during the early childhood period. In particular, I was interested in children's outcomes that related to school readiness, namely language and behavior problems during the early childhood period. The specific research questions which I examined are delineated below.

Research Question 1: What is the contribution of environmental chaos to parenting stress and subsequent child outcomes among rural, low-income families?

- Sub-question 1.1-Will parents who experience higher levels of environmental chaos report higher levels of stress?
- Sub-question 1.2- Will parents who experience higher levels of environmental chaos and report higher levels of stress have children with lower receptive vocabulary scores and higher levels of reported behavior problems?

Research Question 2: What is the contribution of environmental chaos to parenting and subsequent child outcomes among rural, low-income families?

- Sub-question 2.1- Will parents who experience higher levels of environmental chaos demonstrate parenting that is less sensitive, less stimulating, and has less positive regard?
- Sub-question 2.2- Will parents who experience higher levels of environmental chaos and demonstrate less positive parenting have children with poorer outcomes, specifically lower receptive vocabulary scores and higher levels of reported behavior problems?

Research Question 3-What is the contribution of community attachment to parenting stress and subsequent child outcomes among rural, low-income families?

- Sub-question 3.1- Will parents who report a greater sense of community report lower levels of parenting stress?
- Sub-question 3.2- Will parents who report a greater sense of community and lower levels of parenting stress have children with better outcomes, specifically higher receptive vocabulary scores and fewer parent-reported behavioral problems?

Research Question 4-What is the contribution of community attachment to parenting and subsequent child outcomes among rural, low-income families?

- Sub-question 4.1- Will parents who report a greater sense of community demonstrate more positive parenting, specifically more sensitivity, more stimulation, and more positive regard?
- Sub-question 4.2-Will parents who report a greater sense of community and who demonstrate more positive parenting, specifically more sensitivity, more cognitive stimulation, and more positive regard, have children with better receptive vocabulary and fewer behavior problems?

Definition of Terms

Poverty is defined by the federal government as the situation in which families have incomes less than 100% of the poverty threshold. The threshold is calculated by household income, number of people residing in the home, and the current year. This definition is used in both basic and applied developmental studies, and is referenced, when appropriate, in the literature review (chapter 2). It is also the definition Save the Children utilizes in recruiting families for their programs from which the sample in this study was retained.

Low-Income is defined as families with incomes below 200% of the poverty threshold (Aber et al., 2012). After reviewing the demographics and income levels for families in this study, low-income status is a more accurate reflection of families represented in my sample. Families were asked to give a range of household income and also to indicate how many adults resided in the home. Families were recruited between 2014 and 2016 when the federal poverty level for a family of 4 ranged between \$24,230

and \$24,300 respectively, making low income status for a family of 4 approximately \$48,000 or less annually.

Environmental Chaos is defined as systems of frenetic activity, lack of structure, unpredictability in everyday activities, and high levels of ambient stimulation in an environment (Bronfenbrenner & Evans, 2000). It refers to disorganization, crowding, and instability within the household.

Community Attachment is a concept encompassing residents' emotional and sentimental attachments to a particular community (Beggs, Hurlbert & Haines 1996; Goudy 1990; Kasarda & Janowitz 1974; Theodori and Luloff 2000). It refers to a sense of community defined by reinforcement of needs (characterized by the ability to obtain necessary goods or services such as social capital), membership (characterized by dependable social interactions with community members), influence over community operations, and shared emotional connection (Brehm et al., 2004; Crowe, 2010).

Social Capital has been found to mediate the effects of poverty on child development in terms of relations among family members (Bradley & Corwyn, 2002) and is linked to economic wealth. It refers to the extent to which the family system is embedded in a network of people and institutions in the community that it can leverage to meet the family's needs (Ames, Brosi, & Damiano-Teixeira, 2006; Chavis, Lee, & Acosta, 2008).

Parenting Stress includes stresses in and around the home, including those specifically related to the child and the parenting role, which affect the parents' well-being.

Limitations and Potential Contributions

My study has several limitations. As noted above, it is part of a larger study, the Early Steps to School Success Evaluation Project. I rely on a convenience sample of rural low-income families, as recruited by the Save the Children organization, who are primarily African American and European American families from the southern part of the United States and are connected to an early childhood program. Therefore, I am not be able to generalize my findings to a broader population. It is a descriptive, within-group examination of rural, poor families. As such, I did not have a comparison group. Finally, data were collected at one time point; thus it was not possible to examine long-term effects or directionality of the relationships considered.

My study contributes to the limited research examining the effects of low-income status on young children living in rural communities. It highlights the role of parenting stress, environmental chaos, and parental community attachment with respect to parenting and early childhood language and behavior problems. Although poverty research has documented that adverse outcomes are more prevalent in low-income populations, scant research has examined the relation between environmental risk factors (e.g., environmental chaos and parental stress), parenting, and early childhood outcomes in rural low-income populations. To my knowledge, my study was the first to examine the link between a potential protective factor - community attachment – and parenting stress, parenting, and child language and behavior problems in rural low-income families. Important questions remain about the pathways through which poverty affects families and child development.

Conclusion

Poverty has significant implications for children and families, especially those living in rural communities. More research is needed to examine the influence of rural low-income status on young children's outcomes across developmental domains, particularly those related to school readiness. Further, it is important to understand what risk factors (e.g., environmental chaos) and protective factors (e.g., community attachment) may modify the effects of low-income status on young children residing in rural contexts. Finally, the role of parental well-being and parenting in buffering children from rural backgrounds against the impact of limited financial resources should be explored more fully. In this vein, research can inform the design of interventions that can positively alter the developmental trajectories of this vulnerable population of children.

Chapter 2: Literature Review

Poverty impacts 15.5 million children in America (National Poverty Center, 2014). The majority of studies on poverty and its effects on family well-being and child development have been urban-centric (Blair et al., 2008), yet there are vast discrepancies in urban and rural poverty levels, with rural levels being higher (United States Department of Agriculture Economic Research Service, 2016). It is imperative and timely that we address the effects of rural poverty on child development.

There is substantial research that documents that poverty is a leading risk factor for adverse developmental outcomes for affected children. Children who face poverty in the first years of life are exposed to a myriad of environmental and parental risk factors including overcrowding and unsanitary living conditions, as well as decreased parental affection and increased parental harshness (Evans et al., 2005; Evans, Li, & Whipple, 2013). The effects of these conditions are long lasting and render children at increased risk for a host of maladaptive physiological, social, cognitive, and emotional outcomes (Brooks-Gunn, 2003; Aber et al., 2012; Yoshikawa et al., 2012).

This review explores rural poverty as a context for early childhood development. In this review, early childhood is defined as the period between birth and 5 years old. Family Stress Theory is utilized to explain the channels through which rural poverty influences early development. The theory section is followed by a summary of the economic pressures of poverty in general, and rural poverty in particular, that impact the family environment. Additionally, the effects of poverty on the home environment and on child outcomes are addressed. I then discuss a potential buffering factor in the pathway from economic pressures to parenting in rural communities, specifically community

attachment. Next, parenting characteristics, including parenting stress and parenting behaviors, and early childhood developmental consequences in the context of poverty are reviewed, with particular attention to children reared in rural areas. Finally, I discuss future directions for research.

Theoretical Framework: Family Stress Theory

Family Stress Theory provides a useful framework for considering the environment of rural poverty, its influence on parenting and early childhood outcomes, and the risks and protective factors that may affect the outcomes of the children in this group of families.

Families in rural areas experience high rates of poverty, and also have less access to public transportation, healthcare, libraries, quality childcare, and other social services that can support families with young children (Burchinal et al., 2008). Thus, it is possible that rural families experience higher levels of poverty-related stress than urban families. The Family Stress Theory, developed by Elder (1974) via his research on child development during the Great Depression, allows us to consider all these factors and how they relate to child development. Elder's model explains how family level variables and economic hardship influence child outcomes. He illustrated that economic strife exacerbates preexisting adverse conditions within the family unit, may magnify instances of family conflict, and can negatively impact parenting and subsequent childhood outcomes (Elder, 1974).

For this paper, I used an adaptation of Family Stress Theory proposed by Conger and his colleagues that emerged through their study of the financial problems that influenced the lives of Iowa families in the 1980s (Conger & Conger 2002; Conger &

Donnellan, 2007; Conger & Elder, 1994; Conger et al. 2002). Conger and Conger (2002) posit that economic hardship, including income, debt, and financial events such as chronic and/or temporary employment loss, leads to economic pressure in the family. These pressures are manifested in unmet material needs, the inability to meet financial obligations, and the need to cut back on day to day essentials, which in turn affect family stress and individual-level stress. Consequently, parents experiencing these economic hardships are at increased risk of depression, anxiety, anger, alienation, substance use and antisocial behavior (Conger, 1995; Conger et al., 2002). These emotional and behavioral problems lead to diminished parenting capacities such as decreased affection and activity involvement, increased irritability and harshness, and inconsistent disciplinary practices which negatively impact child emotional, behavioral, cognitive, and physical well-being.

The Family Stress Model has been utilized to examine the effects of rural poverty on parenting and child outcomes. In a comparative study with rural and low- and middle-income white mothers and their adolescents from New York State, the researchers found that mothers with lower incomes and fewer social networks had higher stress levels and were less responsive, according to adolescent perception (Evans, Boxhill, & Pinkava, 2008). Another study of rural low-income families by Blair and colleagues (2008) found that maternal engagement mediated the effects of income, specifically families with lower income had worse maternal engagement in a parent-child interaction paradigm. Their children had lower levels of cortisol response at infancy, and higher levels at toddlerhood, which suggested that young poor children display atypical patterns of cortisol production (Blair et al., 2008). Taken together, these studies examine how income affects stress, parenting, and child outcomes.

Further, in a study of rural poor African American mothers that was built on Family Stress Theory, Brody et al. (2008) identified perceived racial discrimination as a risk factor linked to changes in their parenting practices. Mothers who were better able to cope with the stress of perceived racial discrimination demonstrated fewer depressive symptoms and higher subsequent levels of involved, warm parenting. This study supports the theoretical notion that maternal functioning, in this case coping capacity, protects children from the negative influence of economic strife (Elder, 1974). Together, these studies on rural families show that parenting is affected by low-income status and poverty-related factors, and that both older and younger children's outcomes are affected by these processes.

Family Stress Theory provides a framework for examining families and the contextual factors of rural poverty. The Family Stress Model traces the path from economic instability through parenting stress and parenting to child outcomes. By considering both environmental and family dynamics, we can begin to develop a comprehensive understanding of the context of rural poverty in early childhood and its effects on children and their parents.

Poverty

Poverty is a major risk factor for compromised child development, and can have distinct manifestations depending upon its geographic context. Rural poverty in the United States is contained in a diverse geographic and economic landscape which includes Appalachia, the Delta, the Southern Black Belt, the Midwest and Great Plains, the Pacific Northwest, New England, the Alaskan panhandle, and American Indian Reservations in the upper Midwest and desert Southwest (Ulrich & Staley, 2011). Rural

areas lack the availability, accessibility, and affordability of resources such as transportation, childcare, healthcare, housing, employment, and educational opportunities (Bauer et al., 2000; Weber, Duncan, & Whitener, 2001). This section reviews the literature on the impacts of poverty on family stressors that influence child development including parental employment, rural kin networks and social supports, neighborhoods, childcare, and home environments. When possible, relevant studies with rural families are highlighted.

Employment

Over the last 30 years, there have been dramatic changes in the lives of families who live in rural poor communities. A qualitative study conducted with 9 community leaders and 17 wage earning women living in rural Michigan found “the conundrum of rural communities (is) balancing quality of life with workforce preparation and opportunities for workers in a context of limited resources” (Ames et al., 2006, p. 123). This quote highlights the vocational shifts experienced by heads of households in rural communities, including their struggles to remain relevant members of the workforce, to provide for their families’ current needs, and to maintain their ways of life into the future. These changes influence both parenting stress and ultimately child development.

Jobs for residents of rural areas have shifted from rural farming to suburban and urban service positions. These jobs offer irregular and non-standard work hours as well as lower wages (Lichter & Jensen, 2002; Vernon-Feagans, Garrett-Peters, Willoughby, & Mills-Koonce, 2012) and further commutes (Struthers & Bokemeier, 2000; Zimmerman & Hirschl, 2003). This change in the location of employment opportunities has led to the migration of many young adults from rural communities to suburban and urban centers,

producing a less-educated and more at-risk rural population from previous generations (Duncan, 1999; Lichter & Jensen, 2002; O'Hare & Johnson, 2004; Vernon-Feagans, Gallagher, & Kainz, 2010). Meanwhile, jobs that remain in rural areas offer significantly lower wages than their urban counterparts (Gringeri, 2001), little job security (Newland et al., 2013), and also require nonstandard work hours (Odom et al., 2013). These employment challenges may lead families to rely more heavily on social supports, a subject to which I now turn.

Rural Kin Networks & Social Supports

Rural families are more reliant on kin networks for social supports than urban families (Hofferth & Iceland, 1998). Availability of family members, family size, family composition, and distance between members may affect the potential for assistance with household chores, transportation, or home repairs (Eggebeen & Hogan, 1990). These supports decrease necessary costs of living, but are also required in remote communities with limited commercial supports. Studies show that, among rural families, young adults receive the most financial support from kin networks due to their significant household and family responsibilities (Hill, Morgan, & Herzog, 1993). Further, families with young children often receive childcare help from grandparents.

The evidence suggests that older family members in rural areas consistently give to younger persons. However, giving is represented in a nonlinear function of age, declining at the oldest ages (Eggebeen & Hogan, 1990). Divorced or widowed persons (Eggebeen, 1992), elderly mothers (Rossi & Rossi, 1990) and individuals in poor health (Eggebeen, 1992; Eggebeen & Hogan, 1990) may be exceptions to these circumstances. In a large-scale study, Hofferth and Iceland (1998) examined financial dynamics between

kin in urban and rural low-income families from the 1988 wave of the Panel Study of Income Dynamics (PSID). The PSID is an annual longitudinal survey of a national sample of U.S. households. After controlling for family and kin factors, geographic mobility, and characteristics of counties, they found that younger heads of households in families who were originally from rural areas themselves were most likely to support kin. Seeking support from within the family may be an adaptation to avoid other stressors, such as community stigmatization. For example, the extant literature suggests that seeking supports external to the family may not be as common for healthcare, mental-health, or economic supports in order to avoid community stigmatization and isolation (Hartley, Agger, & Miller, 2002; Pullmann, VanHooser, Hoffman, & Heflinger, 2010). This self-selected isolation by many rural poor parents, mothers in particular, results in fewer traditional help-seeking behaviors than what is exhibited by the urban poor (Corrigan, Watson, & Miller, 2006). The lack of external support-seeking also may be a result of inadequate quantity and quality of service, the lack of cost-efficient services, and geographically inaccessible services (Hartley, Bird, & Dempsey, 1999; McCabe & Macnee, 2002).

In another exploration of external supports among the rural poor, Swanson, Olson, Miller, and Lawrence (2008) examined service consumption and food insecurity by analyzing data from the Rural Families Speak project (RFS; Bauer, 2004). The sample was comprised of rural poor families who were recruited for a multi-state longitudinal project (N=326). This was a mixed methods study, which included qualitative interviews with mothers and quantitative household measures to examine food security in relation to the use of formal (welfare) and informal (social support) assistance. Formal supports

were utilized less frequently than informal supports to address food insecurity in rural families (Swanson et al., 2008). Five of the 10 formal supports were utilized by more than 50% of the eligible sample including Women, Infants, and Children programs (WIC), school lunch programs, Medicaid, Food Stamps, and Earned Income Tax Credit program (EITC) participation. All 8 of the informal supports/skills were utilized by more than 50% of the sample, including getting together with friends, making new friends, religion, local clubs/organizations, creating a support system, keeping in touch with old friends, church membership, and participating in religious services. These findings demonstrate that in-kind supports, formal or informal, were more frequently utilized than government subsidies, which may not have been utilized due to a lack of information about these services, or a commitment to refraining from “charity”, a value associated with the pride and anti-stigmatization processes characteristic of rural communities (Pullmann et al., 2010). Further, specific facets of informal supports/skills, such as religion, church membership, and participation in religious services, support the religiosity literature, which indicates that practicing religion buffers the presence of economics stress for families in rural communities, particularly among African Americans in the rural south (Kogan, Simons, Chen, Burwell, & Brody, 2013; McLoyd, 1990; Murry, Brody, Simons, Cutrona, & Gibbons, 2008).

The findings reviewed above demonstrate that rural culture and tradition are influential in childhood through adulthood. Specifically, kin networks, as well as formal and informal supports, have a unique place in the environmental context of rural families, and may influence the impact of socioeconomic stressors on these families. It is unclear if the lack of available traditional supports is a cause or an effect of geographic isolation.

An important answer to this question lies in how neighborhoods are created and perceived by rural poor families. In the following section, I explore the physical neighborhood environments of rural families living in poverty.

Neighborhoods

The physical neighborhood environment has also been connected to quality caregiving and children's developmental outcomes in urban samples (Johnson, Martin, Brooks-Gunn, & Petrill, 2008; Ontai, Sano, Hatton, & Conger, 2008). Gonzalez et al. (2011) studied a sample of low-income mothers (N=750) in the southwest and found significant interactions between perceived economic hardship, neighborhood disadvantage, neighborhood danger, and neighborhoods that valued family, with parenting quality. Further, Klebanov and colleagues (1994) found that among rural low-income mothers of children from 0-3 years, there was a negative relationship between neighborhood disadvantage and warmth, which has also been demonstrated with urban low-income samples (Gayles et al., 2009). Additional studies with low-income families address the mediating effects of parental psychological distress and family functioning between neighborhood danger and positive parenting (Kohen et al. 2008; Kotchick et al., 2005). This is particularly important because it has been found that poor children living in neighborhoods with a high concentration of poverty have lower IQ scores, more behavior problems, and fewer literacy skills than poor children living in more affluent neighborhoods (Froiland, 2011; Vernon-Feagans et al., 2012).

These findings demonstrate that neighborhood quality may influence parenting stress and parenting behaviors in rural families. Further, in many instances, the neighborhoods in which families reside determines their access to other supports,

including neighbors, hospitals, libraries, and schools. These neighborhood dependent resources may be particularly important for children in rural poverty who have fewer options than urban families.

One cannot define a rural neighborhood without considering the landscape. Rural landscapes vary from flat plains to mountainous regions and can present varying degrees of isolation. Researchers have demonstrated that limited resources, availability of resources, and geographic isolation as measured by Global Positioning System (GPS) software may vary between rural communities (Burchinal et al., 2008; Evans, 2003). Burchinal et al. (2008) studied the extent to which geographic isolation buffers risks in urban poor, neighborhoods. They found that reduced access to drugs and violence, as a result of greater isolation, moderated the cumulative social risks of rural poverty on parenting and infant cognitive development. Further investigation is warranted to understand within and between rural landscape neighborhood differences and their impacts on parenting stress, parenting, and ultimately child development.

Childcare

In the last decade, early childhood research has identified essential factors that contribute to high quality childcare including low child-to-caregiver ratios, small group sizes, adequate teacher education, and warm and supportive interactions between caregivers and children (Burchinal et al., 2010; Gerber et al., 2007). Childcare is one critical context in the child's environment. Researchers continue to examine the connection between rural poverty, maternal employment, and level of quality of childcare based on neighborhood type and location (De Marco et al., 2009; De Marco & Vernon-Feagans, 2013; Pancsofar et al., 2013).

Childcare options present unique stresses to parents (De Marco et al., 2009). Rural mothers are more likely than urban mothers to use informal childcare providers even in communities that do have established childcare centers (De Marco et al., 2009; Katras et al., 2004; Swanson et al., 2008). Informal childcare arrangements, particularly friends and relatives, are preferred for their affordability, geographic accessibility, and flexibility in accommodating the long hours which rural mothers spend working and commuting (Smith, 2006). Whereas informal childcare arrangements provide ideal coverage, research suggests that informal childcare may not always be of high quality (De Marco et al., 2009). Children who do not receive quality care while away from the home are less likely to be emotionally self-regulated, to have developmentally appropriate vocabulary (Odom et al., 2013), and to experience high-quality parent-child interactions (De Marco et al., 2009; De Marco & Vernon-Feagans, 2013). Therefore, more information is needed regarding rural poor families' access to childcare (e.g., availability of public transportation), the affordability of childcare, and childcare settings' proximity to extended family (Katras et al., 2004; Simmons, Braun, Wright, & Miller, 2007; Swanson et al., 2008).

Home Environment

The physical environment of the home is important for child development. Survey, interview, and observational studies have found that low-income families are more likely to face chaotic living conditions than are middle and upper-income families (Evans et al., 2005). Chaotic living conditions typical of poverty are characterized by instability, overcrowding, and significant noise volume (Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 1998). Because rural families move frequently from one

household to another (Ward & Turner, 2005), they experience significant instability within the home. This trend is more evident in rural poor families than in urban poor families due to the shift from rural- to urban-centered employment and limited access to public transportation (O'Hare, 2009). Further, frequent moving by these families is associated with household crowding that exacerbates parent and child stress (Vernon-Feagans et al., 2012). These conditions can directly influence the caregiving environment and child outcomes (Evans, Saegert, & Harris, 2001; Supplee, Unikel, & Shaw, 2007).

A seminal longitudinal research project with rural low-income families is the Family Life Project (FLP), which focused on young children and their families living in Eastern North Carolina and Central Pennsylvania. These communities were selected to be representative of the Black South and White Appalachia. A sample of 1,292 children, whose mothers resided in one of the 2 locations at the time of the child's birth, were recruited for the study, with an oversampling of low-income and African American families. As part of the FLP project, Vernon-Feagans et al. (2012) tested whether the cumulative experience of household chaos across the first 3 years of life was associated with child language outcomes at age 3.

Data were collected when children were 2, 6, 15, 24, and 36 months of age. Unlike most chaos studies that use only parent report as a measure of chaos (Adam, 2004; Evans, Maxwell, & Hart, 1999; Johnson, et al., 2008; Matheny, Wachs, Ludwig, & Phillips, 1995), the current study utilized observational indicators and consensus procedures from the post-visit inventory used in the Fast Track intervention study (Dodge, Pettit, & Bates, 1994) to evaluate chaos in the home. They also collected family

demographic data, measured isolation utilizing GPS technology, coded the quality of parent-child interactions, as well as assessed child cognition and language with the Wechsler Primary Preschool Inventory (WPPSI-III; Wechsler, 2003) and the Preschool Language Scale-4 (PLS-4; Zimmerman, Steiner, & Pond, 2002).

Results demonstrated that household disorganization accounted for significant variance in receptive and expressive language. These findings support and extend previous work related to chaos and early language (Matheny et al., 1995) and offer evidence that chaos and low-income status uniquely influence child outcomes (Petrill, Pike, Price, & Plomin, 2004). This finding is inconsistent with other studies that have documented an overlapping influence of chaos and poverty on child outcomes (Bronfenbrenner & Evans, 2000; Evans, et al., 2005). Both sets of studies demonstrate that chaos is a characteristic of homes in rural poverty.

Taken together, these findings have important implications for parenting and child outcomes in rural families. Parents' access to employment and available opportunities (Gringeri, 2001; Lichter & Jensen, 2002; Newland et al., 2013; Odom et al., 2013), efficient and established rural kin networks and social supports (Hofferth & Iceland, 1998; Swanson et al., 2008), and neighborhood composition (Gutman, Sameroff, & Cole, 2003; Gutman, Sameroff, & Eccles, 2002) are part of the child's environment that may indirectly affect child development. Further, chaotic home environments (Vernon-Feagans et al., 2012), access to quality childcare, and family assistance (De Marco et al., 2009; Katras et al., 2004; Swanson et al., 2008) directly influence the child. The effects of economic pressure and these associated family challenges may impact parenting among families from impoverished, rural backgrounds (Conger & Conger, 2002).

Community Attachment among Rural Impoverished Families

Studies in developmental science that evaluate the effects of environment on parenting stress, parenting, and child outcomes assume environmental stress is a comparable process among urban and rural families. Community attachment is a context oriented variable that can be used to evaluate the relationship between parenting stress and child outcomes, and that may be different between urban and rural communities. It is a well-established concept in family science and sociological research with rural populations (Beggs, Hurlbert, & Haines, 1996; Brehm, Eisenhauer, & Krannich, 2004; Goudy, 1990; Theodori & Luloff, 2000), which refers to residents' emotional commitment and connection to a community in which they reside (Goudy, 1990; Liu, Ryan, Aurbach, & Besser, 1998). Community attachment is built on economic ties and social capital, dependable social interactions with community members, investment in cultural traditions and beliefs, and political engagement (Brehm et al., 2004; Crowe, 2010). These tenets are similar to the risk and protective factors referenced in developmental science research (e.g., employment opportunity, kin networks, social supports, and neighborhood quality) and suggest that community attachment may help explain the pathways between rural poverty, parenting, and child outcomes.

Economic Ties and Social Capital

Employment satisfaction (Brown, 1993; Filkins, Allen, & Cordes, 2000), job security, and job opportunities (Filkins et al., 2000; Auh & Cook, 2009) are related to economic ties and community attachment. The relation between rural employment and rural poverty was previously reviewed in terms of the shift from rural to urban employment opportunities, and with that the decrease in services that employers once

provided to a given community. Some research suggests that the availability of commercial services builds community attachment (Cook, 1988; Pinkerton, Hassinger, & O'Brien, 1995), rendering contemporary rural families more at risk regarding community attachment because these commercial services are scant.

The redistribution of services forces families to rely on one another. Where traditional financially-oriented economic ties cannot be leveraged, social capital is leveraged. In the developmental literature, social capital has been found to mediate the effects of poverty on child development (Bradley & Corwyn, 2002). Developmental science addresses social capital in terms of relationships among family members, especially parent to parent and parent to child relationships (Pooley, Cohen, & Pike, 2005). This definition of social capital is complementary to what the literature on community attachment refers to as economic wealth. The definition of economic wealth is often expanded to include the extent to which the family system is embedded in a network of people and institutions in the community (Ames et al., 2006).

Rice and Steel (2001) reviewed data from the U.S. Census Bureau and the Rural Development Initiative (RDI) to examine the relationship between White ethnic diversity and community attachment (N=110). In reviewing interviews with adults from 99 rural classified small towns in Iowa, these authors suggested that social capital contributed more to levels of community attachment than did ethnic status. Though this sample size is limited to White families, it is consistent with other literature on economic ties and social capital and their relation to community attachment (Putnam, 1993). Since there is substantial evidence that poverty is confounded with ethnic status, further research on community attachment should consider the effects of ethnic diversity within and across

ethnic groups in rural communities, and examine ethnic groups that are not European American.

Dependable Social Interactions with Community Members

Social capital is reliant on social interactions. Therefore, the dependability of these interactions with community members has been postulated to be critical to individuals' perceptions of community attachment (Stern & Adams, 2010; Wilkinson, 1991). Research demonstrates that rural mothers interact often with family and community members, particularly to the extent that they are dependent on commitments of family and community for childcare (Ames et al., 2006; De Marco et al., 2009), for transportation (Katrass, Zuiker, & Bauer, 2004), to meet financial obligations, to complete home maintenance (Eggebeen & Hogan, 1990; Hofferth & Iceland, 1998), and on occasion to provide other daily provisions including food and nutrition (Swanson et al., 2008). This level of interdependence on community members bonds families to their community.

Katrass et al. (2004) examined the importance of dependable social interactions in a phenomenological study of rural poor mothers and child-care with data from Rural Families Speak (Bauer, 2004) and found that families expressed their dependence on formal and informal social networks as a "private safety net" (Katrass et al., 2004, p. 203). In defining a private safety net and attributes of dependable social connections, these authors derived themes around trust, protection, responsibility, stability, "invisible care," and negotiations. Invisible care referred to community members who were the only childcare providers available outside of traditional work hours. The negotiations theme referred to both child-care providers and mothers in need of child-care communicating

with each other around the needs of their families. These terms capture the magnitude of dependability necessary for fostering community attachment. The researchers also found that mothers' social interactions with community members were not equally dependable, available, or affordable in some instances. Thus, it is important to examine how connections of poor quality affect community attachment and child outcomes. The relations between community attachment, social interactions, as well as the use of transportation, services, and other supports to meet financial, household, and nutritional needs in rural families should be considered. Finally, these themes should be studied in relation to early childhood outcomes.

Investment in Cultural Traditions and Beliefs

Families who experience a stronger sense of community, solidarity, shared values, and identity with the community are likely to be better able to attach to their communities (Brehm et al., 2004; Lev-Wiesel, 2003). Shared investment in cultural traditions and beliefs helps establish a sense of community (Pooley et al., 2005). There is a rich history of cultural traditions and beliefs within the church in the rural south, particularly among African American families (Brody, Stoneman, & Flor, 1996; Brody, Stoneman, Flor, Douglas, & McCrary, 1994; Murry et al., 2008). Families who participate in religious practices often share similar family beliefs including those about parenting (Lee, Murry, Brody, & Parker, 1995; Murry et al., 2008), worldviews (Stevenson & Renard, 1993), and coping strategies (Stevenson, Herrero-Taylor, Cameron, & Davis, 2002). Religiosity offers an example of how shared experience facilitates shared beliefs, cultural traditions, and community attachment.

Identifying shared beliefs and traditions of a community allows for an articulation of the differences between the community in which one lives and other communities, and a sense of mutual investment in one's own community (McMillan & Chavis, 1986). In the event that individuals do not align with their communities' cultural traditions and beliefs, community attachment cannot be achieved and outward migration may result (Lichter & Jensen, 2002; O'Hare & Johnson, 2004). For those who do invest in their communities, community involvement or political engagement may follow, and may serve as another form of community attachment.

Community Involvement and Political Engagement

Research shows that many rural families remain connected to the communities, or the neighboring communities, in which they grew up. One term used to describe this phenomenon is "rootedness" (Brehm et al., 2004). Length of residence in rural neighborhoods is associated with community attachment and group formation (Auh & Cook, 2009; Crowe, 2010; Goudy 1990; Sampson, 1988, 1991). The longer that individuals reside in a community, the more likely they will be to have opportunities to participate in groups or organizations, including civic oriented organizations, to be invested in the decision making processes of their communities (Goudy, 1977), and to grow attached to their communities.

An important form of community attachment is political engagement. The ability to influence decisions within one's community offers individuals the opportunity to gain critical self-efficacy skills. Individuals who have recently established themselves in rural communities may face unique challenges in getting involved in community decisions and may not be able to become emotionally attached to their communities in this way. For

those who are rooted in a community, they may more easily develop political engagement; this form of community attachment may provide its own set of buffers from community level risk.

In summary, community attachment is an area of research that has not yet been established in developmental science but is a construct which overlaps with many environmental factors that are facets of the Family Stress Model. Community attachment has a longstanding tradition in research with rural populations. Therefore, it is important that developmental research incorporate this concept and consider it as a potential mediator in the relationship between rural poverty and early childhood outcomes. In this manner, scholars can move the field beyond the current focus on geographic and social isolation among rural families (Angermeyer, Schulze, & Dietrich, 2003), to a consideration of the community and parenting processes that affect child development.

Parenting

It is important to highlight parenting as the major process for promoting or hindering children's developmental outcomes. As is articulated by Family Stress Theory, parenting has the potential to mediate the impact of economic and other stressors on child development. There is substantial research that documents that children reared in poverty experience qualitatively different parenting environments from their counterparts in middle-income families. For example, studies have shown that poor parents on average engage in qualitatively different and fewer language exchanges with their children than middle and higher income parents (Hoff, 2003; 2006; Hoff, Laursen, & Tardif, 2002), as well as provide fewer educational toys and books (Duncan & Brooks-Gunn, 2000; Linver, Brooks-Gunn, & Kohen, 2002). This diminished stimulation is magnified in the

presence of insensitive, unresponsive, or rejecting parenting behaviors which have been found to be more prevalent in low-income families (Ainsworth, Blehair, Waters, & Wall, 1978; Belsky, Rovine, & Taylor, 1984; Egeland & Farber, 1984).

The Family Stress Model indicates that parenting stress brought on by economic pressure often yields unpredictable, harsh, and intrusive parenting (Conger et al., 1999; Evans, 2003; Newland et al., 2013). Parents who are effective in coping with their economic stressors are able to be responsive and warm in their parenting (Greenlee & Lantz, 1993). Thus, in the following section, I incorporate issues relevant to parental functioning (e.g., parental mental health and coping, parenting stress) into my review of the literature on the impact of poverty and economic pressures on parenting. When possible, relevant studies with rural mothers are highlighted.

Positive Parenting

Positive parenting consists of sensitivity, warmth, and responsiveness to children's physical, social, and emotional cues (Berlin, Brady-Smith, & Brooks-Gunn, 2002; Bornstein, Putnick, & Suwalsky, 2012). These behaviors can mediate the association between poverty and child outcomes and serve as a protective factor (Brody, Murry, Kim, & Brown, 2002; Burchinal et al., 2008; Leinonen, Solantaus, & Punamäki, 2002; Linver et al., 2002). Extant data suggest that positive parenting processes in rural families are similar to those in urban families. For example, there is substantial literature that poor mothers, regardless of where they reside, who are able to cope with economic pressures through self-efficacy, confidence, and use of social supports, are more likely to exhibit positive parenting (e.g., Farkas & Valdes, 2010; Jones & Prinz, 2005).

Parental self-efficacy, or confidence, is the degree to which parents perceive themselves as capable and effective parents (Teti & Gelfand, 1991). Both are positively associated with maternal responsiveness, warmth, and acceptance of economic conditions (Coleman & Karraker, 1998; Jones & Prinz, 2005). Mothers with high self-efficacy are less likely to experience high levels of stress over time, are less likely to report an increase in stress, and demonstrate lower parenting stress (Chang & Fine, 2007; Farkas & Valdes, 2010; Greenlee & Lantz, 1993), all of which may affect parenting.

Ontai et al. (2008), in another Rural Families Speak study (Bauer, 2004), examined the association between family health problems and perceived parent confidence in a sample of rural, low-income women with young children (N=303). Survey data were collected on family health problems, perceived parent support, and perceived parent confidence. Although health problems did undermine mothers' self-confidence with respect to meeting their families' needs, the study did show that mothers who experienced greater social support had greater confidence about dealing with their families' health problems. Taken together, these findings reveal that some stresses, such as family health concerns, can overburden parental self-confidence. In these instances, social supports are important to help rural, poor parents maintain self-confidence.

Parent confidence is strongly influenced by perceptions of social support (Mulia, Schmidt, Bond, Jacobs, & Korcha, 2008), and both influence parenting behaviors (Coleman & Karraker, 1998, 2003; Jones & Prinz, 2005). In support of the Family Stress Model, it has been found that parents who perceive that they have greater social supports report less stress, have more positive parenting skills, and have children with fewer behavioral and academic problems (Skowron, 2005). More research in the area of self-

efficacy and social support is needed to understand how they are related to parenting stress and positive parenting, especially in isolated rural settings.

Negative Parenting

Negative parenting consists of insensitivity, harshness, unresponsiveness or rejecting behaviors towards children's physical, social, and emotional cues and is a risk factor for child outcomes (Berlin, Brady-Smith, & Brooks-Gunn, 2002; Parke et al., 2004). These traits are prevalent in low-income families and may be due to the stresses associated with strained economic resources including reduced time, single parenthood or conflict between parents (Waldfogel, Craigie, & Brooks-Gunn, 2010). Several studies have yielded findings which confirm that economic pressures result in negative parenting.

In the Family Life Project study on rural families, Burchinal et al. (2008) examined the extent to which risk was related to the parenting of infants between 6 and 15 months and their vocabulary at 15 months (N=1,272). Interviews were conducted with biological mothers in the majority of cases. The study authors examined predictor variables such as geographic isolation, as measured by GPS, and cumulative social risks including maternal and household demographics, as well as stressors and negative life events collected through interviews, the Windshield Survey (Conduct Problems Prevention Research Group, 1992), and the Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978). Parenting was assessed via observation measures including free play, book reading, and the Home Observation for Measurement of the Environment (HOME; Caldwell & Bradley, 1984). Child outcome measures included the Bayley Scales of Infant Development (BSID-II; Bayley, 1993). Results confirmed previous studies that mothers with higher levels of cumulative social risk provided fewer learning

and literacy activities (Fuligni, Han, Brooks-Gunn, 2004; Morrison & Cooney, 2002), were less warm, less engaged, and more harsh (Duncan & Brooks-Gunn, 2000; Krishnakumar & Black, 2002; Linver et al., 2002), and used less rich vocabulary (Hart & Risley, 1995). In addition, findings revealed more remote families in White Appalachia had less social risk, while African American families in rural North Carolina had higher risk social risk. This demonstrates the need to investigate the effects of poverty, geographic isolation, and ethnicity and risk that affects negative parenting.

Negative parenting in urban and rural poor mothers has been attributed to depression (Brown, Brody, & Stoneman, 2000; Conger, Ge, Elder, Lorenz, & Simons, 1994; Odom & Vernon-Feagans, 2010; Simmons, Braun, Charnigo, Havens, & Wright, 2008; Weinfield, Sroufe, & Egeland, 2000), chronic stress (Evans, 2003; Evans et al., 2013), substance abuse (Collard, 2007; Murry, Berkel, Chen, Brody, Gibbons, & Gerrard, 2011), and marital conflict (Conger et al., 1994, 1999). These maternal risk factors may cause further instability in the home and negatively impact child development (Conger & Conger, 2002). In the Family Life Project study, Newland et al. (2013) examined maternal depression focusing on the infancy through toddlerhood period (N=1,142). Maternal questionnaires including the Economic Strain Questionnaire (ESQ; Conger & Elder, 1994) and the Brief Symptom Inventory 18 (BSI-18; Derogatis, 2000) were administered, and mother child interactions were observed at 6, 15, 24, and 36 months. Results indicated that early economic pressure was significantly related to depression, as well as the psychological symptoms of hostility, anxiety, and somatization. Only depression and somatization were significantly related to decreased levels of sensitive, supportive parenting behaviors. An interesting finding was that anxiety was positively

associated with sensitive parenting, demonstrating that depression and anxiety had inverse effects in mediating the relation between economic pressure and sensitive parenting.

Depression is a significant risk factor that affects parenting quality, and is highly prevalent among low-income women of very young children (McDaniel & Lowenstein, 2013). Depression can be brought on by economic pressures, chronic stress, or marital conflict, all of which are concerns among rural women. These psychological and environmental maternal risk factors can lead to further risks including maternal drug and alcohol use. Researchers need to continue to investigate how economic pressures influence parenting stressors that result in negative parenting among rural low income-families.

Developmental Consequences

Poverty has been found to have deleterious impacts on child development across developmental domains, including cognitive functioning (Aber et al., 2012; Cabrera, Fagan, Wight, & Schadler, 2011; Levanthal, Fauth, & Brooks-Gunn, 2005) and socio-emotional functioning (NICHD, 2005; Eamon, 2011; Yoshikawa et al., 2012). Whereas the impacts of poverty on rural children are studied less than the impacts on urban children, those studies that have been done with children in rural poverty yield similar findings to studies of urban children being reared in poverty. Furthermore, the Family Stress Model indicates that economic stresses affect parenting and may lead to negative child outcomes. This section reviews the literature on the impacts of poverty on cognitive/language and social-emotional development during early childhood. When possible, relevant studies with rural children are highlighted.

Cognitive/Language Outcomes

Many studies have linked poverty to poor cognitive outcomes in early childhood, particularly concerning school readiness. In studies utilizing direct assessments of children's cognition, it has been shown that low-income children perform below their higher income peers on standardized measures related to literacy and math reasoning (Zhai et al., 2011), have poorer vocabulary, grammar, memory, and attention outcomes (Hoff, 2006; Noble, McCandliss, & Farah, 2007), and have lower executive functioning and compromised self-regulation (Evans, 2003; Willoughby, Wirth, & Blair, 2011).

Ayoub, O'Connor, Rappolt-Schlichtmann, Vallotton, Raikes, and Chazan-Cohen, (2009) used secondary data from the Early Head Start Research and Evaluation Project (EHSREP) (N=2,764) to examine longitudinal change in cognitive skills on a standardized test among children in poverty. EHSREP was a study of children and their families from birth through preschool in which families were randomly assigned to the EHS program or the control group. Eligibility criteria included incomes near or below the federal poverty level at time of enrollment, having a child under one 1 of age, and consent to random assignment procedures. In this study, data were collected when children were approximately 14, 24, and 36 months of age. Cognitive skills were measured using the Mental Development Index (MDI) subscale of the BSID-II. On average, children's cognitive skill scores declined over time in relation to national norms, resulting in scores substantially below national norms by 3 years of age. Studies with rural poor children confirm similar findings. Lower levels of performance on standardized measures of cognitive skills in early childhood, a consistent finding for

children in poverty, are concerning because of their connection to long-term educational attainment (Duncan et al., 2007).

The development of language is important to examine in rural poor children, as well as the parenting characteristics that promote it. Research on parent-child interactions suggests that the amount of mothers' language (Hart & Risley, 1995), the quality of mothers' language (Rowe, 2008), the extent of reciprocity in mother-child interactions (Snow, 1998), and chaos in the home (Vernon-Feagans et al., 2012) each influence children's emergent language skills. Children in low-income families are read to less often than children in higher income families (Fletcher & Reese, 2005) and spend less time in mutual play and talking with their mothers than their middle-income peers (Hoff-Ginsberg, 1991). As a result, it has been shown that poor children produce less sophisticated language, have fewer speaker and listener skills, and fewer reasoning and choice-making abilities (Lloyd, Mann, & Peers, 1998). Other outcomes for low-income children confirm vocabulary differences between them and their middle-class counterparts (Feldman et al., 2000; Rescorla & Alley, 2001) including 50% fewer words than age matched peers at 3 years of age (Hart & Risley, 1995), smaller spontaneous speech vocabularies (Hoff-Ginsberg, 1998), as well as lower scores on standardized language assessments and school standardized tests in kindergarten and fifth grade (Oller & Eilers, 2002).

Evidence for atypical vocabulary development and less developed cognitive skills on standardized measures was found in another longitudinal study of low income mothers and their children from infancy through 4 years of age (N=81) from the rural Appalachia region of West Virginia (Fish & Pinkerman, 2003). The authors examined maternal and

household demographics, infant and 4 year old temperament, behaviors, maternal interactions and attachment, and child language using the MacArthur Communicative Development Inventory/Words and Gestures (CDI; Fenson et al., 1994) for infants and the Preschool Language Scale 3 (PLS-3, Zimmerman, Steiner, & Pond, 1992) for 4 year olds. The researchers found that infant CDI scores in this rural low-income sample were similar to those of children from predominantly well-educated, middle-class families (Fenson et al., 1994). However, the PLS-3 scores recorded at 4 years of age and just prior to kindergarten (an average of 24 days before beginning school) indicated that 70% of the children had total language scores below 85, more than 1 standard deviation below the instrument mean, on comprehension, expressive language, and the total language scores, controlling for SES variables. This study is limited by a small sample size, but offers evidence for increased risk for declining cognitive and language skills over time among rural low income children.

Geoffroy and colleagues (2007) examined the development of receptive vocabulary in a longitudinal intervention study with Canadian children starting from 0 to 11 months old to 4 years old. Their sample included a control group (N=2,294) and low SES (N=765) group. The authors examined the moderating role of socioeconomic status (SES) on the relation between non-maternal care (NMC) in the first year of life and children's receptive language skill prior to school entry at 4 years of age. They assessed vocabulary with the Peabody Picture Vocabulary Test Revised (PPVT-R) (Dunn & Dunn, 1981), and collected self-report data on household demographics and the amount of NMC (i.e., relative, nonrelative, in home and out of home care). Child demographic characteristics and temperament were also considered. The study found that in the low-

SES sample, full-time NMC significantly predicted PPVT-R scores, indicating that full-time NMC was beneficial for language skills for that group of children. They also found that children from low-SES families had poorer receptive vocabulary than higher income children. Ultimately, they found children from low-SES families who receive greater input from quality NMC achieved greater gains in receptive vocabulary than children from low-SES families in the control group. These findings highlight the importance of intervention to improve cognitive development and language skills among rural, poor children well before school entry.

Further evidence of the effects of poverty on child outcomes emerges from the research on executive function. Executive Function refers to brain functions that activate, organize, integrate and manage other functions and consist of working memory, inhibitory control, attention, and flexibility (Davidson, Amso, Anderson, & Diamond, 2006; Miyake et al., 2000; Zelazo & Mueller, 2002). Recent research suggests that poverty places children under greater stress, altering physiological responses in ways that influence executive function abilities (Blair et al., 2011; Evans, 2003; Evans et al., 2005; Hackman & Farah, 2009; Noble et al., 2007). The important role of executive functioning in cognitive development needs further investigation with rural, low-income samples.

To my knowledge, there is only one study, the Family Life Project (FLP) that addressed executive functioning among rural, poor children. Ursache, Blair, Stifter, and Voegtline (2013) examined the moderating role of reactivity and regulation in infancy and children's executive function skills at 4 years of age (N=1,292). Measures included a mask task at 7 months and a toy removal and restraint task at 15 and 24 months to

examine reactivity (Goldsmith & Rothbart, 1996) and a validated battery of six executive function tasks tapping inhibitory control, working memory, and attention shifting at 4 years of age (Willoughby, Blair, Wirth, & Greenberg, 2010; Willoughby, Wirth, & Blair, 2011). Data on income to need ratio, maternal education, and parent-child interactions were also collected. Regression analysis revealed higher levels of executive functioning at 4 years of age among children exhibiting both a high level of emotion reactivity and regulation at 15 months, whereas lower levels of executive function at 4 years were observed among children exhibiting a high level of reactivity and low level regulatory behaviors at 15 months. Income to need ratio and maternal education were significantly positively related to executive function scores at 48 months. Child sex and race were also significantly related to executive functioning such that executive functioning was on average higher for female participants than for male participants, and higher for White children than for African American children.

The above findings demonstrate that early regulation influences later executive function in rural poor children. Some evidence suggests that the concurrent cumulative stresses associated with rural poverty affect the development of executive function capacities (Raver et al., 2013). Given the influence of regulatory capacities on subsequent executive function, and the longitudinal impacts of poor executive function on cognition and achievement in early and later childhood (Li-Grining, Votruba-Drzal, Maldonado-Carreño, & Haas, 2010; Raver, 2002), as well as the influence of executive function on other socio-emotional learning capacities (Berry, Blair, Willoughby, & Granger, 2012; Deater-Deckard, Chen, Wang, & Bell, 2012; Raver et al., 2013), it is

important to continue to explore the impacts of rural poverty on executive functioning and its related capacities.

Social Emotional Outcomes

Poor children are also at increased risk for a range of poor socio-emotional outcomes. Social development involves group and partner dynamics with peers as well as adults, understanding others' perspectives and emotions, and understanding social contexts (Killen & Coplan, 2011). Emotional development involves an understanding of one's self in relation to another related to cooperation, assertion, empathy, regulation, and self-control (Gresham & Elliott, 2008). Children must experience social reciprocity and negotiations to acquire fundamental social competencies such as social assertion and self-concept (McCabe & Altamura, 2011). The social development of children in poverty is affected by their experience of poor quality social interactions, characterized by less warm, less interactive, and less predictable environments. Additionally, many poor children's early socio-emotional development is marked by insecure attachment with parents (Weinfield et al., 2000). Thus, poor children display inappropriate aggressive responses (Bender, Fedor & Carlson, 2011; Hamre & Pianta, 2007), lower self-esteem (Guest & Biasini, 2001), compromised emotional understanding, and mental health problems (Fischer, Anthony, Lalich, & Blue, 2014).

Quality of parental attachment is predictive of social competence with novel adults and peers in childhood. Attachment theory indicates that insensitive, unresponsive, and rejecting parenting during the first year of life, characteristic of many children in poor families, results in insecure attachment relationships and poor social-emotional outcomes (Ainsworth et al., 1978; Belsky et al., 1984; Egeland & Farber,

1984). Weinfeild, Sroufe, and Egeland (2000) examined the stability of attachment security and representations from infancy to early adulthood in a high risk, poor sample (N=57), using the Ainsworth Strange Situation (Ainsworth & Witting, 1969) during infancy and the Berkeley Adult Attachment Interview (George, Kaplan & Main, 1985) at age 19. The authors found that specific experiences during early adolescence, including child maltreatment and maternal depression, predicted adult attachment outcomes, findings which suggest that adult attachment is vulnerable to the chaotic life experiences of poor families. The attachment concept warrants further investigation as it relates to other social and developmental outcomes among rural, poor children and families.

Bender et al. (2011) conducted a comprehensive screening of preschool children attending Head Start programs from urban (N=232) and rural (N=231) communities in the midwest. The Devereux Early Childhood Assessment (DECA; LeBuffe & Naglieri, 1999) was used to measure social-emotional development in terms of total protective factors and behavioral concerns relative to children that resided in different community settings. The total protective scores for children in urban and rural programs were within one standard deviation of the mean. However, behavioral concern scores for children in urban and rural programs were almost one standard deviation above the mean. This study yielded evidence of elevated behavioral risk for both community samples. In addition, rural children were more likely to have secure attachment than urban children, but also demonstrated less self-control. Specifically, boys from rural communities were rated as exhibiting more aggressive behaviors and more problems with inattention than boys from urban communities.

The Bender et al. study demonstrated that children experiencing both rural and urban poverty had elevated risk for behavioral concerns. However, their findings on all subscales indicate differences in outcomes by community, thereby offering evidence for unique developmental pathways for children experiencing urban poverty versus rural poverty. Higher total protective factor scores and likelihood for secure attachment for rural children suggest that rural children may spend more time with their parents than urban children because they are isolated from other individuals and/or distractions. Additionally, research confirms gender differences in behavior problems, particularly in early childhood (Cummings & Davies, 1994; Kerig, 1996). The authors' findings that rural boys demonstrate more aggressive behaviors and more problems with inattention than urban boys may also be a product of rural isolation from community programs that can facilitate attention control in early childhood (Rothbart, Ziaie, & O'Boyle, 1992).

Aggression and other behavior problems including impulsive, noncompliant, and unregulated behaviors may be related to children's emotion regulation capacities. Research has substantiated that poor children display more compromised emotion regulation skills than middle class children in early childhood (Blair et al., 2011; Evans & English, 2002). Emotion and behavioral dysregulation have been attributed somewhat to inattention in early childhood (Towe-Goodman, Stifter, Coccia, & Cox, 2011; Towe-Goodman, Stifter, Mills-Koonce, & Granger, 2012). Stressful family contexts associated with poverty, including low-quality home environments, have been linked to impaired attentional skills in early childhood (Fearon & Belsky, 2004; National Institute of Child Health and Human Development Early Child Care Research Network [NICHD ECCR N], 2003). Impaired attentional skills and behavior problems place children at risk for

adjustment issues with peers and academic difficulties (Keane & Calkins, 2004; McClelland, Morrison & Holmes, 2000).

Towe-Goodman et al. (2011) examined the associations between inter-parental aggression, attentional skill development in infancy and toddlerhood, and early childhood behavior problems in another study with the Family Life Project (N=791). The study focused on infant, toddler, and 3 year old outcomes at 7, 15, and 36 months of age. To measure these variables, authors utilized parent surveys as well as researcher observations, including the Conflict Tactics Scale—Couple Form R (CTS-R; Straus & Gelles, 1990), a 5-item version of the Dimensions of Relationship Quality Scale (adapted from Johnson, White, Edwards, & Booth, 1986), Infant Behavior Record (IBR; Bayley, 1969), Strengths and Difficulties Questionnaire (SDQ; Dadds, et al. 2005), DSM-IV ADHD Questionnaire (Weiler, Bellinger, Marmor, Rancier, & Waber, 1999), and the Confusion, Hubbub, and Order Scale (CHAOS; Matheny et al., 1995).

These authors found that inter-parental aggression showed marked stability from 7 to 15 months, and that inter-parental aggression at 7 months predicted reduced attention at 15 months. Further, greater inter-parental aggression and reduced child attention at 15 months predicted increased conduct problems at 36 months. Together, greater inter-parental aggression and reduced child attention at 15 months were associated with increased ADHD symptoms at 36 months. The only established gender differences were that 15 month attention and conduct problems in boys were associated with higher conduct problems at 36 months. In addition, inter-parental aggression at 15 months and increased 36 month ADHD symptoms were associated with low-income, *low-chaos*

households but were unrelated to low-income, *high-chaos* households, suggesting that increased household chaos may transcend other family processes.

In summary, poverty during early childhood has been linked to poor cognitive outcomes (Ayoub et al., 2009; Froiland, 2011), delayed language skills (Fish & Pinkerman, 2003; Geoffroy et al., 2007), poor executive function (Ursache et al., 2013), insecure attachment (Fish & Pinkerman, 2003; Weinfield et al., 2000), and aggressive and impulsive behavioral outcomes (Fish & Pinkerman, 2003; Towe-Goodman, Stifter, Coccia, et al., 2011). These compromised cognitive, language, and socio-emotional developmental outcomes place children in poverty at risk for failing to develop critical competencies for early and later childhood. Notably, evidence suggests rural poor children, particularly boys, exhibit poor outcomes related to attachment and aggression (Fish & Pinkerman, 2003). The profound long-term consequences related to these outcomes demonstrate the need for further understanding of the impact of rural poverty on the development of affected children.

Research Directions

The empirical literature on the development of young children in poverty helps us to identify a number of factors important to consider for future research on rural families. Researchers should investigate the effects of stress unique to rural living that may result in heightened parental depression, parenting stress, substance abuse, and marital conflict, which in turn may influence parenting and subsequent early childhood outcomes. Knowledge about the effects of rural poverty on parenting could inform intervention research, specifically related to promoting parental self-efficacy, coping, and social supports, and ultimately parenting itself. Although the effects of parenting, particularly

negative, unresponsive, and unpredictable parenting, on child outcomes have been examined to some extent within rural poor communities, limited attention has been devoted to other facets of negative parenting within this population, such as insecure attachment and maltreatment. This population may be particularly vulnerable to these outcomes due to isolation from child protective social services. Further, limited research has examined parenting as a mechanism through which poverty-related stressors might impact developmental outcomes among young rural children.

In juxtaposition, even less research has been done on the potential protective factors that often characterize rural parents. Researchers should examine the relationship between rural poverty and specific protective and risk factors, such as the stability and safety of the home environment, choice of childcare, the quality of parental employment, the presence or absence of kin and social supports, and neighborhood culture. Additionally, researchers should address the role of community attachment, including economic ties and social capital, dependable community members, investment in community beliefs and traditions, and political engagement (Auh & Cook, 2009; Brehm et al., 2004; Katras et al., 2004; Goudy, 1990), with respect to the relation between rural poverty and adverse child outcomes.

Whereas there is mixed evidence on the effects of geographic isolation, there is little focus on how social supports operate in rural communities, and how this affects parenting and child outcomes. With the advent of GPS technology, we are now able to measure geographic isolation with accuracy (Burchinal et al., 2008; Evans, 2003; Vernon-Feagans et al., 2012). This technology can help us to identify how families function in relation to their proximity to supports of various types.

The fields of sociology and economics recognize that this is a changing time for rural communities. However, limited psychological research has examined the effects of parenting on child outcomes within the changing rural economy. Further, rural poverty differentially affects men and women. Little attention has been paid to the changing roles of men in the workplace and the home (Goodman, Crouter, Lanza, & Cox, 2008; Mokrova, O'Brien, Calkins, & Keane, 2010). Furthermore, rural poverty differentially affects minority populations, particularly African Americans and Latino Americans; thus, the role of culture regarding rural poverty needs to be further considered (Isapa et al., 2004; Jones, Forehand, Brody, & Armistead, 2003; Murry, Heflinger, Suiter, & Brody, 2011; Parke et al., 2004; Steele, Nesbitt-Daly, Daniel, & Forehand, 2005).

It is critical that research progresses to investigate the effects of rural poverty independent of urban poverty, with an understanding of its heterogeneity, to better understand the needs of these children and families. Given the research on the salience of age and race/ethnic differences among child outcomes, this work seems particularly important to implement among early childhood and minority populations. Future research on the rural poor may suggest positive avenues for interventions with this population. Further, intervention research could inform rural poverty research, or research on poverty as a whole, specifically regarding salient protective factors for impoverished populations. Finally, research on rural poverty should be interdisciplinary, with studies that cross developmental, psychological, ecological, sociological and economic fields for a comprehensive understanding of the rural context as it influences children and families.

Conclusion

In this review, I examined the context of rural poverty with a focus on its impact on children's development during the early childhood period. Researchers in this area have highlighted a growing concern for rural children, because child poverty rates are greater in rural areas of the United State than in non-rural areas (NCES, 2013). I used Family Stress theory to depict the pathway from economic pressures to child development through positive and negative parenting behaviors. The developmental consequences of growing up in rural poverty were outlined, demonstrating a number of potential maladaptive cognitive/language (Fish & Pinkerman, 2003; Geoffroy et al., 2007; Ursache et al., 2013) and social emotional outcomes (Bender et al., 2011; Towe-Goodman, Stifter, Coccia, et al., 2011). Further, community attachment was introduced as a possible moderator of the relation between rural poverty and parenting and subsequent child outcomes.

By examining rural environmental factors and the impact of rural poverty on children and families, scholars can begin to understand risk and protective factors specific to rural, poor families that may result in unique short and long term outcomes for these parents and their children. Additionally, as research disentangles environmental processes associated with rural poverty from income and resource related factors, the science on high risk children and families will be more illustrative of the salience of context on the study of human development.

Future research should be interdisciplinary and innovative in its approach to examining high-risk families in rural poverty to better understand and serve this increasingly economically depressed population. This work has the potential to inform

programs and policies that may significantly alter the developmental paths of children growing up in rural poverty, starting in early childhood. Ultimately, knowledge on rural poverty and its impact on families could be utilized to enhance the well-being of rural and urban children and parents experiencing impoverished contexts.

Chapter 3: Methods

The goal of my study was to examine the impact of specific environmental risk and protective factors on the developmental outcomes of rural low-income children, and the mediating role of parenting factors. Specifically, I examined the influence of environmental chaos, community attachment, parenting stress, and parenting on children's language and behavior problems. In order to investigate the study's research questions, I employed a quantitative research design using multiple modes of data collection and multiple sources of data.

Research Design

My study was a descriptive hybrid study nested in an ongoing program evaluation funded by the Save the Children organization from 2012 to present. The program evaluation is discussed in the summary in Appendix A. I have served as the Research Coordinator for the University of Maryland research team since 2013, which has allowed me to contribute to the development of my design and methods, as well as study implementation. In this capacity, I participated in weekly calls with the Project PIs and other Research Coordinators and responded to PI requests regarding MD supervised study locations. I maintained weekly communication with six location-based staff members and their regional supervisors and cooperatively resolved recruitment concerns, collected annual data at the school level, collected, analyzed and compiled routine status reports at the program level, and answered all research-related inquiries. I trained six BA level research associates to collect data across our six sites and managed their work through weekly supervision and communication. I also trained and supervised undergraduates to assist me with project management. Finally, I managed project

logistics with contract employee payroll, participant compensation, data entry and analysis. Thus, in my role as the Research Coordinator for this project, I was intimately involved in all aspects of the study, particularly for the UM supervised study locations.

For the purpose of my study, I contributed additional measures on environmental chaos and parental community attachment. A body of literature has linked environmental chaos to poor early childhood outcomes among low-income families (Hart, Petrill, Deckard, & Thompson, 2007; Johnson, Martin, Brooks-Gunn, and Petrill, 2008), so I decided to examine the effects of environmental chaos on this rural sample of low-income families. Further, little research has been conducted to understand potential protective factors for families in rural communities. A potential protective factor - adult community attachment - has been well studied in rural samples in sociological and family science literature and was integrated into the current study. With a focus on these factors among rural, low-income families, my study may offer insight into the family and parenting processes that affect child development in this population.

Study Participant Communities

Participants, including caregivers and their children, were recruited at or before their children's third birthdays. Participants were low-income, rural families with children ages three and four years old. Inclusion criteria for participants in my study were that they were low-income, able to speak English, and able to complete an in-home assessment. The only exclusion criterion was the inability of a child to complete a vocabulary assessment (e.g., children with severe disabilities).

Families for the portion of the study implemented by the University of Maryland were drawn from 6 locations in the Southeastern portion of the United States: Alabama,

Kentucky, Louisiana, South Carolina (2 sites), and Tennessee. The 2010 Census reports that the communities represented in our project face significant adversity (<http://factfinder.census.gov/>). These communities are described below.

Alabama's research location was in Eutaw, AL in Greene County. Eutaw is a community of 2,883 (2012 est). It is about 35 miles from the nearest city of Tuscaloosa. The median age is 39.9 years (compared to 43.1 for Alabama at large). The median household income in 2012 was \$21,818, 48% below the Alabama median income of \$41,574. Almost a quarter of the population (22.5%) is unemployed, and the poverty rate is 25.3%. The community is 80% Black, 17.7% White, and 1.3% Hispanic. Eutaw's single largest industry is manufacturing with 30% of residents employed in this field, followed by 16% in administrative support and waste management services, and 11% in utilities. Twelve percent of residents age 25 and older have a Bachelor's or advanced college degree.

Kentucky's research location was in Manchester, KY at the foothills of the Appalachian Mountains in southeastern KY. It is the seat of Clay County government. Manchester is a community of 1,431 (2012 est.). It is about 94 miles from the nearest city of Lexington. The median age is 39.8 years. The median household income in 2012 was \$22,173, 53% below the Kentucky median income of \$41,724. The poverty rate is 31%, and the unemployment rate is 12%. The community is 91.9% White, 6.3% Black, and 1% Hispanic. Manchester's single largest industry is healthcare and social assistance with 29% of residents employed in this field, followed by 20% in other services, except public administration, and 10% in education. Fourteen percent of residents age 25 and older have a Bachelor's or advanced college degree.

Louisiana's research location was in Angie, LA, a village in Washington Parish, LA which is part of the Bogalusa Metropolitan Statistical Area. Angie is a community of 247 (2012 est.). It is about 58.7 miles from the nearest city of Gulfport, MS. The median age is 40.9 years. The median household income in 2012 was \$26,436, 38% below the Louisiana median income of \$42,944. The poverty rate is 42.4% and 15% remain unemployed. The community is 68.9% White, 24.7% Black, and 2.8% Hispanic. Angie's single largest industry is manufacturing with 26% of residents employed in this field, followed by 19% in construction, and 13% in agriculture, forestry, fishing and hunting. Fourteen percent of residents age 25 and older have a Bachelor's or advanced college degree.

There were 2 study locations in South Carolina. The first is in Rowesville, SC, which is part of Orangeburg County. Rowesville is a community of 302 (2012 est.). It is about 45.6 miles from the nearest city of Columbia, SC. The median age is 40.0 years. The median household income in 2012 was \$35,281, 19% below the South Carolina median income of \$43,107. The poverty rate is 30% and 12.3% remain unemployed. The community is 57.6% Black, 39.8% White, and 1.3% Hispanic. Rowesville's single largest industry is manufacturing with 32% of residents employed in this field, followed by 18% in other services, except public administration, and 11% in healthcare and social assistance. Five percent of residents age 25 and older have a Bachelor's or advanced college degree.

The second location in South Carolina was in Bishopville, SC, in Lee County. Bishopville is a community of 3,367 (2012 est.). It is about 45.8 miles from the nearest city of Columbia, SC. The median age is 40.0 years. The median household income in

2012 was \$15,556, 64% below the South Carolina median income of \$43,107. The poverty rate is 50.4% and 10.6% remain unemployed. The community is 70.9% Black, 26% White, and 1.2% Hispanic. Bishopville's single largest industry is retail with 27% of residents employed in this field, followed by 16% in manufacturing, and 14% in accommodation and food services. Nine percent of residents age 25 and older have a Bachelor's or advanced college degree.

Tennessee's research site was in Maury City, TN. Maury City is a community of 672 in Crockett County, in western Tennessee. The median age is 40.3 (compared to 39.3 for Tennessee at large). The median household income in 2012 was \$25,484, about \$17,000 below the Tennessee median income. The poverty rate is 29.4%. The community is 62.2% White, 25.7% Black, and 10.1% Hispanic. Maury City's single largest industry is manufacturing with 20% of residents employed in this field, followed by 17% in construction, and 16% in agriculture, forestry, fishing and hunting. Three percent of residents age 25 and older have a Bachelor's or advanced college degree.

Study Participants

I recruited 97 families for participation in my study. Based on the program G*Power (Faul, Erdfelder, Buchner, & Lang, 2009), it was determined that in order to see a power of .80 with a medium effect size (.30) and alpha equal to .05, a total sample size of 64 would be necessary to detect an effect for the hypotheses using regression analysis. To examine these hypotheses using path analysis, various rules of thumb exist for sample size determination. These rules of thumb include 4-5 participants per parameter, 4-5 participants per variable, and the often suggested 10 participants per variable (Hatcher, 1994; Thorndike, 1978). For a model with 6 variables and 10

parameters, a total of 90 participants would be necessary (using 5 participants per variable plus 5 participants per parameter). Thus, 97 participants provided sufficient power.

Descriptive statistics of the parents can be found in Table 1. Parents ranged in age from 19 to 65 years old ($M=30.47$, $SD=8.495$) at the time of the interview. Further, 61.2% of parents were African American, 49% had education at or below the high school level, 61.2% were employed, and 87.1% had household incomes within a range that was at or below the federal annual low-income level. More than half (57.1%) of biological fathers did not live in the homes with the primary caregiver and child assessed.

Table 1

Parent Demographic Descriptive Information (N=97)

<i>Variable</i>	<i>(%)</i>
<i>Age in years (mean [SD])</i>	<i>(30.47 [8.50])</i>
<i>Race/Ethnicity*</i>	
Black or African American	61.2%
European American	36.7%
Hispanic	1%
Biracial White/Black	1%
<i>Relationship to Child</i>	
Mother	92.9%
Father	3.1%
Grandmother	3.1%
Stepfather	1%
<i>Education</i>	
7 th , 8 th , or 9 th grade	1%
10 th or 11 th grade	10.2%
High School diploma	37.8%
Some college	31.6%
Two year degree	12.2%
Four year degree	3.1%
Some graduate school	1%
Advanced degree	3.1%
<i>Employment Status**</i>	
Employed	61.2%
Full time	42.9%
Part time	17.3%
Unemployed	38.8%
<i>Relationship Status</i>	
Child father does not live in home	57.1%
Child father does live in home	42.9%
<i>Household Income</i>	
5K or below	18.3%
5K to 10K	17.2%
10K to 15K	12.9%
15K to 20K	10.8%
20K to 25K	11.8%
25K to 30K	5.4%
30K to 35K	2.2%
35K to 40K	4.3%
40K to 50K	4.3%
50K to 75K	5.4%
75K and above	7.5%

*Consolidated to Black and non-black in analysis **Employed and Unemployed utilized in analysis

Descriptive statistics of the children can be found in Table 2. Children were assessed at ages ranging from 28.8 to 55 months ($M=42.459$, $SD=5.474$). Further, 62.2% of children were African American, 54.1% were female, and 55.7% of cases were in the book bag group whereas 44.3% were in the home visited group.

Table 2

Child Demographic Descriptive Information (N=97)

Variables	(%)
<i>Child age in months</i> (mean [SD])	(42.46 [5.47])
<i>Child Race/Ethnicity</i>	
Black or African American	62.2%
European American	33.7%
Hispanic	1%
Biracial White/Black	1%
Biracial White/Hispanic	1%
Biracial White/Mexican American	1%
<i>Child Gender</i>	
Female	54.1%
Male	45.9%
<i>Child Group</i>	
Bookbag (BBX)	55.7%
Early Steps to School Success home visited	44.3%

Data Collection Procedures

Remote research assistants (RAs), each of whom had experience working on national research projects, were hired and trained (in-person) by the University of Maryland and collected data for this project. In some cases, trained University of Maryland graduate students and BA level research assistants were trained and sent to the program sites to collect data. RAs conducted direct child assessments and observations, as well as collected parent-report data from a sample of families living in poverty served

by the Save the Children program. Specifically, caregivers and children who received the ESSS home visiting intervention were recruited before the child's third birthday, and caregivers and children who participated in the book bag program (who served as the comparison group in the evaluation study) were recruited when the child was three years of age.

Recruitment

Participants were recruited for the research study by SAVE Early Childhood Coordinators on a rolling basis as part of their program recruitment. ESSS home-based program participants were recruited between birth and 24 months. BBX participants were recruited within 8 months of their third birthday. To be a part of either program, families had to live within the community and have a child that met the program's age requirement. Although siblings could be recruited for the program, only one child in a family was included in the study (i.e., the child who met the age requirement of 3 years of age). It is important to note, changes may have occurred between home-based participant recruitment and the data collection home visit date (e.g. change in family composition, income, etc.).

Home visitors described the study and informed parents that participation in the study was entirely voluntary. Written consent and verbal consent were obtained from all families agreeing to participate in the research during a home visit by the Save the Children home visitor. Families were encouraged to ask questions and were ensured of confidentiality. Caregivers who were interested in study participation were given consent forms to sign and submit to their home visitors. After informed consent was obtained, the participants' contact information was collected and a home visit was scheduled with

the research assistant. Participants were asked to provide their home addresses as well as their home phone numbers and/or cell phone numbers.

Home Visit

The home visit was scheduled based on the participant's availability and child's age, to ensure that all data were collected as close as possible to the child's third birthday. Prior to the home visit, a reminder call was placed in order to confirm availability and continued interest in the study. Visits were cancelled or rescheduled if the participant requested such a change. Aggressive efforts, which have been found to be effective in other studies, were made to ensure that the participant completed the home visit (e.g., working through the Early Steps to School Success (ESSS)/Book bag exchange (BBX) home visitor). One researcher generally conducted each home visit; however, in some cases (e.g., RA inexperience, safety concerns), 2 RAs conducted the visit. Informed consent was reviewed and the participants were reminded that they could refuse to answer any question and stop the visit at any time. Child direct assessments were completed first, followed by the videotaped parent-child interaction. Then, self-report instruments were completed in whatever relatively private area could be identified in the home, where confidentiality could be maintained. All instruments (described in Table 3) were administered verbally by the researcher to ensure understanding and completion of all items. The home visit lasted approximately 2 hours. Participants received a \$50 gift card at the completion of the interview and a payment receipt was collected.

Protection of Human Subjects

The University of Maryland entered into an Institutional Review Board (IRB) agreement with the University of Nebraska, Lincoln (the academic home of the Principal

Investigator of the evaluation study) to ensure that all research protections and appropriate procedures were carried out. Study design and measures were submitted to and approved by the University of Nebraska, Lincoln Institutional Review Board (IRB).

Informed consent. Participants were informed that their participation was entirely voluntary, and that all information would be kept confidential. Verbal and written consent was obtained from all family caregivers agreeing to participate. A private setting was used to discuss the consent process, answer questions, and obtain voluntary informed consent. Participants were told that they could refuse to answer any question and stop the interview at any time.

Potential risks. Potential risks for the study included psychological risk from the self-report of experiences of stress. This potential risk was kept to a minimum through the least invasive interview techniques possible. RAs encouraged families to talk with their Early Childhood Coordinator about potential referral services to support them in dealing with stressful events that required additional support.

Potential benefits. After completing parent-child interviews, all participants received compensation for their time. They were also told their contribution to my study would inform the design and implementation of interventions for families in rural areas who have young children.

Measures

Instruments were selected in order to optimize the data collection process while minimizing participant response burden. Further, most instruments selected have been used with rural, low-income participants, and have good psychometric properties. A measure designed for the purposes of the larger evaluation study was used to obtain

demographic information. Table 3 provides a listing of all measurement tools used in the larger evaluation study. Measures that are being used in the current hybrid research study are denoted with a single asterisk. Measures that were considered in the context of the additional analyses in Chapter 4 are denoted with a double asterisk. Table 4 provides a summary of all the measurement tools used in the current hybrid research study.

Measures that have been added exclusively for my research study have been denoted with a double asterisk and include the *Parenting Stress Index Short Form (PSI; Abidin, 1990)*, the *Confusion, Hubbub and Order Scale (CHAOS; Matheny, Washs, Ludwig, & Philips, 1995)*, and the *Sense of Community Index 2 (SCI-2; Chavis, Lee, & Acosta, 2008)*. These three measures, the PSI, CHAOS, and SCI-2, address the stress, environmental chaos, and parental attachment variables addressed in my research questions, and were not relevant to the evaluation study (Appendix A). All study instruments are included in Appendix B and are expanded upon below.

Table 3

Measures Used in ESSS Program Evaluation Project

Variable	Name of Instrument
Child behaviors	Bayley Behavioral Rating Scale
Child behaviors	*Brief Infant/Toddler Social-Emotional Assessment (BITSEA)
Parental supports	Helping Relationships Inventory
Home environment	Home Observation of the Environment (HOME)
Child receptive vocabulary	*Peabody Picture Vocabulary Test
Child language	**Preschool Language Scale
Home visitor demographics	Home Visitor Questions
Home visitor relationships	Home Visitor Social Competency
Parenting	*Two-Bag Assessment
Parent/family income, relationships, socio-economic demographics	*Background/baseline Questionnaire
Parental depression	Center for Epidemiological Studies-D-Short Form (CES-D-SF)

*Measures used in current study **Measures used in additional analysis

Table 4

Summary of Dissertation Measures

Variable	Theoretical/Operational Definition	Name of Instrument	Instrument Description	Level of Measurement	Psychometrics	Time to complete
Income & Socio-economic status	Income, employment status, education	Demographic and background questionnaire	23-items created for use in this study	Individual items		20 min
Parenting Stress	Parental hardships, decisions, perception, & opportunities	**Parenting Stress Index (PSI-Short Form)	36-item scale with 5 potential answers ranging from 1 (strongly agree) to 5 (strongly disagree)	a total stress score can be calculated (36-180) with higher scores indicative of higher stress, as well as subscale scores including Parental Distress, Parent-Child Dysfunctional Interaction, and Difficult Child	Cronbach's alpha of .91 and a test-retest reliability coefficient of .84	10 min
Environmental Chaos	noise level, crowding, and instability	**Confusion, Hubbub, and Order Scale (CHAOS)	15-item scale with 4 potential answers ranging from 1 (very much like your own home) to 4 (not at all like our own home)	a total score is derived (15-60) with higher scores representing more chaotic, disorganized, and hurried homes	Cronbach's alpha of .79 and a test-retest stability correlation for total CHAOS score was .74	5 minutes
Parenting	parental sensitivity, cognitive stimulation, and positive regard	Two-Bag	10-minute Parent-Child interaction videotaped and coded	a series of codes are utilized to indicate levels of sensitivity, cognitive stimulation, and positive regard	Cronbach's alpha was .73 and interobserver agreement was 96.5%	10 minutes

Community Attachment	parents' emotional and sentimental attachments to a particular community	**Sense of Community Index	24-item scale with 4 potential answers ranging from 0 (not at all) to 3 (completely)	a total score is derived (0-72) with higher scores representing greater attachment, as well as subscale scores including reinforcement of needs, membership, influence, and shared emotional connection	Chrobach's alpha of .94 or greater, and a test-re-test reliability coefficient of .71 to .83	10 minutes
Child Language	receptive vocabulary	Peabody Picture Vocabulary Test	a series of pictures to be identified by the child per the proctor's prompt	a total standard score is derived based on the child's age in years and months and requires a basal and ceiling score	reliability and validity coefficients in the .90s range	10-45 minutes
	auditory and expressive language	Preschool Language Scale	a series of pictures to be identified and manipulatives to be utilized by the child per the proctor's prompt	two subscale scores and one total score can be derived based on the child's age in years and months and requires a basal and a ceiling score	reliability and validity coefficient in the .80s range	45 – 90 minutes
Child Behaviors	Problem Behaviors	Brief Infant Toddler Social Emotional Assessment	42-item comprehensive screening instrument to evaluate social and emotional behavior	two scores are derived for social-emotional competence and behavior problems with cut-points based on child age	Chronbach's alpha of .79 for the Problem domain, and moderate internal consistency for the Competence domain Chronbach's alpha of .65	20 minutes

**Measures added for this dissertation study

Demographic and Background. A measure to collect demographic and historical data was created for the larger evaluation study. Demographic data included parental age, race/ethnicity, marital status, and indicators of socioeconomic status (e.g., employment, education, household income, household constellation, etc.), as well as child age and gender.

Parenting Stress Index Short Form (PSI; Abidin, 1990). The Parenting Stress Index (Abidin, 1990) is a widely used parent self-report questionnaire which captures respondents' perceptions of stress related to their parenting role. This 36-item Likert scale questionnaire asks parents about their stress levels in relation to common thoughts and behaviors ("I often feel I cannot handle things very well"). A total stress score was calculated where higher scores indicated higher stress. This measure has been found to have strong psychometric properties including Cronbach's alpha of .91 and a test-retest reliability coefficient of .84. In the current study, the alpha for this measure was .92.

Confusion, Hubbub and Order Scale (CHAOS; Matheny, Washs, Ludwig, & Philips, 1995). The CHAOS measure was used to assess the quality of the home environment related to noise level, crowding, and instability. This 15-statement Likert scale questionnaire entails the parents' assessment of chaos in their home environment (e.g. "There is very little commotion in our home"). A total CHAOS score was derived, with a higher score indicating a more chaotic home environment. This measure has been found to have good psychometric properties including Cronbach's alpha of .79 and a test-retest stability correlation for the total CHAOS score of 0.74. In the current study, the alpha for this measure was .82.

Parent-Child Interactions were videotaped during a 10 minute semi-structured interaction, called the “Two-Bag”, for which they were given a book and a bag of developmentally-appropriate toys and asked to interact with the materials as they normally would. This method was utilized in the Early Head Start Research and Evaluation Project (EHSREP), a large scale study of 3,001 low-income children, the Early Childhood Longitudinal Survey-Birth Cohort (ECLS-B), a nationally representative study of children born in 1999, and Baby FACES, a nationally representative descriptive study of children and families in Early Head Start. Parenting behaviors coded include: (1) sensitivity (i.e., displays of love, respect, and/or admiration); (2) stimulation of cognitive development (i.e., effortful teaching aimed at expanding the child’s abilities); and (3) positive regard (i.e., expression of love, respect and/or admiration). In ECLS-B, this measure was found to have good psychometric properties; Cronbach’s alpha was .73 and inter-observer agreement was 96.5 percent (Andreassen & Fletcher, 2007).

Rachel Chazan-Cohen, one of the Evaluation Project PIs, trained me and other graduate students working with other evaluation study PIs, to code the parent-child interaction videotapes. We viewed master videotapes displaying the various coded behaviors. We all reached reliability (exact agreement within 1 point) to a criterion of 90% with the trainer after using these master tapes. I coded 60% of participant tapes used in the current study, while other graduate students coded the remaining 40%.

Sense of Community Index Second Edition (SCI-2; Chavis, Lee, & Acosta, 2008). The Sense of Community Index (Chavis, Lee, & Acosta, 2008) is used frequently in the social sciences to quantitatively measure respondents’ sense of community. It has been used in numerous studies covering different cultures, as well as many contexts (e.g.

urban, suburban, rural, etc.). It is a parent self-report questionnaire which has 24 four-level Likert items, with responses ranging from “not at all” to “completely”. A total score ranging from 0 to 72 could be calculated, as well as subscale scores for reinforcement of needs, membership, influence, and shared emotional connection. Higher scores indicated a higher sense of community. This measure has been found to have a Chronbach’s alpha of .94 or greater, and a test-re-test reliability coefficient of .71 to .83. In the current study, the alpha for this measure was .97.

The *Peabody Picture Vocabulary Test*, Fourth Edition (PPVT-4; Dunn & Dunn, 2007) is a widely used assessment of children’s receptive vocabulary. The examiner orally presents a stimulus word with a set of pictures and the child is asked to select the picture that best depicts the word. The test consists of 204 item groups. In order to compute a score, the child had to attain a basal (a group in which the child makes no or one error) and a ceiling (a group in which the child makes eight or more errors). Thus, the child begins with items that should be easy for them and ends with items that are beyond their capacity. Raw scores are converted to standardized scores, with a mean of 100 and a standard deviation of 15 points. The PPVT has been found to have excellent psychometric properties, with high reliability (in the .90s) and validity (highly associated with other tests of intelligence).

The *Preschool Language Scale*, Fifth Edition (PLS-5; Zimmerman et al. 2011) is a widely used assessment of receptive and expressive language skills for children from birth to 6 years of age. It has two subscales: Auditory Comprehension and Expressive Communication. The test consists of 65 auditory items and 67 expressive items. In order to compute a score, the child has to attain a basal (three consecutive scores of 1) and a

ceiling (six consecutive scores of 0). Thus, the child begins with items that should be easy for them and ends with items that are beyond their capacity. Raw scores are converted to standardized scores, with a mean of 100 and a standard deviation of 15 points. The PLS-5 has been found to have excellent psychometric properties, with high reliability (.84 or higher).

The Brief Infant Toddler Social Emotional Assessment (BITSEA) was used to measure children's social-emotional functioning. The BITSEA is a 42-item, parent-report screening tool designed for infants between ages 12 and 36 months (but has been used with children through the fourth year of life) in order to identify children at risk for later behavioral problems (Briggs-Gowan, Carter, Irwin, Wachtel, & Cicchetti, 2004). It yields two scores: social-emotional competence and behavior problems. Responses range from "Not True/Rarely" to "Very True/Often" on a Likert-type scale. The measure has cut-points for social-emotional competence and behavioral problems based on child age. Briggs-Gowan et al., (2004) report acceptable internal consistency ($\alpha = .79$) for the Problem domain, and moderate internal consistency for the Competence domain ($\alpha = .65$). Criterion-related validity for both subscales of the BITSEA has been established with the Child Behavior Checklist 1-1/2 -5 (Achenbach & Rescorla, 2000). Both of the subscales of the BITSEA have also been shown to have good predictive validity in an ethnically and socioeconomically diverse sample of infants and toddlers (Briggs-Gowan & Carter, 2008). The BITSEA has been recommended for use in early intervention and home visiting programs (Briggs-Gowan & Carter, 2008). I we utilized the behavior problems subscale, and our alpha value was .84.

Summary

My goal was to examine the impact of specific environmental risk and protective factors on parenting stress, parenting, and child language and behavior problems in the context of rural-poverty. Our sample was comprised of mostly African American/black mothers with a high school education or less and their children. Measures were carefully selected to answer research questions and minimize participant strain.

Chapter IV: Results

This chapter summarizes the results of the data analysis which I conducted to examine the relationship between environmental chaos, community attachment, parenting stress, parenting, and child language and behavior problems in a rural, low-income sample. I entered and cleaned data and assessed the data for outliers (+ or -3 SDs) and other extreme patterns using frequency counts and data plots. All variables showed sufficient variability and were used in further analyses. I scored measures, created composites, and evaluated the reliability of all measures. Next, I assessed variables for normality using histograms and frequencies, and calculated means and standard deviations for each variable.

I conducted correlations and t-tests for all variables and examined possible covariates. Then I assessed all independent variables for multicollinearity (Friedeman & Wall, 2005; Wheeler & Tiefelsdorf, 2005). Multicollinearity exists where intercorrelation among independent variables is above .80. In my study, none of the independent variables used in regression equations correlated above .80. I imputed missing data (see below) and re-ran correlations with the new data sets. Then I completed a series of eight hierarchical regressions using SPSS 23 (SPSS Statistics for Windows, Version 23) and two path analysis with MPlus 7.0 (Muthen & Muthen, 2010).

Data Scoring and Reliability Analyses

I scored all measures using the techniques described in the scoring manuals. Initial analyses included internal reliability analyses (i.e., Chronbach's alpha). All measures showed acceptable to good levels of reliability, which was reported in Chapter 3.

Missing Data

I imputed missing data using the Expectation Maximization (EM) algorithm (Dempster, Laird, & Rubin, 1977) in SPSS 23.0. An EM approach is considered effective when data are missing at random (Musil, Warner, Yobas, & Jones, 2002; Schafer & Graham, 2002). The EM method utilizes a maximum likelihood (ML) approach to iteratively impute missing values by using expectation (E-step) and maximization (M-step) algorithms (Musil, Warner, Yobas, & Jones, 2002). However, all variables of interest displayed missing rates of less than 10 percent.

Sample Size and Power

I recruited 97 families.. Based on the program G*Power (Faul, Erdfelder, Buchner, & Lang, 2009), it was determined that in order to obtain power of .80 with a medium effect size (.30) and alpha equal to .05, a total sample size of 64 would be necessary to detect an effect for the hypotheses using linear regression analysis. To examine these hypotheses using path analysis, various rules of thumb exist for sample size determination. These rules of thumb include 4-5 subjects per parameter, 4-5 subjects per variable, and the often suggested 10 subjects per variable (Hatcher, 1994; Thorndike, 1978). For a model with 6 variables and 10 parameters, a total of 80 subjects would be necessary (using 5 subjects per variable plus 5 subjects per parameter). Thus, a sample size of 97 participants provided sufficient power.

Descriptive Analyses

I examined six sets of variables: : 1) parents' risk and protective factors; 2) parenting stress; 3) parenting; 4) child language and behavior scores; 5) parent characteristics; and 6) child characteristics. Means, standard deviations, and frequencies

were completed for each variable (see Tables 5-8). Following are descriptive statistics for each of these sets of variables.

Parent Risk and Protective Factors

Community attachment. Scores on the *Sense of Community Index 2 (SCI-2;* Chavis, Lee, & Acosta, 2008) ranged from 0 to 80 ($M=39.8$, $SD=20.9$, with a skewness of $-.023$ ($SE=.244$) and 50% of the scores below the mean. Higher total scores reflect a higher sense of connection to the community.

Chaos. Scores on the *Confusion, Hubbub, and Order Scale (CHAOS;* Matheny et al., 1995) ranged from 26 to 48 ($M=39.6$ $SD=4$), with a skewness of $-.454$ ($SE=.245$) and 53.6% of scores below the mean. Higher scores reflect more disorganization, confusion, and noise in the home environment. Although 2 cases exceeded ± 3 SD above the mean, I retained these cases due to overall distribution and skewness.

Parenting Scores

Scores on the *Parenting Stress Index Short Form (PSI;* Abidin, 1990) ranged from 36 to 96 ($M=52.07$, $SD=15.46$), with a skewness of 1.059 ($SE=.245$) and 59.8% of scores below the mean. Higher total scores reflected higher levels of parenting stress. A total score over 90 suggests parents are experiencing clinical levels of stress (Abidin, 1990); only 3% of our sample reported clinical levels of parenting stress. I retained all scores where no score exceeded ± 3 SD around the mean. Because the PSI is a standardized measure, I did not perform transformations.

I derived scores with respect to parenting behaviors, including sensitivity, cognitive stimulation, and positive regard, from coded parent-child interaction videos using the Early Head Start Research and Evaluation Project (EHSREP) coding scheme.

Higher scores indicated higher quality levels of the three categorized parenting behaviors. Scores on *parental sensitivity* ranged from 3 to 6 ($M=4.3$, $SD=.8$) with a skewness of $-.091$ ($SE=.244$). Scores on *cognitive stimulation* ranged from 2 to 6 ($M=3.9$, $SD=.9$) with a skewness of $.329$ ($SE=.244$). Scores on *positive regard* ranged from 2 to 7 ($M=4.3$, $SD=1$) with a skewness of $.393$ ($SE=.244$).

Child Outcomes

Language scores from the *Peabody Picture Vocabulary Test*, Fourth Edition (*PPVT-4*; Dunn & Dunn, 2007) ranged from 30 to 133 ($M=96.1$, $SD=17.9$) with a skewness of $-.648$ ($SE=.244$). *PPVT-4* scores are standardized with an average score of 100. In my sample, 60% of participants scored at or below 100, with 24.5% scoring at or below 85 or 1 or more standard deviations below the standardized average.

Behavior scores from the *Brief Infant Toddler Social Emotional Assessment* (*BITSEA*; Briggs-Gowan, Carter, Irwin, Wachtel, & Cicchetti, 2004) Problem subscale were computed. Scores ranged from 1 to 52 ($M=11.2$, $SD=7.2$) with a skewness of 2.3 ($SE=.244$). Based on these results, I eliminated the outlier with a score of 52.

Preliminary Group Comparisons

Two sets of t-tests were performed. The first set was to determine if there were group differences between parent characteristics (discussed in Chapter 3 and summarized in Table 1) relative to parent risk and protective factors, parenting, parenting stress, and child language and behaviors. The second set was to determine if there were group differences based on child characteristics (discussed in Chapter 3 and summarized in Table 2).

Parent/family characteristics examined included employment (employed and unemployed), household income (less and greater than \$25,000 annually), education (high school education and less, and greater than a high school education), parent interviewed (mother and non-mother), race (Black vs. non-Black), and whether the father was living in or out of the home. The only significant difference was on reported problem behaviors by person interviewed ($t(95)=-2.130, p=.036$), with mothers reporting fewer problem behaviors ($M=10.43, SD=5.43$) than non-mothers ($M=15.29, SD=9.79$). Employment status approached significance ($t(95)=1.88, p=.062$), with employed respondents exhibiting lower PSI scores ($M=48.77, SD=1.80$) than unemployed respondents ($M=55.79, SD=17.15$). Due to the associations between employment, income, and stress, I retained employment status as a control in further analyses.

Child groups included sex, race, and group status (bookbag versus home visits). The only significant difference was between race and vocabulary ($t(95)=3.068, p=.003$) with black (African American) children exhibiting lower PPVT scores ($M=91.92, SD=19.64$) than non-black children ($M=103.00, SD=12.49$).

Correlation Analysis

I conducted pearson product-moment correlations to examine the relations among all continuous variables. I examined the relations among all key variables, including parent risk and protective factors, parenting stress, parenting, parent and child characteristics, and child language and behaviors.

There were a few significant associations between family risk and protective factors, parenting stress, parenting, and parent characteristics (Tables 5). Parents' reported community attachment was found to be negatively correlated with parenting

stress as was expected ($r=-.297, p=.003$). Parents' reported household chaos was found to be correlated with parenting stress, in the direction anticipated ($r=.256, p=.012$). No other significant associations emerged.

Parenting constructs were significantly correlated with one another (Table 5), and parental sensitivity was positively correlated with one demographic variable, maternal education ($r=.209, p=.040$). There were no other significant correlations between parenting and parent demographic characteristics.

Some correlations emerged with respect to the parent demographic characteristics. There were 7 of the 97 cases where the caregiver other than the biological mother was interviewed, and it was found that there was a positive correlation between person interviewed and reported household income ($r=.247, p=.017$). Specifically, in cases in which someone other than the mother was interviewed, households reported higher incomes. In addition, household income was positively correlated with both employment status ($r=.249, p=.016$) and education ($r<.254, p=.014$) of the caregiver interviewed.

Table 5

Correlations Between Parent Risk and Protective Factors, Parenting Stress, Parenting, and Parent Characteristics

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1) Chaos	---	-.176	.256*	.108	.119	.089	.119	-.086	-.027	-.085	-.068	-.103
2) Community Attachment		---	-.297**	.049	.044	-.024	.078	.103	.060	.168	.021	.017
3) Parenting Stress			---	.127	.091	-.050	-.086	-.071	.020	-.126	-.190	.109
4) Sensitivity				---	.462**	.589**	-.137	.026	-.161	-.005	.167	.209*
5) Cognitive Stimulation					---	.663**	-.080	-.128	-.147	.015	.107	.149
6) Positive Regard						---	-.106	.092	-.085	.103	.174	.177
7) Race							---	.190	-.109	-.016	.082	-.126
8) Age								---	.181	.200	-.130	.107
9) Person									---	.247*	-.109	-.100
10) Income										---	.249*	.254**
11) Employment											---	.058
12) Education												---

* $p < .05$. ** $p < .01$

Parent risk and protective factors, parenting stress, and parenting are reported in Tables 6 and 7. There were two significant relevant correlations. The first was between parental cognitive stimulation and child behavior problems ($r=-.235, p<.05$) indicating parents who displayed more positive cognitive stimulation reported fewer child behavior problems. In addition, child language and child behavior scores significantly correlated ($r=-.223, p<.05$), indicating that children with higher PPVT scores had fewer reported problem behaviors on the BITSEA.

Table 6

Correlations Between Parent Risk and Protective Factors, Parenting Stress, Parenting, and Child Characteristics

Variable	1	2	3	4	5	6	7	8	9	10
1) Chaos	---	-.176	.256*	.108	.119	.089	.119	.121	.146	-.033
2) Community Attachment		---	-.297**	.049	.044	-.024	.078	.085	-.014	.139
3) Parenting Stress			---	.127	.091	.050	-.086	.183	.133	-.133
4) Sensitivity				---	.462**	.589**	-.137	-.011	-.050	-.025
5) Cognitive Stimulation					---	.663**	-.080	-.117	.135	.159
6) Positive Regard						---	-.106	-.088	-.018	.134
7) Race							---	.120	.009	-.164
8) Child Age								---	.126	-.351**
9) Child Sex									---	-.092
10) Group Status										---

* $p < .05$. ** $p < .01$

Table 7

Correlations Between Parent Risk and Protective Factors, Parenting Stress, Parenting, and Child Language and Behaviors

Variable	1	2	3	4	5	6	7	8
1) Chaos	--	-.176	.256*	.108	.119	.089	-.110	.080
2) Community Attachment		---	-.297**	.049	.044	-.024	.065	.015
3) Parenting Stress			---	.127	.091	.050	-.025	.165
4) Sensitivity				---	.462**	.589**	-.105	-.121
5) Cognitive Stimulation					---	.663**	.085	-.235*
6) Positive Regard						---	.020	.199
7) PPVT-4							---	-.223*
8) BITSEA-Problem Behaviors								---

* $p < .05$. ** $p < .01$

Finally, there were several significant correlations that emerged regarding parent characteristics, child characteristics, and child language and behavior scores (see Table 8). In addition, group/intervention status was positively correlated with household income, and child age. Specifically, children in the Early Steps to School Success intervention group had higher reported household incomes ($r=.212, p<.05$) and were among the younger children in the sample ($r=-.351, p<.01$).

Table 8

Correlations Between Parent Characteristics, Child Characteristics, Child Language and Behaviors

Variable	1	2	3	4	5	6	7	8	9	10	11
1) Race	---	.190	-.109	-.016	.082	-.126	.120	.009	-.300**	.112	-.164
2) Parent Age		---	.181	.200	-.130	.107	.031	.088	-.030	.068	-.118
3) Person			---	.247*	-.109	-.100	.002	.094	.080	.213	-.005
4) Income				---	.249*	.254**	-.007	-.019	.112	.009	.212*
5) Employment					---	.058	-.014	-.033	-.149	-.069	-.078
6) Education						---	.064	.157	.150	-.137	-.001
7) Child Age							---	.126	-.044	.085	-.351**
8) Child Sex								---	.028	.054	-.092
9) PPVT-4									---	-.223*	.073
10) BITSEA-Problem Behaviors										---	-.042
11) Group Status											---

* $p < .05$. ** $p < .01$

In summary, there were few significant associations that connected parent and child characteristics to parental risk and protective factor variables, parenting stress variables, parenting variables, and child language and behavior variables. However, there were significant relations between race, employment, and education and key study variables, so I retained these variables as controls in later analyses. In addition, I controlled for child age due to the age distribution of the sample, as well as child sex which is standard in evaluating child outcomes. I did not use program status (book bag vs. home visiting) as a control variable because it was not related to any of the key study variables. The demographic variables with which program status had a significant relation were included as controls as well, thus providing further justification for my decision to exclude program status as a control variable.

Regression Analysis

I examined the relationship between community attachment, environmental chaos, parenting stress, parenting, and child language and behavior problems. Specific research questions are delineated below. A series of hierarchical regressions were completed to examine the relation of community attachment and chaos to parenting stress, parenting (i.e., sensitivity, cognitive stimulation, and positive regard), and children's outcomes (i.e., language and behavior problems).

Research Question 1: What is the contribution of environmental chaos to parenting stress and subsequent child outcomes among rural, low-income families?

Sub-question 1.1 Will parents who experience higher levels of environmental chaos report higher levels of stress?

I used hierarchical regression to examine sub-question 1.1, the extent to which the level of parenting stress is a function of environmental chaos. I entered control variables (i.e., child age, gender, race, parental employment, parental education) in the first step. Next I entered environmental chaos in the second step. Finally, I entered parenting stress as the dependent variable. Environmental chaos was significantly related to total stress, suggesting that parents who reported higher levels of environmental chaos also reported higher parenting stress, $F(6,96) = 2.64$, $R^2 = .150$, $p = .021$ (Table 9).

Table 9

Summary of Hierarchical Regression Analysis for Environmental Chaos Predicting Parenting Stress (N=97)

Variable	B	SE B	β	R ²
Step 1				.095
Child Gender	2.852	3.145	.092	
Child Age (in months)	.487	.285	.173	
Child Race	-2.602	3.225	-.082	
Parental Education	1.012	1.239	.084	
Parental Employment	-5.793	3.181	-.183	
Step 2				.150*
Child Gender	1.734	3.100	.056	
Child Age (in months)	.421	.279	.150	
Child Race	-3.336	3.158	-.105	
Parental Education	1.355	1.216	.112	
Parental Employment	-5.315	3.106	-.168	
Chaos	.489	.203	.242*	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Sub-question 1.2 Will parents who experience higher levels of environmental chaos and report higher levels of stress have children with lower receptive vocabulary scores and higher levels of reported behavior problems?

To examine sub-question 1.2, the extent to which children's receptive vocabulary and reported behavior problems are a function of environmental chaos and parenting stress, I conducted two hierarchical regressions. I entered control variables (i.e., child age, gender, race, parental employment, parental education) in the first step. Next I entered environmental chaos in the second step. Then, I entered parenting stress in the third step. Finally, I entered receptive vocabulary as the dependent variable. There were no significant findings for this model with respect to key variables (Table 10). However, child race emerged as a significant predictor of PPVT scores with black children scoring lower on the PPVT than non-black children. I repeated this process with parent reported problem behaviors as the dependent variable. Again, there were no significant findings relative to key variables in this model (Table 11).

Table 10

Summary of Hierarchical Regression Analysis for Environmental Chaos and Parenting Stress Predicting Children's PPVT Scores (N=97)

Variable	B	SE B	β	R ²
Step 1				.121*
Child Gender	.345	3.613	.010	
Child Age (in months)	-.073	.328	-.022	
Child Race	-10.010	3.705	-.271*	
Parental Education	1.738	1.423	.123	
Parental Employment	-4.928	3.654	-.134	
Step 2				.127
Child Gender	.762	3.662	.021	
Child Age (in months)	-.048	.330	-.015	
Child Race	-9.736	3.730	-.264*	
Parental Education	1.609	1.436	.114	
Parental Employment	-5.106	3.669	-.138	
Chaos	-.183	.240	-.078	
Step 3				.132
Child Gender	.921	3.678	.026	
Child Age (in months)	-.009	.335	-.003	
Child Race	-10.041	3.763	-.272***	
Parental Education	1.733	1.450	.123	
Parental Employment	-5.593	3.738	-.151	
Chaos	-.138	.248	-.059	
Parenting Stress	-.091	.125	-.078	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Table 11

Summary of Hierarchical Regression Analysis for Environmental Chaos and Parenting Stress Predicting Children's BITSEA Problem Behaviors (N=97)

Variable	B	SE B	β	R ²
Step 1				.043
Child Gender	.753	1.237	.064	
Child Age (in months)	.079	.112	.074	
Child Race	1.096	1.268	.091	
Parental Education	-.633	.487	-.137	
Parental Employment	-.787	1.251	-.065	
Step 2				.044
Child Gender	.692	1.257	.059	
Child Age (in months)	.076	.113	.070	
Child Race	1.056	1.280	.087	
Parental Education	-.614	.493	-.133	
Parental Employment	-.761	1.260	-.063	
Chaos	.027	.082	.034	
Step 3				.069
Child Gender	.578	1.250	.049	
Child Age (in months)	.048	.114	.045	
Child Race	1.275	1.278	.105	
Parental Education	-.703	.493	-.152	
Parental Employment	-.413	1.270	-.034	
Chaos	-.005	.084	-.007	
Parenting Stress	.066	.042	.172	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Research Question 2: What is the contribution of environmental chaos to parenting and subsequent child outcomes among rural, low-income families?

Sub-question 2.1. Will parents who experience higher levels of environmental chaos demonstrate parenting that is less sensitive, less stimulating, and has less positive regard?

I examined the extent to which parenting is a function of environmental chaos (sub-question 2.1) through three hierarchical regressions. I entered control variables, child age, gender, race, parental employment, parental education in the first step. I entered environmental chaos in the second step. I entered parenting variables (parental sensitivity, cognitive stimulation, and positive regard) as dependent variables for 3 separate equations. None of the models were significant (Table 12-14).

Table 12

Summary of Hierarchical Regression Analysis for Environmental Chaos Predicting Parental Sensitivity (N=97)

Variable	B	SE B	β	R ²
Step 1				.089
Child Gender	-.126	.171	-.075	
Child Age (in months)	.000	.016	.003	
Child Race	-.217	.176	-.126	
Parental Education	.128	.068	.195	
Parental Employment	.282	.173	.164	
Step 2				.118
Child Gender	-.170	.172	-.101	
Child Age (in months)	.002	.015	-.014	
Child Race	-.246	.175	-.143	
Parental Education	.142	.067	.216*	
Parental Employment	.301	.172	.175	
Chaos	.019	.011	.175	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Table 13

Summary of Hierarchical Regression Analysis for Environmental Chaos Predicting Parental Cognitive Stimulation (N=97)

Variable	B	SE B	β	R ²
Step 1				.068
Child Gender	.249	.189	.136	
Child Age	-.022	.017	-.133	
Child Race	-.110	.193	-.059	
Parental Education	.088	.074	.122	
Parental Employment	.200	.191	.107	
Step 2				.090
Child Gender	.208	.190	.114	
Child Age	-.025	.017	-.148	
Child Race	-.137	.193	-.073	
Parental Education	.100	.074	.140	
Parental Employment	.218	.190	.117	
Chaos	.018	.012	.151	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Table 14

Summary of Hierarchical Regression Analysis for Environmental Chaos Predicting Parental Positive Regard (N=97)

Variable	B	SE B	β	R ²
Step 1				.076
Child Gender	-.053	.204	-.027	
Child Age (in months)	-.015	.018	-.082	
Child Race	-.181	.209	-.089	
Parental Education	.128	.080	.165	
Parental Employment	.344	.206	.169	
Step 2				.097
Child Gender	-.098	.205	-.050	
Child Age (in months)	-.017	.018	-.097	
Child Race	-.211	.209	-.104	
Parental Education	.142	.080	.183	
Parental Employment	.363	.205	.179	
Chaos	.020	.013	.151	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Sub-question 2.2. Will parents who experience higher levels of environmental chaos and demonstrate less positive parenting have children with poorer outcomes, specifically lower receptive vocabulary scores and higher levels of reported behavior problems?

I examined the extent to which children's receptive vocabulary and reported behavior problems were a function of parents' experience of environmental chaos and their parenting (sub-question 2.2) through two hierarchical regressions. I entered control variables (i.e., child age, gender, and race; parental employment and education) in the first step. Then, I entered environmental chaos in the second step. Finally, I entered parenting variables (i.e., parental sensitivity, cognitive stimulation, and positive regard) together in the third step. I entered child receptive vocabulary and parent reported behavior problems as dependent variables in 2 separate equations. Neither model was significant relative to key variables (Table 15-16). Once again, race was a significant predictor of PPVT scores (i.e., African American/black children had lower PPVT scores than non-black children).

Table 15

Summary of Hierarchical Regression Analysis for Environmental Chaos and Parenting Predicting Children's PPVT Scores (N=97)

Variable	B	SE B	β	R ²
Step 1				.121
Child Gender	.345	3.613	.010	
Child Age (in months)	-.073	.328	-.022	
Child Race	-10.010	3.705	-.271	
Parental Education	1.738	1.423	.123	
Parental Employment	-4.928	3.654	-.134	
Step 2				.127
Child Gender	.762	3.662	.021	
Child Age (in months)	-.048	.330	-.015	
Child Race	-9.736	3.730	-.264*	
Parental Education	1.609	1.436	.114	
Parental Employment	-5.106	3.669	-.138	
Chaos	-.183	.240	-.078	
Step 3				.168
Child Gender	-.684	3.732	-.019	
Child Age (in months)	.026	.332	.008	
Child Race	-10.447	3.745	-.283**	
Parental Education	1.945	1.465	.138	
Parental Employment	-4.442	3.723	-.120	
Chaos	-.151	.243	-.064	
Parental Sensitivity	-5.033	2.689	-.235	
Parental Cognitive Stimulation	3.083	2.673	.156	
Parental Positive Regard	.488	2.657	.027	

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

Table 16

Summary of Hierarchical Regression Analysis for Environmental Chaos and Parenting Predicting Children's BITSEA Problem Scores (N=97)

Variable	B	SE B	β	R ²
Step 1				.043
Child Gender	.753	1.237	.064	
Child Age (in months)	.079	.112	.074	
Child Race	1.096	1.268	.091	
Parental Education	-.633	.487	-.137	
Parental Employment	-.787	1.251	-.065	
Step 2				.044
Child Gender	.692	1.257	.059	
Child Age (in months)	.076	.113	.070	
Child Race	1.056	1.280	.087	
Parental Education	-.614	.493	-.133	
Parental Employment	-.761	1.260	-.063	
Chaos	.027	.082	.034	
Step 3				.092
Child Gender	.991	1.279	.084	
Child Age (in months)	.037	.114	.035	
Child Race	.875	1.284	.072	
Parental Education	-.475	.502	-.103	
Parental Employment	-.438	1.276	-.036	
Chaos	.052	.083	.067	
Parental Sensitivity	.294	.922	.042	
Parental Cognitive Stimulation	-1.352	.916	-.209	
Parental Positive Regard	-.322	.911	-.054	

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

Research Question 3: What is the contribution of community attachment to parenting stress and subsequent child outcomes among rural, low-income families?

Sub-question 3.1. Will parents who report greater community attachment report lower levels of parenting stress?

For sub-question 3.1, I used hierarchical regression to examine the extent to which the level of parenting stress is a function of community attachment. I entered control variables (i.e., child age, child gender, child race, parent employment, parent education) in the first step. I entered community attachment in the second step. Finally, I entered parenting stress as the dependent variable. Community attachment was significantly negatively related to total stress, indicating that parents who reported higher levels of community attachment reported lower parenting stress, $F(6,96) = 3.45$, $R^2 = .187$, $p = .004$ (Table 17).

Table 17

Summary of Hierarchical Regression Analysis for Community Attachment Predicting Parenting Stress (N=97)

Variable	B	SE B	β	R ²
Step 1				.095
Child Gender	2.851	3.146	.092	
Child Age (in months)	.487	.285	.173	
Child Race	-2.596	3.225	-.082	
Parental Education	1.012	1.239	.084	
Parental Employment	-5.787	3.181	-.183	
Step 2				.187**
Child Gender	2.588	2.999	.084	
Child Age (in months)	.555	.273	.197*	
Child Race	-1.908	3.082	-.060	
Parental Education	1.104	1.181	.091	
Parental Employment	-5.652	3.032	-.178	
Community Attachment	-.232	.073	-.305**	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Sub-question 3.2. Will parents who report greater community attachment and lower levels of parenting stress have children with better outcomes, specifically higher receptive vocabulary scores and lower levels of reported behavioral problems?

For sub-question 3.2, I examined the extent to which children's receptive vocabulary and reported behavior problems are a function of parental community attachment and parenting stress was examined through two hierarchical regressions. I entered control variables (i.e., child age, child gender, child race, parent employment, parent education) in the first step. I entered community attachment in the second step. Then I entered parenting stress was entered in the third step. Finally, I entered receptive vocabulary as the dependent variable. There were no significant findings for this model (Table 18). I repeated this process with parent reported problem behaviors as the dependent variable. Again, there were so significant findings in this model (Table 19).

Table 18

Summary of Hierarchical Regression Analysis for Community Attachment and Parenting Stress Predicting Children's PPVT Scores (N=97)

Variable	B	SE B	β	R ²
Step 1				.121*
Child Gender	.345	3.613	.010	
Child Age (in months)	-.073	.328	-.022	
Child Race	-10.010	3.705	-.271	
Parental Education	1.738	1.423	.123	
Parental Employment	-4.928	3.654	-.134	
Step 2				.129*
Child Gender	.436	3.618	.012	
Child Age (in months)	-.096	.329	-.029	
Child Race	-10.247	3.717	-.278	
Parental Education	1.706	1.425	.121	
Parental Employment	-4.975	3.657	-.135	
Community Attachment	.080	.088	.090	
Step 3				.133
Child Gender	.648	3.644	.018	
Child Age (in months)	-.050	.338	-.015	
Child Race	-10.403	3.737	-.282	
Parental Education	1.796	1.437	.127	
Parental Employment	-5.437	3.740	-.147	
Community Attachment	.061	.093	.069	
Parenting Stress	-.082	-.128	-.070	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Table 19

Summary of Hierarchical Regression Analysis for Community Attachment and Parenting Stress Predicting Children's BITSEA Problem Scores (N=97)

Variable	B	SE B	β	R ²
Step 1				.043
Child Gender	.753	1.237	.064	
Child Age (in months)	.079	.112	.074	
Child Race	1.096	1.268	.091	
Parental Education	-.633	.487	-.137	
Parental Employment	-.787	1.251	-.065	
Step 2				.043
Child Gender	.755	1.244	.064	
Child Age (in months)	.079	.113	.073	
Child Race	1.090	1.278	.090	
Parental Education	-.634	.490	-.137	
Parental Employment	-.788	1.28	-.065	
Community Attachment	.002	.030	.007	
Step 3				.073
Child Gender	.565	1.237	.048	
Child Age (in months)	.038	.115	.036	
Child Race	1.230	1.268	.102	
Parental Education	-.715	.487	-.154	
Parental Employment	-.374	1.269	-.031	
Community Attachment	.019	.032	.065	
Parenting Stress	.073	.042	.191	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Research Question 4: What is the contribution of community attachment to parenting and subsequent child outcomes among rural, low-income families?

Sub-question 4.1- Will parents who report greater community attachment demonstrate more positive parenting, specifically more sensitivity, more cognitive stimulation, and more positive regard?

To examine sub-question 4.1, I conducted 3 hierarchical regressions addressing the extent to which parenting is a function of community attachment. I entered control variables (i.e., child age, child gender, child race, parent employment, parent education) entered in the first step. I entered community attachment in the second step. I entered parenting variables (parental sensitivity, cognitive stimulation, and positive regard) as dependent variables for 3 separate equations. None of the models were significant (Table 20-22).

Table 20

Summary of Hierarchical Regression Analysis for Community Attachment Predicting Parental Sensitivity (N=97)

Variable	B	SE B	β	R ²
Step 1				.089
Child Gender	-.126	.171	-.075	
Child Age (in months)	.000	.016	.003	
Child Race	-.217	.176	-.126	
Parental Education	.128	.068	.195	
Parental Employment	.282	.173	.164	
Step 2				.092
Child Gender	-.123	.172	-.073	
Child Age (in months)	.000	.016	-.001	
Child Race	-.223	.177	-.130	
Parental Education	.127	.068	.194	
Parental Employment	.281	.174	.163	
Community Attachment	.002	.004	.052	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Table 21

Summary of Hierarchical Regression Analysis for Community Attachment Predicting Parental Cognitive Stimulation (N=97)

Variable	B	SE B	β	R ²
Step 1				.068
Child Gender	.249	.189	.136	
Child Age (in months)	-.022	.017	-.133	
Child Race	-.110	.193	-.059	
Parental Education	.088	.074	.122	
Parental Employment	.200	.191	.107	
Step 2				.072
Child Gender	.252	.189	.138	
Child Age (in months)	-.023	.017	-.138	
Child Race	-.118	.195	-.063	
Parental Education	.086	.075	.121	
Parental Employment	.199	.191	.106	
Community Attachment	.003	.005	.059	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Table 22

Summary of Hierarchical Regression Analysis for Community Attachment Predicting Parental Positive Regard (N=97)

Variable	B	SE B	β	R ²
Step 1				.076
Child Gender	-.053	.204	-.027	
Child Age (in months)	-.015	.018	-.082	
Child Race	-.181	.209	-.089	
Parental Education	.128	.080	.165	
Parental Employment	.344	.206	.169	
Step 2				.076
Child Gender	-.054	.205	-.027	
Child Age (in months)	-.015	.019	-.081	
Child Race	-.179	.211	-.088	
Parental Education	.129	.081	.166	
Parental Employment	.344	.207	.170	
Community Attachment	-.001	.005	-.017	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Sub-question 4.2. Will parents who report greater community attachment and who demonstrate more positive parenting, specifically more sensitivity, more cognitive stimulation, and more positive regard, have children with better receptive vocabulary and fewer behavior problems?

For sub-question 4.2, the extent to which children's receptive vocabulary and reported behavior problems are a function of parents' community attachment and parenting was assessed through two hierarchical regressions. I entered control variables (i.e., child age, child gender, child race, parent employment, parent education) in the first step. I entered community attachment in the second step. I entered parenting variables (parental sensitivity, cognitive stimulation, and positive regard) in the third step. Finally, I entered child receptive vocabulary and parent reported behavior problems as dependent variables in 2 separate equations. Parental sensitivity was significantly related to receptive vocabulary, however, less sensitive parenting was related to higher receptive vocabulary $F(6, 90) = 2.027, R^2 = .173, p = .045$. In contrast, cognitive stimulation and positive regard were not significant within the model. Race was also significant in this model indicating that non-black children had higher PPVT scores (Table 23). There were no significant findings for parent reported problem behaviors (Table 24).

Table 23

Summary of Hierarchical Regression Analysis for Community Attachment and Parenting Predicting Children's PPVT Scores (N=97)

Variable	B	SE B	β	R ²
Step 1				.121*
Child Gender	.345	3.613	.010	
Child Age (in months)	-.073	.328	-.022	
Child Race	-10.010	3.705	-.271	
Parental Education	1.738	1.423	.123	
Parental Employment	-4.928	3.654	-.134	
Step 2				.129*
Child Gender	.436	3.618	.012	
Child Age (in months)	-.096	.329	-.029	
Child Race	10.247	3.717	-.278	
Parental Education	1.706	1.425	.121	
Parental Employment	-4.975	3.657	-.135	
Community Attachment	.080	.088	.090	
Step 3				.173*
Child Gender	-.887	3.682	-.025	
Child Age (in months)	-.023	.330	-.007	
Child Race	-10.997	3.716	-.298**	
Parental Education	2.063	1.443	.146	
Parental Employment	-4.254	3.693	-.115	
Community Attachment	.085	.088	.096	
Parental Sensitivity	-5.376	2.671	-.251*	
Parental Cognitive Stimulation	2.769	2.670	.140	
Parental Positive Regard	.693	2.660	.038	

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

Table 24

Summary of Hierarchical Regression Analysis for Community Attachment and Parenting Predicting Children's BITSEA Problem Scores (N=97)

Variable	B	SE B	β	R ²
Step 1				.043
Child Gender	.753	1.237	.064	
Child Age (in months)	.079	.112	.074	
Child Race	1.096	1.268	.091	
Parental Education	-.633	.487	-.137	
Parental Employment	-.787	1.251	-.065	
Step 2				.043
Child Gender	.755	1.244	.064	
Child Age (in months)	.079	.113	.073	
Child Race	1.090	1.278	.090	
Parental Education	-.634	.490	-.137	
Parental Employment	-.788	1.258	-.065	
Community Attachment	.002	.030	.007	
Step 3				.088
Child Gender	1.117	1.269	.095	
Child Age (in months)	.044	.114	.041	
Child Race	.958	1.280	.079	
Parental Education	-.525	.497	-.113	
Parental Employment	-.519	1.272	-.043	
Community Attachment	.004	.030	.015	
Parental Sensitivity	.346	.920	.049	
Parental Cognitive Stimulation	-1.332	.920	-.206	
Parental Positive Regard	-.295	.916	-.049	

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

Additional Analysis

Given the dearth of findings using the constructs/measures selected for these analyses, additional analyses were completed utilizing an additional measure that was referenced in Chapter 3 that was collected as part of the larger study to determine whether a broader measure of language would capture the novel and established relations hypothesized in the current study. Thus, I analyzed the Preschool Language Scale-5 (*PLS-5*; Zimmerman, Violette G. Steiner, & Pond, 2011) and its subscales (Auditory Comprehension and Expressive Communication) as child outcomes. I examined PLS-5 scores for normality using histograms and frequencies, and means and standard deviations were calculated for each. One Auditory score and one Expressive score from 2 separate cases exceeded scores more than +3 standard deviations above the mean and were casewise deleted.

In addition, to increase the predictive power of the parenting variables, I operationalized the parenting construct as a composite of the three highly inter-correlated (r 's = .47 to .67) positive parenting scales (i.e., parental sensitivity, parental cognitive stimulation, and parental positive regard). I computed a single scale by summing the means of the three individual scales and dividing by 3 (see Brady-Smith, Fauth, & Brooks-Gunn, 2005). This has been done in other studies and has been found to be predictive of child outcomes (Fuligni et al., 2013).

I utilized the same parent and child groupings, which were utilized in t-Tests with the other key variables, with the PLS-5 subscales. Parent characteristics examined with respect to the PLS-5 were employment (employed and unemployed), household income (less and greater than \$25,000 annually), education (high school education and less, and

greater than a high school education), parent interviewed (mother and non-mother), and whether the father was living in or out of the home. Child characteristics examined with respect to the PLS-5 were sex, race, and intervention group status. The only significant difference was between race and PLS-5 Expressive Scores ($t(93)=2.120, p=.037$) with black (African American) children exhibiting lower scores ($M=95.16, SD=11.76$) than non-black children ($M=100.11, SD=10.61$).

I performed the same five sets of Pearson product-moment correlations to examine their relations with the PLS-5 (Table 25-26). The significant correlations were consistent with the original analysis. Therefore, I retained the original controls in hierarchical regression analyses: child gender, child age, child race, parent employment, parent education.

Table 25

Bivariate Correlations Between Child Auditory and Expressive Language, Risk and Protective Factors, Parenting, and Child Language and Behavior

	PLS-5 A	PLS-5	P Comp	Chaos	Com Att	Parent Stress	PS	CS	PR	PPVT	BITSEA Prob Beh
PLS-5 Auditory	---	.713**	.335**	.018	.062	-.001	.243*	.387**	.224**	.321**	-.285**
PLS-5 Expressive		---	.243*	-.054	-.042	-.091	.177	.352**	.096	.380**	-.263*
Parent Composite			---	.124	.028	.112	.794**	.846**	.899**	.000	-.216*

* $p < .05$. ** $p < .01$

Table 26

Bivariate Correlations Between Child Auditory and Expressive Language, Parent Characteristics, and Child Characteristics

	PLS-5 Aud	PLS-5 Exp	Parent Comp	Race	P Age	Person	Income	Emp	Edu	C Age	C Sex	Grp
PLS-5 Aud	---	.713**	.335**	-.160	.122	-.112	.116	-.010	.264**	-.125	.003	.113
PLS-5 Exp		---	.243*	-.353**	.006	-.014	.177	.036	.165	-.287**	-.011	.093
Parent Comp			---	-.127	-.008	-.200	.065	.165	.222*	-.094	.027	.126

* $p < .05$. ** $p < .01$

I replaced the auditory and expressive language scores as child outcome variables for sub-questions 1.2, 2.2, 3.2, and 4.2. In addition, I utilized the positive parent composite to re-examine sub-questions 2.1, 2.2 (with PPVT, BITSEA, PLS auditory and expressive scores as outcomes), 4.1, and 4.2 (with PPVT, BITSEA, PLS auditory and expressive language scores as outcomes). I ran hierarchical regressions utilizing the same controls, and same steps. From all these regression analyses, only two significant findings emerged which are delineated below.

In sub-question 2.2 (i.e., relation of environmental chaos and parenting to child outcomes), positive parenting was significantly related to higher auditory language scores $F(7, 94) = 2.65, R^2 = .176, p = .016$ (see Table 27). In contrast to the PPVT analyses, parental education also emerged as a significant predictor of child language. The regressions predicting PPVT and BITSEA scores, using the positive parenting composite, were not significant.

Table 27

Summary of Hierarchical Regression Analysis for Environmental Chaos and Parenting Predicting Children's PLS-5 Auditory Language Scores (N=95)

Variable	B	SE B	β	R ²
Step 1				.103
Child Gender	-.704	2.659	-.027	
Child Age (in months)	-.305	.244	-.128	
Child Race	-2.733	2.731	-.103	
Parental Education	2.698	1.049	.267*	
Parental Employment	-.693	2.698	-.026	
Step 2				.109
Child Gender	-1.033	2.698	-.040	
Child Age (in months)	-.326	.246	-.137	
Child Race	-2.919	2.742	-.110	
Parental Education	2.799	1.059	.277	
Parental Employment	-.570	2.708	-.021	
Community Attachment	.137	.175	.081	
Step 3				.176*
Child Gender	-.905	2.611	-.035	
Child Age (in months)	-.252	.240	-.106	
Child Race	-2.058	2.678	-.078	
Parental Education	2.170	1.051	.215*	
Parental Employment	-1.795	2.661	-.068	
Community Attachment	.049	.172	.029	
Parenting Composite	4.583	1.730	.276**	

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

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

For sub question 4.2 (relation of community attachment and parenting to child outcomes), again, positive parenting was significantly related to higher auditory language scores $F(7, 94) = 2.73, R^2 = .180, p = .013$ (Table 28). Again, in contrast to the PPVT analyses, parental education also emerged as a significant predictor of child language. The regression analyses using the positive parenting composite, with the PPVT and BITSEA as dependent variables, did not yield any significant findings.

Table 28

Summary of Hierarchical Regression Analysis for Community Attachment and Parenting Predicting Children's PLS-5 Auditory Language Scores (N=95)

Variable	B	SE B	β	R ²
Step 1				.103
Child Gender	-.704	2.659	-.027	
Child Age (in months)	-.305	.244	-.128	
Child Race	-2.733	2.731	-.103	
Parental Education	2.698	1.049	.267*	
Parental Employment	-.693	2.698	-.026	
Step 2				.109
Child Gender	-.664	2.665	-.026	
Child Age (in months)	-.322	.246	-.135	
Child Race	-2.864	2.742	-.108	
Parental Education	2.686	1.051	.265	
Parental Employment	-.742	2.794	-.028	
Community Attachment	.051	.064	.080	
Step 3				.180*
Child Gender	-.754	2.573	-.029	
Child Age (in months)	-.259	.238	-.109	
Child Race	-2.098	2.661	-.079	
Parental Education	2.118	1.035	.209*	
Parental Employment	-1.893	2.644	-.071	
Community Attachment	.044	.062	.070	
Parenting Composite	4.630	1.694	.279**	

*p < .05, **p < .01, ***p < .001

Note: Child Gender: 0=male, 1=female; Child Race: 0=non black, 1=black; Parental Employment: 0=unemployed, 1=employed. All other variables are continuous.

Path Analysis

I completed path analysis, using MPlus, to test the conceptual model of my study (Chapter 1, Figure 1) that parenting stress and parenting mediate the relation of environmental chaos and community attachment to children's outcomes. I retained variables from significant regression equations (conducted in SPSS) in these models, specifically the demographic controls, chaos, community attachment, parenting stress, parenting, and child language measured by the PLS-5 auditory comprehension subscale (given that this subscale was significant in the regressions). To improve model fit with the parenting composite variable, I created a latent factor in MPlus using the original sensitivity, cognitive stimulation, and positive regard scores.

The recommendations for measured variable path analyses for model fit indices outlined by Hu and Bentler (1999) were followed. That is, ideal fit indices include a root mean square error of approximation (RMSEA) less than 0.06, a comparative fit index (CFI) greater than 0.95, and a standardized root mean square residual (SRMR) less than 0.08.

I examined the direct and indirect relation of chaos to child language via parenting stress and parenting using measured variable path analysis in my first model (see Figure 3). The model had good data-model fit ($\chi^2 = 7.26$, $df = 6$, $p = 0.30$, $CFI = 0.99$, $RMSEA = 0.05$, $SRMR = 0.020$). The direct path from chaos to parenting stress was significant ($\beta = .489$, $p < 0.05$), whereas the direct paths from chaos to parenting and parenting stress to parenting were not significant. However, the direct path from parenting to auditory comprehension was significant ($\beta = 7.964$, $p < 0.05$). Finally, the indirect paths between chaos and child language via parenting stress or parenting were

not significant. In summary, these results illustrated significant direct relations between chaos and parenting stress, as well as between parenting and child language, however, no indirect relations were found.

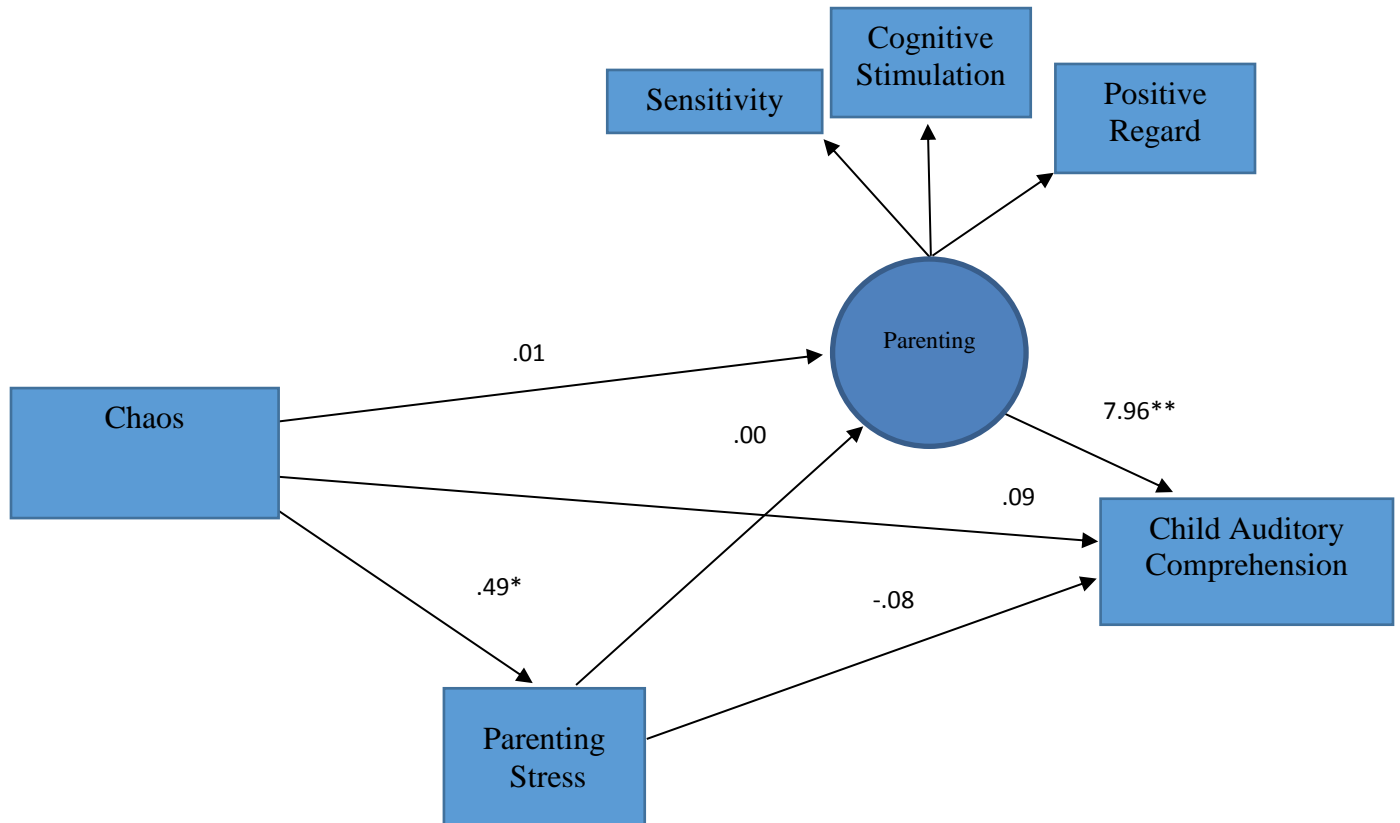


Figure 3. Standardized regression coefficients for the relationship between chaos, parenting stress, parenting, and child receptive vocabulary.

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

Next, I examined the direct and indirect relation of community attachment on child language via parenting stress and parenting using measured variable path analysis in the second model (see Figure 4). The model had good data-model fit ($\chi^2 = 9.06$, $df=6$, $p = 0.17$, $CFI = 0.97$, $RMSEA = 0.07$, $SRMR = 0.02$). The direct path from community attachment to parenting stress was significant ($\beta = -.232$ $p < 0.001$), whereas the direct paths from community attachment to parenting and from parenting stress to parenting

were not significant. However, the direct path from parenting to auditory comprehension was once again significant ($\beta = 8.157, p < 0.05$). Finally, the indirect paths between community attachment and child language via parenting stress or parenting were not significant. In summary, these results illustrated significant direct relations between community attachment and parenting stress, as well as between parenting and child language, however, no indirect relations were found.

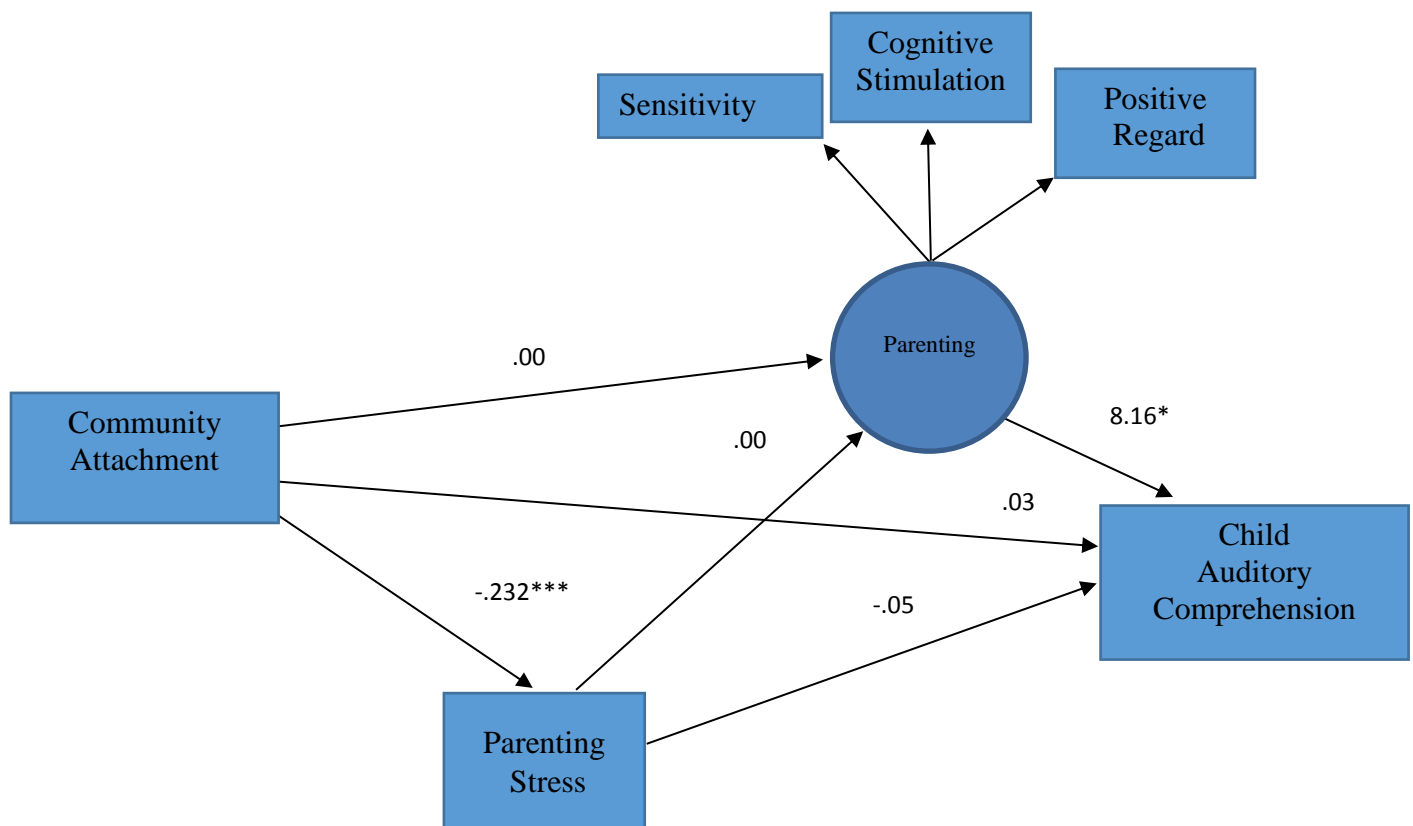


Figure 4. Standardized regression coefficients for the relationship between community attachment, parenting stress, parenting, and child receptive vocabulary.
 * $p < .05$, ** $p < .01$, *** $p < .001$

Summary of Results

My findings confirm that environmental chaos and community attachment are related to parenting stress, and that parenting is related to child language. However, there were no indirect relations between environmental chaos and community attachment and child outcomes via parenting stress and parenting.. There were direct relations between specific variables that were revealed through regression and path analyses, which are summarized below.

First, I found that participants who reported more chaos also reported more parenting stress. However, chaos and parenting stress were not related to child outcomes (i.e., receptive language and behavior). Secondly, I did not find a significant relation between chaos and parenting. However, when I used the additional child language measure and the parenting composite variable, I found that positive parenting was related to auditory comprehension.

Secondly, I found that parents who reported less community attachment reported more parenting stress. However, community attachment and parenting stress were not related to child outcomes. Further, I did not find a significant relationship between community attachment and parenting. Again, with the additional child language measure and parent composite variable, I found parenting was related to child auditory comprehension.

Finally, my path analysis using a latent positive parenting factor and child auditory comprehension (additional measure) confirmed my findings. Specifically, in separate models, I found that environmental chaos was significantly directly related to parenting stress, whereas community attachment was significantly negatively related to

parenting stress. Additionally, positive parenting was significantly related to child auditory comprehension in both models. The indirect influence of parenting stress and parenting on the relations between both community attachment and environmental chaos and child outcomes was not found. Thus, more research is needed to disentangle the complex relations between environmental risk and protective factors, parental functioning and parenting processes, and child outcomes in rural, low-income families.

Chapter 5: Discussion

There is a need for empirical literature that addresses the contexts in which children in low-income rural families develop, in order to develop effective interventions and services to support children and families at risk for compromised developmental outcomes in these settings. To address this need, my study had three main goals. The first was to address early childhood outcomes, related to school readiness, in the context of poverty among a sample of rural children and families. The second was to examine how parenting stress and parenting affects the development of children above and beyond the impact of poverty. Finally, the third goal was to investigate the role of risk and protective factors in the lives of parents and young children who were residing in rural, low-income communities.

Specifically, I utilized Family Stress Theory to conceptualize an examination of the relationships between environmental chaos, community attachment, parenting stress, parenting, and children's language and behavior problems in a sample of low-income rural families when children were three and four years of age. My findings provide support for previous research that there are positive relationships between chaos and parenting stress, as well as the limited empirical evidence on relations between parenting and children's language outcomes among rural low-income families. My study adds to the literature through my novel findings that a negative relationship exists between community attachment and parenting stress among families residing in rural low-income communities. My specific findings, as well as research limitations, future directions, and implications for policy and practice, will be discussed in this chapter.

Consideration of Findings

I explored the associations among environmental risk factors, parenting stress, parenting, and child language and behavior problems in rural low-income families. Environmental chaos and community attachment were found to influence parenting stress, while parenting influenced child language outcomes. Specific contributions to the literature on rural, low-income families are discussed.

Risk and Protective Factors and Parenting Stress

It is important to understand the mechanisms that lead to parenting stress among rural low-income parents. To investigate the role of risk and protective factors in this process, I examined the constructs of environmental chaos and community attachment and their relations to parenting stress among parents with young children. Here, I present key findings related to risk (e.g. chaos) and protective factors (e.g. community attachment) and parenting stress.

Environmental Chaos. Results from the descriptive analysis revealed that 24% of families scored 30 or above, based on possible scores from 1 to 60 on the 15 item CHAOS survey. This indicates almost a quarter of all families acknowledged that their homes were “chaotic” as a result of their responses to questions related to routines, disorganization, confusion, and noise. These higher levels of chaos were reported by parents who also reported higher levels of parenting stress. This finding is consistent with literature suggesting that chaos may shape family processes and child development (Dumas et al., 2005) through disorganized and unstable home environments. Chaos is theorized to affect proximal processes between parents and children (Fiese & Winter, 2010; Wachs & Evans, 2010).

The stress that chaos produces on family processes may be detrimental to the lives of rural low-income families in under-resourced, geographically isolated communities. Family Stress Theory suggests that environmental stressors impact parents themselves and in turn affect their parenting. It is noteworthy that even after controlling for socioeconomic risk, in other studies, more chaos is associated with higher levels of parental depression and stress (Pike, Iervolino, Eley, Price, & Plomin, 2006). Whereas studies with urban and mixed urban-rural low-income samples have found that maternal depression (Conger, Rueter, & Conger, 2000) may contribute to greater parenting stress (Cicchetti, Rogosch, & Toth, 1998) and elevated chaos in the home (Evans, Gonnella, Marcynyszyn, Gentile, & Salpekar, 2005), very few studies have looked at the direct relationship between chaos and parenting stress. Studies have also found a positive relationship between maternal depression and chaos, measured by the same questionnaire I used, in low-income mixed urban, suburban, and sometimes rural samples (Pike, Iervolino, Eley, Price, & Plomin, 2006; Shelleby, Votruba-Drzal, Shaw, Dishion, Wilson, & Gardner, 2014). My results build on these findings by establishing a direct connection between chaos and parenting stress in this strictly rural low-income sample.

Chaos may be even more important in understanding parenting stress in rural low-income families than in families from other demographic groups. Studies demonstrate that parents who have more stressful life events are less educated, live in poorer housing conditions, and report more chaos (Deater-Deckard et al., 2009). Further, rural communities are experiencing the departure of young educated community members leaving for greater employment opportunities (Carr & Kefalas, 2009), stresses associated with social and geographic isolation (Hartley, Agger, & Miller, 2002; Pullmann,

VanHooser, Hoffman, & Heflinger, 2010), a housing market characterized by trailer parks and subsidized housing projects (MacTavish & Salamon, 2001; Twiss & Mueller, 2004) and an increase in prisons and landfills (Burton, Lichter, Baker & Eason, 2013). These changes may lead to low-income, rural families' experiences of sustained chaos internal and external to their homes (Evans, 2006; Evans & Wachs, 2009; Wachs & Çorapçi, 2003), which may render them at increased risk for parenting stress.

Community Attachment. Results from the descriptive analysis revealed that 54.6% of families scored a 24 or above based on possible scores from 0 to 72 on the 24 item SCI-2 survey. This indicates that over half of participants reported being attached to their communities, in regard to reinforcement of own needs, membership in the community, influence on the community, and shared emotional connection with others in the community. These higher levels of community attachment were reported by parents who also reported lower levels of parenting stress. The community attachment literature in family science and sociology suggests that people involved in community participation gain a sense of personal empowerment that develops into self-efficacy (Bobo & Gilliam, 1990; Hardina, 2003). Family Stress Theory and evidence from developmental science suggest that such personal characteristics may buffer parents from the effects of rural poverty, and thus may decrease the likelihood of stresses such as those emanating from the parenting role.

For example, Family Stress Theory postulates that parents who are better able to utilize resources that support the family have an increased capacity to cope with economic and parenting stresses (Ge et al., 1992). Thus, it is logical that community attachment, built on economic ties and social capital, dependable social interactions with

community members, investment in cultural traditions and beliefs, and political engagement (Brehm et al., 2004; Crowe, 2010), would mediate the effects of poverty (e.g., financial burdens) on parenting stress (Conger et al., 2002). The findings from my study extend the literature on low-income families by documenting a negative relation between community attachment and parenting stress. Thus, parents who utilize existent community resources may be able to better contend with their own stresses, leading to a higher quality home environment. Given that much of the focus of the existing literature has been on evaluating the presence and quality of existing formal support services (e.g., healthcare, childcare, education, employment), this finding underscores the importance of informal and relational supports in geographically and socially isolated rural communities.

Risk and Protective Factors, Parenting Stress, and Parenting

The parenting literature highlights the importance of the environment and parent well-being on parenting (Costello, Compton, Keeler, & Angold, 2003; Dearing, McCartney, & Taylor, 2006; Votruba-Drzal, 2006). I examined whether environmental chaos and community attachment affected parenting directly, as well as indirectly through parenting stress. I found chaos and parenting stress did not relate to parenting. This was also the case for community attachment. Nevertheless, my findings do confirm and extend some literature on low-income families.

Studies utilizing Family Stress Theory suggest that risk and protective factors, such as environmental chaos and community attachment, may be too distal from parenting to be related to these proximal processes. There is some evidence that suggests household chaos is not always related to parents' well-being and parenting (Corapci &

Wachs, 2002). For example, Whitesell, Teti, Crosby, and Kim (2015) reported no relation between parental distress and household chaos, and also found that parental distress did not mediate the relationship between chaos and parenting. Although studies indicate household chaos and parenting quality can be related (Coldwell et al., 2006; Corapci & Wachs, 2002; Deater-Deckard et al., 2009), Whitesell et al. hypothesized that parent reports of chaos may not be linearly related to their own reports of well-being and therefore may influence other family processes uniquely. Similarly, the protective factor of community attachment may be too distal to be linearly related to parents' own report of well-being and parenting. In other words, environmental chaos and community attachment may not affect maternal parenting, but may influence broader family processes, such as family cohesion and home environmental quality.

However, it may also be that my measure of parenting, which highlighted positive parenting, was not as influential regarding the relationship between risk and protective factors (e.g. chaos and community attachment) and parenting stress as would be a measure of negative parenting (e.g. parental harshness). Parenting stress brought on by chaos may lead to negative parenting (Newland et al., 2013). Thus, there are theoretical and methodological reasons that may explain the lack of relationship between these constructs in my rural low-income sample.

Parenting and Child Outcomes

There is a paucity of evidence on how parenting affects the development of children in the context of rural poverty. My examination of this relationship revealed that, as has been found with urban low-income populations, positive parenting was related to

better language outcomes (Conger et al., 2002). Positive parenting was not related to children's behavior problems. My findings are discussed below.

Language. My initial proposal was to measure children's receptive vocabulary through the PPVT-4. Results revealed that children's average score was in the normal range, but that virtually one quarter of the children scored at or below 1 standard deviation below the standardized average. However, for the most part, children's language scores were not significantly related to parenting risk and protective factors, nor to parenting. This finding is inconsistent with a large literature suggesting strong relations between parenting and children's language (Vernon-Feagans, Garrett-Peters, Willoughby, & Mills-Koonce, 2012). Further, my unlikely finding that less sensitive parenting was related to higher PPVT scores may reflect the contribution of other caregivers and experiences to the development of children in the absence of responsive caregiving on the part of their parents, a protective factor which may lead to children's resilience (Werner, 2000). Possible methodological explanations for the lack of expected relations between parenting and PPVT scores are discussed in the limitations sections of this chapter.

Given the strong relations between parenting and language reported in the literature (Duncan & Brooks-Gunn, 2000; Hoff, 2003; 2006; Hoff, Laursen, & Tardif, 2002; Linver, Brooks-Gunn, & Kohen, 2002), I opted to examine this relation with another measure of language utilized in the larger evaluation study from which my study emanated (i.e., Preschool Language Scale -5; PLS). Analysis of the PLS-5 revealed children's mean score was within the average range, however, similar to my PPVT findings, more than one quarter scored at or below 1 standard deviation below the standardized average and virtually three-quarters of participating children scored at or

below the standardized mean of 100. These scores are consistent with other studies of rural low-income children examining environmental risk and the PLS as an outcome measure (Fish & Pinkerman, 2003; Vernon-Feagans et al., 2012). My study documented a positive relationship between positive parenting and PLS scores. This finding is consistent with the literature that parenting can influence child outcomes even in the context of poverty (Vernon-Feagans et al., 2012), and provides evidence that this relation exists among rural, low-income families.

There is substantial literature that points to the critical relation between parenting and children's language in low-income families. For example, it is clear that the experience of compromised parenting, often found in low-income families, can lead to low-income communication and language (Hoff, 2003; 2006; Hoff, Laursen, & Tardif, 2002). Additionally, there is documented variability in parent-child experiences among low-income families: maternal language (Hart & Risley, 1995), child led behaviors with parents (Sameroff, 2010), and parent response and modifications (Song, Spier, & Tamis-Lemonda, 2014) all demonstrate the bi-directional process of parenting and early language and cognitive development.

Further, my finding of the disproportionate number of these low-income, rural children scoring a standard deviation below the mean on both language measures is consistent with evidence from prior studies that children from low-income backgrounds are behind their middle-class peers in vocabulary, language milestones, and other cognitive skills (Hoff, 2003; 2006; Hoff, Laursen, & Tardif, 2002). Missed language milestones are one of the first signs of specific language impairment that may persist throughout childhood and affect later communication and academic achievement (Catts,

Fey, Tomblin, & Zhang, 2002; Dale, Price, Bishop, & Plomin, 2003; Dickinson & Tabors, 2001). It has been suggested that interventions after 3 years of age for low-income families and children may have a limited impact on later development due to the cumulative effects of experiences during the first 3 years of life (Hart & Risley, 1995). Therefore, this finding is important for the continued understanding of rural low-income children's language development at this critical age.

Although the relation of race to children's receptive language outcomes was not a key question in the current study, and versions of the PPVT have been criticized for their questionable validity with African American Children (Qi, Kaiser, Milan & Hancock, 2006), my findings in this regard merit some discussion. There is a large body of literature that indicates African American and low-income children have lower literacy and school readiness skills relative to white and middle-income children (Dentón Flanagan & McPhee, 2009; Hoffman, Llagas, & Snyder, 2003; Lee, Autry, Fox, & Williams, 2008; Sbarra & Pianta, 2001). Many scholars attribute these differences to environmental factors such as neighborhood quality, limited resources, and lower-quality parenting (Adger et al., 2007; Aikens & Barbarin, 2008; Alim & Smitherman, 2012; Currie, 2005; Kukla-Acevedo, 2009; McKown & Weinstein, 2008).

Specifically, quantitative studies report race and social class differences related to maternal practices such as shared book reading, and positive parenting practices (i.e., sensitivity and cognitive stimulation) (Burchinal et al., 2011; Raikes et al., 2006; Roberts, Jürgens, & Burchinal, 2005). Many of these studies are criticized for not using culturally sensitive models in assessing family dynamics and child outcomes (Hammer et al., 2010; Prins & Toso, 2008). Meanwhile, other studies indicate that, among low-income

African American children, significant increases in language outcomes can be achieved through even minimal increases in language stimulation (Bradley et al., 2001). This finding adds to the literature arguing for culturally sensitive evaluations and interventions designed to increase language and other cognitive/academic outcomes for African American children.

Behavior Problems. Parenting was not related to behavior outcomes in my study. This is inconsistent with those of multiple studies pointing to a relation between positive parenting and decreased child problem behavior (Campbell, Shaw, & Gillion, 2000; Chronis et al., 2007). The lack of relation in my study may have been a product of our measure selection. Results are evaluated against a cut score based on gender and age to determine possible clinical levels of problem behaviors. Importantly, the BITSEA is intended for children 12 to 35 months of age, but may be used for children older than 3 years (Briggs-Gowan, et al., 2013). While our goal was to assess children as close to their third birthday as possible, it was the case that 94.8% of our sample was above 35 months in age. Therefore, this measure was potentially methodologically invalid and yielded statistically insignificant results.

Beyond challenges with the BITSEA and my sample in the current study, there is evidence to suggest that there may be mediating factors between parenting and behavioral outcomes that I did not assess. For example, Raver (2004) suggests that self-regulation may act as a mediator between poverty-related risks and child socio-emotional and behavioral functioning. Additionally, it has been documented that family risk factors associated with economic disadvantage lead to negative parenting, which was related to low self-regulation (Eisenberg et al., 2005; Evans et al., 2005; Lengua, 2009; Lengua,

Honorado, & Bush, 2007; Raver, 2004; Zhou). It is important to note that my parenting measure examined positive parenting characteristics only. It is possible that an assessment of negative parenting characteristics may have been more sensitive to the parenting qualities that are more closely associated with parent-reported behavior problems (Campbell, et al., 2000; Deater-Deckard et al., 2009).

Research Limitations and Future Directions

Although my study adds to the limited research on rural low-income families, in particular the relation between risk and protective factors, parenting, and child language and problem behaviors, there are several limitations which underscore important directions for future research.

Design

As noted, my study was part of a larger study, the Early Steps to School Success Evaluation Project. As such, I relied on a convenience sample of rural low-income families, primarily African American and European American families in the southern part of the United States who were connected to an early childhood program. Therefore, it is not generalizable to a broader population, including non-English speaking and immigrant families living in impoverished circumstances. In reviewing the demographics of this convenience sample, I discovered that there were some participants who were not typical of low-income families with regard to demographics such as employment status, education levels, and household income status. Future analysis should consider casewise deleting these families before examining the relationships between parenting and child variables.

Further, my study is a descriptive, within-group examination of rural, low-income families. I did not have an urban or rural middle/higher-income family comparison groups. I also had to give consideration to the existing evaluation interview (i.e., length of time and psychological strain) in selecting additional measures to meet the needs of my study, thus, many potential mechanisms and constructs that may explain some of the relations found (or not supported) were excluded from the study for practical reasons.

In addition, I collected data at one time point. It was not possible to examine long-term effects of rural poverty on child development, which may have been particularly valuable in evaluating chaos and community attachment (Shonkoff, 2010; Shonkoff & Garner, 2012). Further, the Family Stress Model is heavily reliant on cross-sectional data. This may present bias (Conger et al., 2002; Parke et al., 2004; Scaramella et al., 2008) and can lead to hard-to-interpret directional relationships (e.g., cause or effect) of economic disadvantage, family processes, and child development outcomes (Coley, Ribar, & Votruba-Drzal, 2011, Shelleby et al., 2014). Future research should examine the current constructs, including the subscales of the measures utilized in this study, as well as models including both risk and protective factors, with rural low-income families over multiple time points when possible.

Validity of Child Measures

The validity of child measures when working with high risk samples is critical to consider. The PPVT, which measures receptive vocabulary, was originally selected as the primary measure in the current study, due to its straightforward assessment design and prominence in the early childhood field. I reevaluated this after the original analysis yielded insignificant results. The PPVT and language measures like it have been linked to

cognitive development and IQ (Tarnowski & Kelly, 1987) and reflect a dimension of “crystalized intelligence” (Carroll, 1993). Others have found the PPVT may not be appropriate for low-income African American preschool children (Qi, Kaiser, Milan & Hancock, 2006; Washington & Craig, 1992). In juxtaposition, the PLS has been used in other studies evaluating environmental effects on language of rural low-income children (Fish & Pinkerman, 2003; Vernon-Feagans, et al., 2012). The PLS measures a broader range of language abilities and incorporates assessment of African American diction in its scoring (Zimmerman, Steiner, & Pond, 2011). Future research should continue to explore which language measure is most appropriate for use with rural low-income children from different race and ethnicities.

Further, there were age and methodological issues related to the use of the BITSEA. First, it is a parent-report measure, a methodological approach which could obscure the knowledge about children’s level of behavior problems. For example, Richter (1992) suggests that mothers’ mental health may influence their responses to questionnaires regarding their children’s behavior. Also, as previously noted, many of the children exceeded the age for which the BITSEA was developed. Age-appropriate measures should be used in future research, as well as complimentary measures of teacher-report and direct assessment of children’s behavior. Campbell and colleagues (2016) highlight the importance of appropriate operationalization and measurement of socio-emotional competence and argue for the examination of separate but interrelated social, cognitive, and emotional competences. They ascribe specific behaviors to social competence and suggest the utilization of observation, direct assessment, and teacher-report protocols such as the Individualized Classroom Assessment Scoring System

(inCLASS; Downer, Booren, Lima, Luckner, & Pianta, 2010), the Classroom Assessment Scoring System (CLASS; La Paro, Pianta, & Stuhlman, 2004), adaptations of the Perceptions of Peer and Self Questionnaire (Rudolph, Hammen, & Burge, 1995), the Devereux Early Childhood Assessment Clinical Form (DECA-C; Crane, Mincic, & Winsler, 2011), and the Challenging Situations Task (Denham, Bouril, & Belouad, 1994), among others. These measures should be considered for future research, and may offer additional information related to this developmental outcome.

Multiple Forms of Assessment for Parent/Family Constructs

Though there were multiple forms of assessment, parent-report was utilized to assess most of the constructs for the current study. First, I opted to use the CHAOS measure, a widely used measure that is perceived as easily administered and economical (Dumas et al., 2005). However, both instrument authors and investigators have adapted questions using a variety of strategies, including 15 true-false answers (Corapci & Walchs, 2002), 1 through 5 scales (Johnson, Martin, Brooks-Gunn, & Petrill, 2008), shorter versions with six questions on a 1 through 5 scale (Hart et al., 2007; Petrill, Pike, et al., 2004), as well composite surveys utilizing CHAOS and investigator generated questions (Vernon-Feagans et al., 2012). Observational measures such as the Windshield Survey (USDHH-ACF, 2013) or other adapted measures may provide accounts of chaos that may be more closely aligned with parenting and child outcomes. Further, there is evidence to suggest that timing and intensity of chaos and the experience of sustained chaos over time have a greater influence on child outcomes (Shonkoff, 2010; Shonkoff & Garner, 2012). Future research should consider the measurement used (e.g., the type of chaos assessed and the value of using observation as opposed to parent-report), as well as

the utility of having multiple time-points to assess the experience of sustained chaos and child outcomes.

To my knowledge, my study was the first of its kind to examine the role of community attachment with parenting stress, parenting, and early childhood language and behavior problems in a rural low-income sample. However, community attachment was only examined by parent-report through the Sense of Community Index-2. This measure was selected for its ease of administration, its validity with rural samples, and its standardization. Pooley, Cohen, and Pike (2005) state an individual's sense of community "reflects the feelings of attachment and belonging that an individual has towards a community." (p. 71). Whereas community attachment and sense of community have overlapping definitions, they may be assessed differently. The construct of community attachment emanates from the sociology and family science literature and is built on the notions of economic ties and social capital, dependable social interactions with community members, investment in cultural traditions and beliefs, and political engagement (Brehm et al., 2004; Crowe, 2010). Thus, there may be other measures of community attachment that capture more facets of the construct that are relevant for parenting and children outcomes.

Further, community attachment is similar to chaos in that it is measured differently across studies, through varied questions and levels of responses around individual community attachment concepts (Auh & Cook, 2009; Brehm, Eisenhauer, & Krannich, 2004; Crowe, 2010). Psychological sense of community is attributed to the work of McMillan and Chavis (1986) in the psychology field and is defined by needs fulfillment, membership, influence, and shared emotional connection. This

conceptualization is the basis for the most prominently used instruments, including the SCI-2 I used, as well as the Brief Sense of Community Scale (BSCS; Peterson, Speer, & McMillan, 2008) and the Brief Sense of Community Index (BSCI; Long & Perkins, 2003). Given the importance of addressing the construct of community attachment more broadly, another conceptualization of community attachment may have yielded different findings (e.g., the indirect relations hypothesized). Results from my study underscore that future research should: 1) examine the psychometric properties of community attachment and sense of community measures with high risk samples; and 2) explore this construct more broadly in the context of developmental science research. Further, future research should consider other ways to assess this construct, through observational studies and community scans that may explicitly document parents' connection to community institutions.

Parenting stress is the third construct measured only through parent-report. In subsequent examination of parenting stress, it would be beneficial to examine PSI subscales as they may tap into distinct processes related to parenting stress. Additionally, future research should examine the physiologic correlates of stress (e.g., cortisol) in relation to parenting stress and parenting beyond parent report. Although parenting was assessed using the “gold-standard” of coded observations of parent-child interaction, future research would benefit from examining the relation of negative parenting processes (e.g., punitive, detached, and intrusive parenting) to child behavior problems. Additionally, future research should explore the complex relations between parental stress and parenting behaviors, elucidating in what contexts stress may not affect parenting, and the consequences of parental stress for the well-being of caregivers.

Finally, it may be beneficial to investigate risk and protective factors in the same model (i.e., chaos and community attachment) to examine the relative contributions of both to parent and child outcomes. Although my study contributed to a gap in the literature regarding two specific risk and protective factors for parenting stress, chaos and community attachment, it did not address several psychological and environmental risk and protective factors that affect the relationship between parenting stress, parenting, and child outcomes. For example, measures of depression, self-efficacy, family conflict, and social support should be considered in future research. These constructs may help establish a link between my key constructs, and contribute to our understanding of the developmental pathways of children in the context of rural poverty.

Implications for Policy and Practice

The findings discussed, specifically those related to chaos and community attachment and parenting stress, and parenting and child language, can be used to inform policy and practice. Below are policy and practice recommendations, grounded in the findings from the current study, aimed at improving the lives of rural, low-income children and families.

Policy

The American Recovery and Reinvestment Act of 2009 (ARRA) was a stimulus package enacted by the 111th United States Congress and signed into law by President Barack Obama that allocated significant resources to rural economic development. This act was aimed at improving resources for rural low-income families including emergency, broadband, transportation, clean water, clean air, environmental, business, housing, healthcare, education, and employment services. The extent of this stimulus and

the range of services it seeks to provide underscore how overdue a thorough needs assessment has been for these unique rural communities, which are often underserved and underrepresented in the policy arena.

Many of these services offer supports that can be used to target family needs that are consistent with the findings from the current study. First, I found that greater chaos is related to greater parenting stress. Chaos is represented by routines, disorganization, noise, and confusion in the home. Chaos could be targeted through the ARRA via preventing relocation and ensuring stable housing through the Homelessness Prevention Fund and Rural Home Services programs. Additionally, the Federal Highway Administration (FHWA) Recovery Act could increase funding to improve roads, bridges, and highways for transit and commerce in rural areas. Enhancing home and neighborhood quality could be achieved through the Rural Utilities Services (RUS) Water and Waste Disposal Program and the Environmental Protection Agency's Clean Water State Revolving Fund (CWSRF) to test, monitor, and rebuild existing systems to meet current regulations. Also, efforts to improve health, safety, and air quality could be accomplished through the National Forest Service and the USDA's Natural Resources Conservation Service funds for investing in the most current technologies for businesses located and operating in rural communities (USDA American Recovery & Reinvestment Act Report, 2011). Policy-makers could access these funds and development projects to target these indicators of chaos. Empirical evidence documents that elements of the home and community environments, potentially addressed by these policies, can provide more stable and quality lifestyles that positively influence parenting stress, as well as parents' and children's health and lifestyles (Saegert & Evans, 2003).

Second, I found that higher levels of community attachment are related to less parenting stress. Supports established by the ARRA are already in good stead to support ideals of community attachment as outlined by Brehm and colleagues (2004) and Crowe (2010). One tenet of community attachment is individuals' access to economic stability and social capital. ARRA's investment in businesses through USDA's Rural Business Service and Small Business Association's loans and minimized fees seeks to provide job security and expansion among rural businesses. Oversight should be maintained by policy-makers to ensure that businesses continue to thrive and grow to meet the needs of the worker demographics within these communities. Notably, this includes older members who remain in the community, as well as younger members who should be exposed to opportunities to grow within their community. Efforts should also be made to appeal to the currently active but young to middle age adults who can offer advanced skills and longer employment years to support the aging population and economy, so that they return to or remain in these rural communities.

Another tenet of community attachment is access to social interactions with community members. This can be particularly challenging in remote communities. In our modern society, most of our personal and professional interactions are maintained through electronic communications, such as calling, texting, or emailing to set up an outing with a friend or neighbor. "In 2008, an estimated 55% of adults in the U.S. had broadband access at home, whereas only 41% of adults in rural households had access to broadband service." (USDA's Economic Research Service, 2009, p 70). Under ARRA RUS, the Department of Commerce's National Telecommunications and Information Administration (NTIA) and the Federal Communications Commission (FCC) are charged

with developing and planning for the expansion of broadband infrastructures to all rural communities across the U.S. In addition to its value in maintaining social ties, access to technology is important for ensuring opportunities for investment in cultural traditions and beliefs as well as opportunities for civic engagement. Broadband and Internet access will allow families to take advantage of technological applications aimed at cultural groups and celebrations and connecting individuals with other participating community members in their proximity. It will also allow for civic opportunities such as online volunteer notices and registration, campaign notifications, voter registration, and other community notices. Through broadband facilitated communication, as well as other ARRA supported services previously mentioned in this section, policy can have an effect on promoting sustainability and growth in these rural communities, such that adults are able to concretely and psychologically attach to one another, thereby positively influencing their overall well-being.

Further, parenting stress is an independent matter for policy alone. Economic and family stresses abound for rural, low-income families. Research has found that working mothers of preschoolers who report higher levels of parenting stress and work stress also demonstrate more negative physiological stress responses during the work week but not during the weekend (Hibel, Mercado, & Trumbell, 2012). Policymakers can address parenting stress by continuing to provide business incentives that promote a family-friendly workplace, such as flexible work schedules and remote work possibilities to all workers, which seems particularly important for the work lives of rural adults who often have non-standard hours and long work commutes. This would potentially prevent bias

against employees, particularly working mothers, and also decrease parents' risk for the cumulative physiological and psychological effects of both work and parenting stress.

Finally, there are policy implications with respect to parenting positively affecting children's language outcomes. Policy can continue to support parenting and early childhood research and practice by prioritizing mechanisms, such as those implemented through two-generation service models like Head Start, to address parental stress, improve early childhood outcomes, and potentially improve disparities in academic achievement that affect an increasing number of citizens in the rural United States (Reardon, 2012; Reynolds & Temple, 2006). The National Advisory Committee on Rural Health and Human Services released a policy brief in December 2012, in which they recognized the issue of "scaling" where there are fewer people and greater distance to develop networks for family services. The Committee further recognized the need for federal and local agencies to work together, and for the Administration of Children and Families to develop "place-based policies" regarding early childhood services in rural areas with the support of the Child Care Development Fund (CCDF). The Committee also suggested that the Department of Health and Human Services work with Congress to support rural applicants by coordinating CCDF and Head Start services with appropriate performance reporting (i.e., accounting for place-based resources) and to examine whether this could improve child development outcomes for rural populations. This demonstration would build on the existing "An Early Head Start for Family Child Care," demonstration where 22 communities used consultants placed with Early Head Start providers to increase early childhood services. The collaboration of Head Start and CCDF resources would facilitate opportunities for comprehensive and empirically-based

services in the early childhood arena, and allow for rigorous evaluation and oversight of quality service provision in rural communities.

Practice

Very young children spend a lot of time home with their parents and present a challenging group for intervention research, especially those in rural, low-income families. My findings improve scientific understanding of parenting stress, parenting, and child development in the context of rural poverty. These and other findings highlight the importance of the implementation of interventions that target specific parenting capacities as well as early childhood programs designed for rural, low-income families.

Research suggests there is a “parenting divide” between economic classes and it appears to be growing (Hurst, 2010; Reeves & Howard, 2013). Better educated parents spend more time out of the home, but spend more real time with their children (Guryan, Hurst, & Kearney, 2008), as well as more quality and developmentally-appropriate time (Kalil, Ryan, & Corey, 2012). Steps should be taken to address this divide through parenting programs. One approach would be the use of technology to disseminate educational materials and establish social media platforms to develop professional as well as community supports. This model may prove to be cost- and time-effective for geographically isolated rural families. One program that has been piloted is InfantNet (Baggett et al., 2010). InfantNet is an Internet based parenting intervention and coaching program for low-income single mothers of infants that was originally designed for families in rural areas. The program provides mothers of infants with the resources and training to utilize the program for 6 months. In the program pilot, forty mothers completed eleven online sessions and weekly phone calls with a coach. The results

suggested that parents found the online resource useful and that the intervention positively impacted maternal mental health and children's social behaviors. Thus, technology may be a cost-effective way to bring sophisticated interventions to hard-to-reach families in rural areas.

There are other traditional parenting programs that have been shown to effectively improve parenting stress and parenting by providing resources and training to parenting. These interventions aim to help parents cope with stresses in and outside the home, as well as help them to develop the tools necessary to support their children through healthy development. It is also important that these programs be tailored to meet the schedules, routines, and norms of rural low-income families.

One such program that has been effective in doing this with rural African American is the Strong African American Families intervention program (Brody, Kogan, Chen, & McBride-Murry, 2008). The program is a seven consecutive week program with weekly meetings held at community facilities. Separate parent and child skill-building curricula and a family curriculum are offered over seven sessions that include separate, concurrent training sessions for parents and children, which are followed by a family session to practice the skills learned. Each concurrent family session lasts 1 hour, providing 14 hours of prevention training. Though this program is targeted for parents of older children, the model is steeped in the rural community in terms of recruitment, referrals, and intervention format/strategies. Community liaisons are staffed to maintain weekly communication with families to monitor weekly progress and obstacles to meeting parenting and child objectives, as well as to resolve potential scheduling and transportation conflicts. This constant oversight helps families complete the intervention

successfully. Such a program could be adapted to address the needs of families of younger children.

Large scale early childhood education programs, such as Head Start, should continue to expand into rural areas to implement their two-generation model that serves both parents and children 0 to 5 years old. Head Start targets children and families with incomes less than 130 percent of the federal poverty level. Their performance standards consist of national requirements to conduct a community needs assessment and subsequently to meet these needs of participant families, such as those specific to rural families. Further, parents are required to be involved in policy-making processes for Head Start programs. Each program has a governing board, with 51 percent of its membership comprised of parents and community leaders to determine program direction. This involvement is consistent with the ideals of community attachment in which parents are directly involved in the delivery of services to their families, thereby enhancing their self-efficacy with regard to their parenting and their communities at large.

In terms of preschool, currently Head Start and state-funded public pre-Kindergarten programs are the only two choices for low-income families who cannot afford private preschool. Language development and behavioral outcomes are important predictors of school readiness at kindergarten (Duncan & Brooks-Gunn, 2000; Hoff, 2006; Hoff, Laursen, & Tardif, 2002; Linver, Brooks-Gunn, & Kohen, 2002). In my study, the compromised development of low-income, rural children in regard to language and behavior was confirmed. Children of low-income families demonstrate compromised school readiness at kindergarten entry, and preschool is thought to be the predominant

platform for addressing the academic underachievement that children from low-income families demonstrate in later years (Yoshikawa et al., 2012). Federal and state resources should be allocated to support the development of empirically based early childhood education programs, like Head Start and public pre-Kindergarten, which holistically support the academic and developmental needs of young low-income children and their families in rural communities.

Conclusion

According to the Family Stress Model, low-income families face significant economic pressure that affects parental well-being, the family environment, and children's development. I contributed to the limited research examining child development in the context of rural low-income families. Few studies have examined the role of environmental risk factors, such as chaos, for child and family development in this high risk population. To my knowledge, no studies have examined protective factors, like community attachment, in the context of parenting and other family processes, illuminated in the Family Stress Model, among rural low-income families.

I contributed to the limited research on rural low-income families by finding that higher levels of environmental chaos were related to higher parenting stress. Chaos may operate differently in rural and urban contexts, in that families may have a different level and type of household disorganization, instability, and noise based on the differences between rural and urban families' routines and environments. These differences may also vary in their relation to parents' individual organizational and coping skills. The Family Stress Model allows for further consideration of this construct and its utility as a risk factor, as well as a potential measure of parenting chaos. In my study, higher chaos was

related to higher parenting stress, which suggests that this construct may be related to the parenting process rather than an environmental risk. I also found that the presence of community attachment was inversely related to parenting stress. Finally, positive parenting was related to higher auditory comprehension and vocabulary. There was not a mediating relationship between parenting stress and parenting. My findings suggest that more research is needed to understand the relation between environmental factors, such as parenting stress, and parenting in this population.

Collectively, my findings underscore that steps should be taken to develop community supports for parents to improve their home environments, particularly around factors related to chaos, such as routines, disorganization, confusion, and noise, and to facilitate their community attachment through community involvement. Efforts in both these areas may decrease the parenting stress that low-income, rural families experience. Further, supporting positive parenting practices among rural low-income families through parenting programs remains important, given my finding that positive parenting was related to higher auditory comprehension scores among preschool age children. Finally, the critical role of early childhood education programs was confirmed, given the compromised language and behavioral outcomes found for young children from low-income, rural backgrounds. Overall, the findings from my study reinforce the need to address risk and protective factors for low-income families who reside in rural communities, in order to promote healthy development for very young children at risk.

APPENDIX A: EARLY STEPS TO SCHOOL SUCCESS EVALUATION

The Early Steps to School Success (ESSS) Evaluation is comprised of Principal Investigators and research staff from the following institutions: University of Maryland (UM); University of Nebraska; and University of Massachusetts, Boston. The ESSS program is one of many programs operated by Save the Children (hereinafter referred to as SAVE). SAVE serves the neediest families in rural communities where its affiliates are located (i.e., rural communities with high rates of poverty and low service availability). Early Childhood Coordinators (ECCs), staffed through the SAVE affiliate sites, recruit families through the schools, community programs including Head Start, Supplemental Nutrition Program for Women, Infants, and Children (WIC), and other families. Families who are recruited with children pre-birth through 2 years old are eligible for SAVE's ESSS weekly home visiting program. ECCs provide weekly home visits to families working with parents and children on early literacy activities until children are 3 years old. Families who are recruited when children are 3 years old or older are eligible for a book bag exchange program (BBX) in which the ECCs loan books to the families on a weekly basis throughout the school year. This program is available to families until their children are 5 years old when they are generally entering their first year of public school.

A quasi-experimental design has been employed in the evaluation of the ESSS program. Specifically, children in the home visiting program represent the intervention

group and children in the BBX comprise the comparison group. Both sets of children are assessed and their parents interviewed when they are three years of age. For the home visited group, this is when children graduate from the program (post-test); for the BBX group, this is when they enter the program (pre-test). Trained research assistants visit the homes of both groups of families and perform a variety of assessments with the children and conduct interviews with mothers of children.

APPENDIX B: STUDY INSTRUMENTS

Background Questionnaire

The following questions are just about your household.

- 1) How many people live in your household? _____
- 2) How many children under 5? _____
- 3) How many adults? _____
 - 3a. Who are the adults in the household? _____
 - 3b. **If not indicated, probe as to whether the baby's father lives in the house?**
Yes / no
- 4) How many times have you moved in the last year? _____
- 5) Do you speak a language other than English in the home? Yes / No
 - a. **If yes**, what is it? _____
 - b. What language is primarily (most often) spoken in the home? _____
 - c. What other languages do you speak in the home?

- 6) Are you of Spanish, Hispanic or Latino origin? _____
 - 6a. Specify your country of birth _____
 - 6b. Specify child's father (**or mother, if father completes interview**) country of birth: _____
- 7) What is your race?
Code the following:
 1. White
 2. Black or African American
 3. (etc.) American Indian or Alaska native
 4. Chinese
 5. Korean
 6. Japanese
 7. Vietnamese
 8. Filipino
 9. Indian
 10. Multi, Specify _____
 11. Other, Specify _____

8) What is your highest grade completed?

- 1. (etc.) 6th Grade or Less
- 2. 7th, 8th or 9th Grade
- 3. 10th or 11th Grade
- 4. High School
- 5. Some College
- 6. Two-Year Degree
- 7. Four-Year BA/BS Degree
- 8. Some Graduate School
- 9. Advanced Degree MS/PhD

9) Are you in school? Yes/ no _____

10) Are you working? Yes/ no _____

10a) **If yes**, part or full time? Part / full

11) What is your birth date? ____/____/____

12) What is (Child's) birth date? ____/____/____

13) What is (Child's) race?

Code the following:

- 1. White
- 2. Black or African American
- 3. (etc.) American Indian or Alaska native
- 4. Chinese
- 5. Korean
- 6. Japanese
- 7. Vietnamese
- 8. Filipino
- 9. Indian
- 10. Multi, Specify _____
- 11. Other, Specify _____

The next few questions are about the resources that your family has.

14) We want to learn about the resources you have available. In the last 12 months, what was your total income of all members, counting everything and money from everyone who lives in your household?

Please include respondent's own income and the income of everyone living with you. Please include the money from jobs and public assistance programs, as well as any other sources, such as rent, interest, and dividends.

14 If they can provide a number: _____

14a. If they cannot provide a number:

14a. I just need a range. Was it?

- 25,000 or less =0
- More than 25,000 =1

if 0, was it

14b.

- 1. \$5,000 or less
- 2. \$5,000 to \$10,000
- 3. \$10,001 to \$15,000
- 4. \$15,001 to \$20,000
- 5. \$20,001 to \$25,000

if 1, was it

- 6. \$25,001 to \$30,000
- 7. \$30,001 to \$35,000
- 8. \$35,001 to \$40,000
- 9. \$40,001 to \$50,000
- 10. \$50,001 to \$75,000
- 11. More than \$75,000

15) How often have you worried whether food would run out before you got money to buy more?

- 1. Never
- 2. Sometimes
- 3. Often
- 4. Not apply
- 5. Refuse
- 6. Don't know

16) Is your child in child care more than 10 hours a week? Yes/ No_____

16a) If yes, is it:

- 1. child care center,
- 2. family child care
- 3. Relative care
- 4. Nanny care
- 5. Early Head Start
- 6. Educare
- 7. Head Start
- 8. Pre-K

17) How many years has your child been in child care for more than 10 hours a week?__

17a. a) Was your child in child care for more than 10 hours a week as a 0 to 12 month old? Yes / No

17a. b) What type of care?

- 1. child care center,
- 2. family child care
- 3. Relative care
- 4. Nanny care
- 5. Early Head Start
- 6. Educare
- 7. Head Start
- 8. Pre-K

17a. c) For how many months? _____

17 b. a) Was your child in child care for more than 10 hours a week as a 12-24 month old? Yes/No

17 b. b) What type of child care?

- 1. child care center,
- 2. family child care
- 3. Relative care
- 4. Nanny care
- 5. Early Head Start
- 6. Educare
- 7. Head Start
- 8. Pre-K

17 b. c).For how many months? _____

17c. a). Was your child in child care for more than 10 hours a week as a 24-36 month old? Yes/No

17 c. b) What type of child care?

- 1. child care center,
- 2. family child care
- 3. Relative care
- 4. Nanny care
- 5. Early Head Start
- 6. Educare
- 7. Head Start
- 8. Pre-K

17 c. c). For how many months? _____

18) How often in the past week have you felt? [FILL ITEM _____]

	Never	Rarely or a little of	Some or ally or	Occasion all of the	Most or
18a) bothered by things that usually don't bother you	0	1	2	3	
18b) you did not feel like eating; your appetite was poor	0	1	2	3	
18c) that you could not shake off the blues, even with the help of family and friends	0	1	2	3	
18d) you had trouble keeping your mind on what you were doing	0	1	2	3	
18e) depressed	0	1	2	3	
18f) that everything you did was an effort	0	1	2	3	
18g) fearful	0	1	2	3	
18h) your sleep was restless	0	1	2	3	
18i) you talked less than normal	0	1	2	3	
18j) you felt lonely	0	1	2	3	
18k) you felt sad	0	1	2	3	
18l) you could not get "going"	0	1	2	3	

19) I'm going to read you some statements about how the people who live with you get along and settle arguments. For each statement, please tell me if you strongly agree, mildly agree, mildly disagree or strongly disagree with it for your household.

	Strongly agree	Mildly agree	Mildly disagree	Strongly disagree
19a) we fight a lot	0	1	2	3
19b) we hardly ever lose our tempers	0	1	2	3
19c) we sometimes get so angry we throw things	0	1	2	3
19d) we often criticize each other	0	1	2	3
19e) we sometimes hit each other	0	1	2	3

20. Has anyone ever told you that your child has a disability or developmental delay or issue? Yes / no

a. **If yes**, who: _____

b. what is the disability? _____

c. Does your child have an Individualized Education Program or Plan (IEP) or an Individual Family Service Plan (IFSP)? Yes / no

21) How many times in the past month have you done any of the following with your child?

a. Sing songs with (him/her)

- 1. Was it more than once a day
- 2. About once a day
- 3. A few times a week
- 4. A few times a month
- 5. Rarely
- 6. Not at all in the past month

b. Dance with (him/her)

- 1. Was it more than once a day
- 2. About once a day
- 3. A few times a week
- 4. A few times a month
- 5. Rarely
- 6. Not at all in the past month

c. Read books to (him/her)

- 1. Was it more than once a day
- 2. About once a day
- 3. A few times a week
- 4. A few times a month
- 5. Rarely
- 6. Not at all in the past month

d. Tell stories to (him/her)

- 1. Was it more than once a day
- 2. About once a day
- 3. A few times a week
- 4. A few times a month
- 5. Rarely
- 6. Not at all in the past month

e. Play outside in the yard or park or playground with (him/her)

- 1. Was it more than once a day
- 2. About once a day
- 3. A few times a week
- 4. A few times a month
- 5. Rarely
- 6. Not at all in the past month

f. Take (child) with you to a religious service or religious event

- 1. Was it more than once a day
- 2. About once a day
- 3. A few times a week
- 4. A few times a month
- 5. Rarely
- 6. Not at all in the past month

22) How good do you feel about yourself as a parent?

1. Very good

2. Good

3. Bad

4. Very bad

23) What is one thing you like the most about your child?

Parenting Stress Index (Short Form)

Directions: The questions on the following pages ask you to mark an answer which best describes your feelings. While you may not find an answer which exactly states your feelings, please mark the answer which comes closest to describing how you feel. Your first reaction to each question should be your answer. Please mark the degree to which you agree or disagree with the following statements by circling the number which best matches how you feel. If you are not sure, please circle #3. If there are any questions you would prefer not to answer, feel free to CROSS OUT these questions.

Example:

I enjoy going to the movies. (If you sometimes enjoy going to the movies, you would circle #2).

1	2	3	4	5
Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree

1. I often have the feeling that I cannot handle things very well. 1 2 3 4 5
2. I find myself giving up more of my life to meet this child's needs than I ever expected. 1 2 3 4 5
3. I feel trapped by my responsibilities as a parent. 1 2 3 4 5
4. Since having/adopting this child I have been unable to do new and different things. 1 2 3 4 5
5. Since having/adopting this child I feel that I am almost never able to do things that I like to do. 1 2 3 4 5
6. I am unhappy with the last purchase of clothing I made for myself. 1 2 3 4 5
7. There are quite a few things that bother me about my life. 1 2 3 4 5
8. Having/adopting this child has caused more problems than I expected in my relationship with my spouse (male/female friend). 1 2 3 4 5
9. I feel alone and without friends. 1 2 3 4 5
10. When I go to a party I usually expect not to enjoy myself. 1 2 3 4 5

1 2 3 4 5
 Strongly Disagree Disagree Not Sure Agree Strongly Agree

11. I am not as interested in people as I used to be. 1 2 3 4 5

12. I don't enjoy things as I used to. 1 2 3 4 5

13. This child rarely does things for me that make me feel good. 1 2 3 4 5

14. Most times I feel that this child does not like me and does not want to be close to me. 1 2 3 4 5

15. This child smiles at me much less than I expected. 1 2 3 4 5

16. When I do things for this child I get the feeling that my efforts are not appreciated very much. 1 2 3 4 5

17. When playing, this child doesn't often giggle or laugh. 1 2 3 4 5

18. This child doesn't seem to learn as quickly as most children. 1 2 3 4 5

19. This child doesn't seem to smile as much as most children. 1 2 3 4 5

20. This child is not able to do as much as I expected. 1 2 3 4 5

21. It takes a long time and it is very hard for this child to get used to new things. 1 2 3 4 5

22. I feel that I am:

- 1. not very good at being a parent
- 2. a person who has some trouble being a parent
- 3. an average parent 1 2 3 4 5
- 4. a better than average parent
- 5. a very good parent

23. I expected to have closer and warmer feelings for this child than I do and this bothers me. 1 2 3 4 5

24. Sometimes this child does things that bother me just to be mean. 1 2 3 4 5

25. This child seems to cry or fuss more often than most children. 1 2 3 4 5

- | 1 | 2 | 3 | 4 | 5 |
|-------------------|----------|----------|-------|----------------|
| Strongly Disagree | Disagree | Not Sure | Agree | Strongly Agree |
26. This child generally wakes up in a bad mood. 1 2 3 4 5
27. I feel that this child is very moody and easily upset. 1 2 3 4 5
28. This child does a few things which bother me a great deal. 1 2 3 4 5
29. This child reacts very strongly when something happens that he/she doesn't like.
1 2 3 4 5
30. This child gets upset easily over the smallest thing. 1 2 3 4 5
31. This child's sleeping or eating schedule was much harder to establish than I expected.
1 2 3 4 5
32. I have found that getting this child to do something or stop doing something is:
1. much harder than I expected
2. somewhat harder than I expected
3. about as hard as I expected 1 2 3 4 5
4. somewhat easier than I expected
5. much easier than I expected
33. Think carefully and count the number of things which this child does that bother you. For example: dawdles, refuses to listen, overactive, cries, interrupts, fights, whines, etc. Please circle the response which includes the number of things you counted.
1. 10+things
2. 8-9 things
3. 6-7 things
4. 4-5 things
5. 1-3 things 1 2 3 4 5
34. There are some things this child does that really bother me a lot. 1 2 3 4 5
35. This child turned out to be more of a problem than I had expected. 1 2 3 4 5
36. This child makes more demands on me than most children. 1 2 3 4 5

Confusion Hubbub and Order Scale (CHAOS)

For each statement below, please assign a number between 1 and 4 to indicate how much each statement describes your home environment. Please use the following scale:

- 1 = Not at all like your own home
- 2 = A little bit like your own home
- 3 = Somewhat like your own home
- 4 = Very much like your own home

1. There is very little commotion in our home.	1	2	3	4
2. We can usually find things when we need them.	1	2	3	4
3. We almost always seem to be rushed.	1	2	3	4
4. We are usually able to stay on top of things.	1	2	3	4
5. No matter how hard we try, we always seem to be running late.	1	2	3	4
6. It's a real zoo in our home.	1	2	3	4
7. At home we can talk to each other without being interrupted.	1	2	3	4
8. There is often a fuss going on at our home.	1	2	3	4
9. No matter what our family plans, it usually doesn't seem to work out.	1	2	3	4
10. You can't hear yourself think in our home.	1	2	3	4
11. I often get drawn into other people's arguments at home.	1	2	3	4
12. Our home is a good place to relax.	1	2	3	4
13. The telephone takes up a lot of our time at home.	1	2	3	4
14. The atmosphere in our home is calm.	1	2	3	4
15. First thing in the day, we have a regular routine at home.	1	2	3	4

Sense of Community Index II

The following questions about community refer to: [insert community name]

Response categories for the following item:

- 0 Prefer not to be part of this community
- 1 Not important at all
- 2 Not very important
- 3 Somewhat important
- 4 Important
- 5 Very important

A. How important is it to you to feel a sense of community with other community members?

- 0 1 2 3 4 5

Response categories for the following items:

- 0 Not at all
- 1 Somewhat
- 2 Mostly
- 3 Completely

B. How well do each of the following statements represent how you feel about this community?

- 1. I get important needs of mine met because I am part of this community.
0 1 2 3
- 2. Community members and I value the same things.
0 1 2 3
- 3. This community has been successful in getting the needs of its members met.
0 1 2 3
- 4. Being a member of this community makes me feel good.
0 1 2 3
- 5. When I have a problem, I can talk about it with members of this community.
0 1 2 3
- 6. People in this community have similar needs, priorities, and goals.
0 1 2 3
- 7. I can trust people in this community.
0 1 2 3
- 8. I can recognize most of the members of this community.
0 1 2 3
- 9. Most community members know me.
0 1 2 3
- 10. This community has symbols and expressions of membership such as clothes, signs, art, architecture, logos, landmarks, and flags that people can recognize.
0 1 2 3

11. I put a lot of time and effort into being part of this community.
0 1 2 3
12. Being a member of this community is a part of my identity.
0 1 2 3
13. Fitting into this community is important to me.
0 1 2 3
14. This community can influence other communities.
0 1 2 3
15. I care about what other community members think of me.
0 1 2 3
16. I have influence over what this community is like.
0 1 2 3
17. If there is a problem in this community, members can get it solved.
0 1 2 3
18. This community has good leaders.
0 1 2 3
19. It is very important to me to be a part of this community.
0 1 2 3
20. I am with other community members a lot and enjoy being with them.
0 1 2 3
21. I expect to be a part of this community for a long time.
0 1 2 3
22. Members of this community have shared important events together, such as holidays, celebrations, or disasters.
0 1 2 3
23. I feel hopeful about the future of this community.
0 1 2 3
24. Members of this community care about each other.
0 1 2 3

Brief Infant Toddler Social Emotional Assessment

This questionnaire contains statements about 1 to 3 year-old children. Many statements describe normal feelings and behaviors, but some describe things that can be problems. Some may seem too young or too old for your child. Please do your best to answer every question.

Circle parent's answer

Not true/ rarely (0) Somewhat true/Sometimes (1) Very Often/ True (2)

1.1. Shows pleasure when s/he succeeds (For example, claps for self)	0	1	2	
1.2. Gets hurt so often that you can't take your eyes off him/her.	0	1	2	
1.3. Seems nervous, tense or fearful.	0	1	2	
1.4. Is restless and can't sit still.	0	1	2	
1.5. Follows rules.	0	1	2	
1.6. Wakes up at night and needs help to fall back asleep again.	0	1	2	
1.7. Cries or tantrums until s/he is exhausted.	0	1	2	
1.8. Is afraid of certain places, animals or things. What is s/he afraid of? _____	0	1	2	
1.9. Has less fun than other children.	0	1	2	
1.10. Looks for you (or other parent) when upset.	0	1	2	
1.11. Cries or hangs onto you when you try to leave.	0	1	2	
1.12. Worries a lot or is very serious.	0	1	2	
1.13. Looks right at you when you say his/her name.	0	1	2	
1.14. Does not react when hurt	0	1	2	
1.15. Is affectionate with loved ones.	0	1	2	
1.16. Won't touch some objects because of how they feel.	0	1	2	
1.17. Has trouble falling asleep or staying asleep.	0	1	2	
1.18. Runs away in public places.	0	1	2	
1.19. Plays well with other children (not including brother or sister). (N= no contact with other children)	0	1	2	N
1.20. Can pay attention for a long time. (Not including TV)	0	1	2	
1.21. Has trouble adjusting to changes.	0	1	2	
1.22. Tries to help when someone is hurt.	0	1	2	
1.23. Often gets very upset.	0	1	2	
1.24. Gags or chokes on food.	0	1	2	
1.25. Imitates playful sounds when you ask him/her to.	0	1	2	
1.26. Refuses to eat.	0	1	2	
1.27. Hits, shoves, kicks, or bites children (not including brother/sister). (N =No contact with other children)	0	1	2	N
1.28. Is destructive. Breaks or ruins things on purpose.	0	1	2	
1.29. Points to show you something far away.	0	1	2	
1.30. Hits, bites or kicks you (or other parent).	0	1	2	
1.31. Hugs or feeds dolls or stuffed animals.	0	1	2	
1.32. Seems very unhappy, sad, depressed or withdrawn.	0	1	2	

- 1.33. Purposely tries to hurt you (or other parent). 0 1 2
- 1.34. When upset, gets very still, freezes or doesn't move 0 1 2

The following questions are about feelings or behaviors that can be problems for young children. Some of the questions may be hard to understand, especially if you have not seen them in a child. Please do your best to answer them anyway.

- 1.35. Puts things in a special order, over and over. 0 1 2
- 1.36. Repeats the same action or phrase, over and over.
Describe: _____ 0 1 2
- 1.37. Repeats a particular movement over and over (like rocking, spinning, etc.).
Describe: _____ 0 1 2
- 1.38. "Spaces out": Is totally unaware of what's happening around him/ her.
0 1 2
- 1.39. Does not make eye contact 0 1 2
- 1.40. Avoids physical contact. 0 1 2
- 1.41. Eats or drinks things that are not edible.
Describe: _____ 0 1 2
- 1.42. Hurts him/herself on purpose. For example, bangs his or her head.
Describe: _____ 0 1 2

Parent-Child Interaction

Parent 3-bag Codes (Taken from EHSREP)							
Parental Sensitivity	1	2	3	4	5	6	7
Parental Stimulation of Cognitive Development	1	2	3	4	5	6	7
Parental Positive Regard	1	2	3	4	5	6	7

A. Parental Sensitivity

This scale focuses on how the parent observes and responds to the child's cues (gestures, expressions, and signals) during times of distress as well as non-distress. The defining characteristic of sensitivity is that it is **child-centered**. Sensitive parenting involves "tuning in" to the child and manifesting awareness of child's needs, moods, interests, and capabilities.

At 36 months, the young child is likely to display needs for independence (i.e., when the child tries to do things in his/her own way and actively explores and manipulates objects in the environment). Sensitive parenting involves facilitating play to aid the child, coupled with respecting the child's desire to initiate play schemes independently. Assistance from the parent may be required, as the child struggles between dependency on the parent and a desire for autonomy. Sensitive parenting involves being flexible in supporting and responding to the opposing needs that can be present simultaneously in the child.

Sensitive parenting in this assessment involves structuring the child's physical and social environment so that the child has interesting options for play, the child's preferences can be honored within reason, the child has opportunities to play independently with the toys, and the child can remain effectively engaged in playful or goal-directed activity. Sensitive parenting is also characterized by frequent praise and encouragement, withholding criticism, and balancing both the giving of support and encouraging of independent exploration so that the child can experience success, pride, and can begin to develop effective self-regulation skills.

Parental sensitivity permits the child as much choice, control, and autonomy as possible even while enforcing necessary rules, regulations, and constraints. A sensitive interaction is well-timed and paced to the child's responses, a function of its child-centered nature. Such interactions appear to be "in sync." If the child initiates interaction with the parent or makes demands, desires, or requests, sensitive behaviors include responding to the child's behavior and speech and pacing activities to keep the child engaged and interested. For example, if the child doesn't want to read the book, the parent might suggest looking in the next bag and coming back to the book later. A parent displaying sensitivity allows the child to shape the interaction, in general, and to disengage when he/she loses interest. It is important to recognize, however, that parental sensitivity to the child's interests typically **maximizes** engagement and interest.

If the child is interested and involved with toys, a parent displays sensitivity by allowing the child to explore independently, and also by "checking in" with the child visually to show that s/he is actively taking an interest in the child's activities. Sensitive parenting can also be displayed by offering a new activity or suggestion for play in a way that acknowledges and/or respects the child's ongoing activity (e.g., offering a toy and waiting for the child's response, taking turns, extending what the child is already doing).

If the child appears disengaged, sensitive parenting involves taking time to re-engage the child in a manner that demonstrates awareness of and sensitivity to the child's mood and preferences for play style and content. For example, if the child is

uninterested, the parent may show new combinations of the toys, new activities, or other engaging opportunities. Alternatively, the parent may help the child transition to a new activity.

Indicators of Sensitivity:

Acknowledging the child's affect

When the child is distressed, angry or frustrated: speaking sympathetically to the child, approaching the child, redirecting the child's activities, hugging, patting, picking up, or holding the child in lap and rocking

Responsiveness to the child's vocalizations and/or activities

Facilitating (but not over-controlling) the child's play

Changing the pace when the child appears under-stimulated, overexcited, or tired

Picking up on the child's interests and timing activities to reflect the child's interest

Changing from one toy bag to another in a way that acknowledges the child's interest

Matching the child's affect (e.g., increasing or decreasing expression as the child does so)

Providing an appropriate level of stimulation and appropriate range and variety of activities

Gentle and patient handling of the child's off-task behavior

When the child is not making bids, allowing the child to keep him/herself busy

Demonstrating developmentally appropriate expectations of child behavior

Indicators of Insensitivity:

Ignoring the child

Responding in a listless manner, or with developmentally inappropriate (i.e., too difficult or too easy) comments and behavior

Overstimulating and intrusive interactions (e.g., continuing in attempts to engage the child even when the child is providing cues that s/he is seeking to end

the interaction or desires to play autonomously)

Excessive prohibitions

Inappropriate and/or harsh discipline Ratings on this scale should be based on both *quantity* and *quality* of parental behavior.

Parental Sensitivity Scale:

- 1) **Very Low** Sensitivity. Interactions are characteristically adult-centered and/or the parent is unavailable and non-responsive to the child's signals, moods, interests and needs.
- 2) **Low** Sensitivity. There is little evidence of parental sensitivity. Most of the interaction is adult-centered and/or the parent is mostly not contingently responsive.
- 3) **Moderately Low** Sensitivity. Parent displays infrequent and/or weak indicators of sensitivity. While the parent is sometimes sensitive, the balance is in the direction of insensitivity.
- 4) **Moderate** Sensitivity. The frequency and quality of the parent's sensitivity and insensitivity are about equal. It is this inconsistency which prevents the parent from receiving a higher rating.
- 5) **Moderately High** Sensitivity. Parent displays more sensitivity than not. The parent demonstrates sensitivity in many interactions, but may show some insensitivity.
- 6) **High** Sensitivity. Parental behavior is characterized by sensitivity but the parent may show minimal insensitivity by hesitating to respond to distress, "missing" a signal from the child or missing an opportunity to praise the child.
- 7) **Very High** Sensitivity. Parent is very sensitive and responsive throughout the interaction. Insensitivity is never striking. Interactions are child-centered. Parent praises the child.

B. Parental Stimulation of Cognitive Development

The focus of this scale is on the parent's effortful teaching to enhance perceptual, cognitive, and linguistic development. A parent stimulating cognitive development is aware of the child's developmental level and aims to bring the child above that level. If the topic or method of stimulation is not matched or slightly above the child's developmental level or interest, then the parent's behavior is not seen as stimulating cognitive development.

A parent may take advantage of any activity to stimulate cognitive development (e.g., a parent may take advantage of routine activities, such as clean-up, to stimulate cognitive development). The parent may engage in a variety of activities with the intent to facilitate learning, development and achievement. A parent scoring high on this scale provides frequent stimulation through explanations, activities, or toys. S/he provides rich stimulation in terms of language, and embellishment of the potential of the physical world. Additionally, the parent should encourage the child to use his/her burgeoning language skills. If the topic or method of stimulation is poorly matched to the child's developmental level or interest, then the parent's behavior would not be rated as stimulating cognitive development.

Listed below are examples of cognitive stimulation that can be considered (a) minimally stimulating (i.e., age appropriate, but not stimulating the child to a higher level of understanding), (b) moderately stimulating (i.e., stimulating the child to a slightly higher level of understanding), and (c) highly stimulating (i.e., clearly stimulating the child to a higher level of understanding).

Minimally Stimulating:

Attempting to focus the child on an object or task;

Labeling the attributes of objects (i.e., their colors, their size);

Labeling without opportunity for the child to label independently;

Verbally responding to the child;

Encouraging the child to participate actively in activities.

Moderately Stimulating:

Suggesting more sophisticated play activities (e.g., "why don't you try...") and encouraging the child's attempts at mastery;

Labeling and interpreting the child's experiences, (e.g. "You think that's funny");

Labeling actions (e.g., "Yes, you can put the food in the basket," or "The caterpillar is eating all the food!");

Stimulating child's verbal development by responding to and expanding on what the child says;

Reading from and elaborating on text from the book;

Describing or asking questions about toys or objects, or demonstrating how they work or can be used;

Giving the child an opportunity to experiment with materials that illustrate or teach concepts (e.g., putting the legos together to make something; grouping the groceries);

Modeling, but not engaging in, pretend play (e.g., parent pretends to ring up the groceries, but doesn't elaborate on what it is s/he is pretending; or, parent tells the child to go grocery shopping, but doesn't join in the play)

Asking questions that require problem solving.

Highly Stimulating:

Encouraging **and** engaging in pretend play (e.g., encouraging and joining in with the child in building something with the legos);

Presenting activities in an organized sequence of steps (e.g., "OK, first we have to pick out the groceries we need, then we put them in our shopping basket, then we bring them up to the register, then...");

Elaborating on the pictures, words, and actions in the book or on unique attributes of objects;

Relating play activity or book to the child's experience (e.g., "Look, he's eating a strawberry just like you did this morning");

Encouraging child to use competency in language (e.g., "Why don't you label the book for me");

Setting a goal with the child and following through/facilitating play to ensure goal is met (e.g., facilitating play with the legos to help child build desired object).

High scores are given to parents who use techniques found in all three categories and who clearly show that the principal intent of their interactions with the child is teaching or fostering cognitive development. Parents who engage almost exclusively in the lower-level behaviors associated with cognitive development at this age would not be given the highest scores.

Physical activities, such as rough and tumble play, tickling, and bouncing are not considered to stimulate cognitive development, nor are those activities that are only social (hugging or smiling) or caretaking (soothing).

Ratings on this scale should be based on both *quantity* and *quality* of cognitive stimulation provided by the parent.

Parental Cognitive Stimulation Scale

- 1) **Very Low** Cognitive Stimulation. No attempt is made to teach the child anything or to provide any cognitive stimulation. Parent is either totally uninvolved or fails to provide any information about the toys or situation.
- 2) **Low** Cognitive Stimulation. Parent provides infrequent or weak cognitive stimulation. The parent displays few conscious or purposeful attempts to engage in development-fostering experiences, or any stimulation s/he provides is not matched to the child's interest or ability.
- 3) **Moderately Low** Cognitive Stimulation. Parent provides some cognitive stimulation with some of the toys, or minimal-level cognitive stimulation, but most of the interaction is not characterized by cognitive stimulation that is suited to the child's interest or ability (e.g., parent may label toys throughout the interaction, but does not make an attempt to engage in pretend play; or, parent may provide cognitive stimulation to a disinterested child).
- 4) **Moderate** Cognitive Stimulation. Parent provides cognitive stimulation during the session, but overall does not consistently engage in behaviors that stimulate a higher level of cognitive development in the child. Parents with this rating may label and point out features of the toys and engage in some pretend play, but make little or no use of higher-level forms of cognitive stimulation. Efforts to engage in pretend play should be evident.
- 5) **Moderately High** Cognitive Stimulation. Parent provides cognitive stimulation throughout the session, some of which stimulates a higher level of mastery or sophistication, but there are some periods in which it is infrequent and/or does not exhibit features of the higher scores. This rating should be given to parents who are characteristically stimulating, but could provide more frequent and/or higher quality stimulation.
- 6) **High** Cognitive Stimulation. Parent clearly seeks to stimulate a higher level of mastery, understanding or sophistication and does so during most of the session. Concepts or forms of play that take the child's play to a higher level are introduced by the parent.
- 7) **Very High** Cognitive Stimulation. Parent clearly seeks to stimulate a higher level of understanding or sophistication (i.e., trying to engage in pretend play) and does so consistently throughout the session. The parent consistently introduces concepts or forms of play that take the child's play to a higher level.

C. Parental Positive Regard

This scale taps the parent's expression of love, respect and/or admiration for the child.

Positive regard is evident in the way(s) in which the parent listens, watches attentively and looks into the child's face when talking to him/her. Parents who give praise without a warm tone as well as those who fail to praise when the opportunity presents itself, would not receive the highest score.

"Thank you," is considered a low level indicator of praise unless it is also accompanied by other indicators of positive regard (e.g., saying "thanks" in a warm tone and smiling or hugging the child rather than just saying "thanks" with relatively flat affect).

Indicators of Positive Regard:

Speaking in a warm tone of voice

Hugging or other expressions of physical affection

Smiling or laughing with the child

Enthusiasm about the child

Praising and/or complimenting the child

Clear enjoyment of the child

Showing concern and/or empathy for the child's distress

Appearing interested in the child's play Ratings on this scale are based on both *quantity* and *quality* of positive regard. It is important to note that positive regard is not necessarily the absence of negative regard, so a parent scoring high on positive regard may also exhibit many negative behaviors which would be coded under Parental Negative Regard.

Parental Positive Regard Scale:

- 1) **Very Low** Positive Regard. Parent displays no positive regard.
- 2) **Low** Positive Regard. Parent displays almost no positive regard. One or two fleeting instances of positive regard may be observed. These positive expressions (laughing, smiling), however, appear to be inappropriate to the situation or an inaccurate expression of parent's feeling. The parent may be expressionless, flat or negative.
- 3) **Moderately Low** Positive Regard. Parent displays infrequent and/or weak signals of positive regard. The intensity and frequency of positive regard are low.
- 4) **Moderate** Positive Regard. Parent displays some positive regard, but it is not predominant in the interaction. There may be signs of general enjoyment, warmth, and positive expressions but they are neither intense nor frequent (e.g., parent may be positive to the child, but gives no direct praise (or weak praise) and/or rarely retains eye contact with the child).
- 5) **Moderately High** Positive Regard. Parent frequently displays positive regard, which should include some praise of the child, or consistent, clear enjoyment of the child.
- 6) **High** Positive Regard. Parent frequently displays positive regard and praise. Some of these expressions are clearly enhancing of self-esteem and directed to the child's behavior or individual attributes/qualities.
- 7) **Very High** Positive Regard. Parent is very positive throughout the session in terms of facial and vocal expressiveness and behavior. Affect is positive and spontaneous. The parent shows a range of expressions and behaviors that are all clearly positive. The parent's consistent expressions of positive regard are clearly enhancing of the child's self esteem.

Peabody Picture Vocabulary Test, Fourth Edition

PPVT-4

Peabody Picture Vocabulary Test, Fourth Edition
Lloyd M. Dunn, PhD
Douglas M. Dunn, PhD

FORM A

Name: _____ Sex: F M ID #: _____

Address: _____ Current Grade: _____

City: _____ or Level of Education Completed: _____

State: _____ ZIP: _____ School/Agency: _____

Home Phone: _____ Teacher/Counselor: _____

Language Spoken at Home: _____ Examiner: _____

Reason for Testing: _____

Year _____ Month _____ Day _____

Test Date _____

Birth Date _____

Age* _____
*Do not round up.

NORMS USED: Age Grade: Fall Grade: Spring

Score Summary

RAW SCORE (From box on page 2) _____

Standard Score (Table B.1, B.2, or B.3) _____

Confidence Interval 90% 95%

(Table B.1, B.2, or B.3) _____

Percentile (Table B.4) _____

Normal Curve Equivalent (NCE) (Table B.4) _____

Stanine (Table B.4) _____

Growth Scale Value (GSV) (Table B.5 or B.6) _____

Age Equivalent (Table B.5) Grade Equivalent (Table B.6)

Graphical Profile

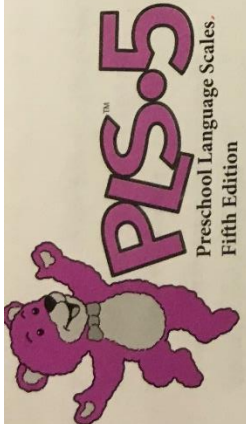
Standard Score	Percentile	NCE	Stanine	Description
-5SD	0.1%	-4SD	1	Extremely Low Score
-4SD	2.2%	-3SD	2	Moderately Low Score
-3SD	13.6%	-2SD	3	
-2SD	13.6%	-1SD	4	Low Average Score
-1SD	34.1%	Avg.	5	
Avg.	34.1%	+1SD	6	High Average Score
+1SD	13.6%	+2SD	7	
+2SD	2.2%	+3SD	8	Moderately High Score
+3SD	0.1%	+4SD	9	
+4SD				Extremely High Score

Recommendations:

Copyright © 1999, 1991, 1987, 2000
 Harcourt Assessment, Inc. All rights reserved.
 Published and distributed exclusively by NCS Pearson, Inc.
 Product Number 30706 (2)
 30706 (1)

Preschool Language Scales, Fifth Edition

Address: _____
 School: _____
 Teacher: _____
 Age: _____ Sex: _____ Grade: _____
 Examiner: _____



Record Form

	Year	Month	Day
Test Date			
Birth Date			
Chronological Age			

Raw Score Calculation		Norm-Referenced Scores		
Auditory Comprehension	Last AC item administered Minus (-) number of 0 scores AC Raw Score	SS Confidence Interval (% level)	Percentile Rank (PR)	PRS for SS Confidence Interval Values
Expressive Communication	Last EC item administered Minus (-) number of 0 scores EC Raw Score	to	to	to
Total Language Score	AC Standard Score Plus (+) EC Standard Score Standard Score Total AC Raw Score + EC Raw Score	to	to	to

Discrepancy Comparison	AC Standard Score	EC Standard Score	Difference	Critical Value	Significant Difference? (Y or N)**	Prevalence in the Normative Sample**	Level of Significance
					Y or N		.15 / .05

*See Table D.1 in the Administration and Scoring Manual to determine if the difference between AC and EC scores is significant.
 **See Table D.2 to determine prevalence in the normative sample.

Supplemental Measures

Articulation Screener Raw Score _____

Typical
 Further evaluation indicated
 Further evaluation strongly indicated

Language Sample Checklist

Reinforces PLS-5 results
 Differs greatly from PLS-5 results

Home Communication Questionnaire

Reinforces PLS-5 results
 Differs greatly from PLS-5 results

Growth Scale Values (GSV)

Date:	1st administration	2nd administration	3rd administration	4th administration
	AC EC	AC EC	AC EC	AC EC

Notes:

Standard Scores	Score Summary		
	AC	EC	TLS
150			
+3SD			
145			
140			
135			
+2SD			
130			
125			
120			
+1SD			
115			
110			
105			
Mean			
95			
90			
85			
-1SD			
80			
75			
-2SD			
70			
65			
60			
-3SD			

PEARSON

Copyright © 2011 NCS Pearson, Inc.
 All rights reserved. Printed in the United States of America
 282278-1 967654
 4 5 6 7 8 9 10 11 12 A B C D E

PsychCorp
 Product Number: 0154658960

APPENDIX C: IRB APPLICATION

March 11, 2015

Helen Raikes
Department of Child, Youth and Family Studies
257 MABL, UNL, 68588-0236

IRB Number: 20120212191COLLA
Project ID: 12191
Project Title: Early Steps to School Success

Dear Helen:

This is to officially notify you of the approval of your project's Continuing Review by the Institutional Review Board for the Protection of Human Subjects. It is the committee's opinion that you have provided adequate safeguards for the rights and welfare of the subjects in this study based on the information provided. Your proposal is in compliance with DHHS Regulations for the Protection of Human Subjects (45 CFR 46).

1. Enclosed is the IRB approved Informed Consent form for this project. Please use this form when making copies to distribute to your participants. If it is necessary to create a new informed consent form, please send us your original so that we may approve and stamp it before it is distributed to participants.
2. Please ensure the official approval letter is also provided to colleagues at the University of Maryland-College Park as we have still maintained UNL as the IRB-of-record for their involvement.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

- * Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
- * Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
- * Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
- * Any breach in confidentiality or compromise in data privacy related to the subject or others; or
- * Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

It is the responsibility of the principal investigator to provide the Board with a review and update of the research project each year the project is in effect. This approval is valid until 02/01/2016.

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

Becky R. Freeman, CIP
for the IRB

APPENDIX D: PARENTAL INFORMED CONSENT FORM

Title of Project: Early Steps to School Success Evaluation (ESSS-E)

You are invited to participate and to permit your child _____ to participate in a research study to evaluate the Early Steps to School Success program. Our aim is to better understand home visiting and support services to enhance children's literacy. The following information is provided to help you make an informed decision whether or not to participate and to allow your child to participate. You and your child are eligible to participate in this study because you and your child are enrolled in Early Steps to School Success Home Visiting or the Early Steps to School Success Book Bag Exchange. If you have any questions, please do not hesitate to ask.

Your ESSS Home Visitor will ask you if you wish to participate in this study. If you say yes, a Research Assistant from the University of Nebraska-Lincoln will telephone you to ask you some questions about you and your family. This telephone interview will last approximately 15-20 minutes. Following that, around when your child is 3 years old, the Research Assistant will come with the home visitor for one visit in your home. During this visit, the Research Assistant will test your child with some standardized tests of language and learning. These assessments will take approximately 20-30 minutes. The Research Assistant will ask you some questions as well. This will take about 20-30 minutes. She will also video tape a typical bookreading and play session between you and your child for about 10 minutes. We also request permission to see your child's files at Early Steps to School Success and at your child's elementary school when he/she attends school to obtain additional information about your child's school readiness.

If you consent, you may also agree to allow the video tapes to be used for training students and others about home visiting (you can agree to be in the study but not agree to do this; see places to check below). Additionally, if you agree, we may contact you in the future to ask for your consent to participate in follow-up research (you can agree to be in the study but not agree to do this; see places to check below).

All information collected in all settings will be completely confidential. Your participation and your identity will be confidential. Tapes and completed papers will be kept in locked file cabinets. Records and tapes will be kept for 10 years following the conclusion of the study. At that time all the records and tapes will be destroyed. Information obtained in this study may be published in scientific journals or presented at scientific meetings, but you and your child's identity will be kept strictly confidential. In some situations involving danger and/or risk of imminent harm to yourself or others, suspected child abuse, and certain legal situations (e.g., a court subpoena of records), the Research Assistants will be required to disclose this information for the protection of those

There are minimal risks associated with this research. Some of the questions may make you feel uncomfortable, and you are free to not answer any questions. If you experience any problems from participating in this study, treatment is available on a sliding fee scale at the UNL Counseling and School Psychology Clinic (402-472-1152). 216 Mabel Lee Hall / P.O. Box 880235 /Lincoln, NE 678588 -0235

As a result of participation in this research, we will better understand how to train home visitors and Book Bag Exchange leaders to improve the effectiveness of the programs for all families. When the home visit is completed with the video tape, child assessment and all questionnaires completed, you will receive a \$50 gift certificate from Wal*Mart (if there is no Wal*Mart near by, Target or other gift certificates may be substituted)

You may ask questions concerning this research and have those questions answered before agreeing to participate in or during the study. Or you may call the investigators at any time at (402) 472-9147, (703)993-5626, or (301)-405-2580. If you have any questions about your rights as a research participant that have not been answered by the investigator, or to report any concerns about the study, you may contact the University of Nebraska-Lincoln Institutional Review Board , phone (402) 472-6965.

References

- Aber, J. L., Morris, P., & Raver, C. C. (2012). Children, families and poverty: definitions, trends, emerging science and implications for policy. Social Policy Report. *Social Policy Report, 26*(3).
- Abidin, R.R. (1990). Parenting Stress Index/Short Form. Lutz, FL: Psychological Assessment Resources, Inc.
- Achenbach, T.M. & Rescorla, L.A. (2000). Manual for the ASEBA Preschool Forms & Profiles. Burlington, VT: University of Vermont, Research Center for Children, Youth & Families.
- Adam, E. (2004). Beyond quality: parental and residential stability and children's adjustment. *Current Directions in Psychological Science, 13*, 210–213.
- Aday, L. A., Quill, B. E., & Reyes-Gibby, C. C. (2001). Equity in rural health and health care. In S. Loue & B. E. Quill (Eds.), *Handbook of rural health* (pp. 44–72). New York, NY: Springer
- Adger, C. T., Wolfram, W., & Christian, D. (2014). *Dialects in schools and communities*. Routledge.
- Aikens, N. L., & Barbarin, O. (2008). Socioeconomic differences in reading trajectories: The contribution of family, neighborhood, and school contexts. *Journal of Educational Psychology, 100*(2), 235.
- Ainsworth, M., & Blehair, M. C, Waters, E., & Wall, S. (1978). Patterns of attachment: A psychological study of the Strange Situation. Hillsdale, NJ: Erlbaum.

- Ainsworth, M. D. S., & Wittig, B. A. (1969). Attachment and exploratory behavior in one-year-olds in a strange situation. In B. M. Foss (Ed.), *Determinants of infant behavior* (Vol. 4.) London: Methuen.
- Alexander, K. L., & Entwisle, D. R. (1988). Achievement in the first two years of school: Patterns and processes. *Monographs of the Society for Research in Child Development, 53*, i-157.
- Alim, H. S., & Smitherman, G. (2012). *Articulate while Black: Barack Obama, language, and race in the US*. Oxford University Press.
- Ames, B. D., Brosi, W. A., & Damiano-Teixeira, K. M. (2006). "I'm just glad my three jobs could be during the day": women and work in a rural community. *Family Relations, 55*, 119–131.
- Andreassen, C., & Fletcher, P. (2007). Early Childhood Longitudinal Study, Birth Cohort (ECLS–B) psychometric report for the 2-year data collection (NCES 2007–084). *Washington, DC: National Center for Education Statistics, Institute of Education Sciences, US Department of Education, 10*.
- Angermeyer, M. C., Schulze, B., & Dietrich, S. (2003). Courtesy stigma: a focus group study of relatives of Schizophrenic patients. *Social Psychiatry and Psychiatric Epidemiology, 38*, 593–602.
- Arriaga, R. I., Fenson, L., Cronan, T., & Pethick, S. J. (1998). Scores on the MacArthur Communicative Development Inventory of children from low- and middle-income families. *Applied Psycholinguistics, 19*, 209-223.
- Auh, S., & Cook, C. C. (2009). Quality of community life among rural residents: an integrated model. *Social Indicators Research, 94*, 377–389.

- Ayoub, C., O'Connor, E., Rappolt-Schlichtmann, G., Vallotton, C., Raikes, H., & Chazan-Cohen, R. (2009). Cognitive skill performance among young children living in poverty: risk, change, and the promotive effects of Early Head Start. *Early Childhood Research Quarterly, 24*, 289–305.
- Baggett, K.M., Davis, B., Feil, E., Sheeber, L.B., Landry, S.H., Carta, J.J., & Leve, C. (2010). Technologies for Expanding the Reach of Evidence-Based Interventions: Preliminary Results for Promoting Social Emotional Development in Early Childhood. *Topics in Early Childhood Special Education, 29*, 226–238.
- Bauer, J. W. (2004). Basebook report: Low income rural families: Tracking their well-being and functioning in the context of welfare reform. Minneapolis, MN: University of Minnesota.
- Bauer, J. W., Dyk, P. H., Braun, B., Quoss, B., Bartl (Katras), M. J., Powell, S. E., Prochaska-Cue, K., Bowman, S., Seiling, S., Lawrence, F. C., Richards, L., Corson, C., & Mammen, S. (2000). Rural low-income families in the context of welfare reform: findings and policy issues symposium conducted at the annual meeting of the National Council on Family Relations, Minneapolis, MN.
- Bayley, N. (1969). Bayley Scales of Mental Development. New York, NY: The Psychological Corporation.
- Bayley, N. (1993). Bayley Scales of Infant Development (2nd ed.). San Antonio, TX: The Psychological Corporation.
- Beggs, John J., Hurlbert, J.S. & Haines, V.A. (1996). Community attachment in a rural setting: A refinement and empirical test of the systemic model. *Rural Sociology, 61*, 407–26.

- Belsky, J., Garduque, L., & Hrcncir, E. (1984). Assessing performance, competence, and executive capacity in infant play: Relations to home environment and security of attachment. *Developmental Psychology*, 20, 406–417.
- Belsky, J., Rovine, M., & Taylor, D. G. (1984). The Pennsylvania Infant and Family Development Project, II: The development of reciprocal interaction in the mother – infant dyad. *Child Development*, 55, 718 – 728.
- Bender, S. L., Fedor, M. C., & Carlson, J. S. (2011). Examining protective factors and risk factors in urban and rural Head Start preschoolers. *Journal of Community Psychology*, 39, 908–921.
- Berlin, L. J., Brady-Smith, C., & Brooks-Gunn, J. (2002). Links between childbearing age and observed maternal behaviors with 14-month-olds in the Early Head Start Research and Evaluation Project. *Infant Mental Health Journal*, 23, 104–129.
- Bernstein, B. (1970). A sociolinguistic approach to socialization: with some reference to educability. In F. Williams (Ed.), *Language and poverty: perspectives on a theme*. Chicago, IL: Markham.
- Berry, D., Blair, C., Willoughby, M., & Granger, D. A. (2012). Salivary alpha-amylase and cortisol in infancy and toddlerhood: direct and indirect relations with executive functioning and academic ability in childhood. *Psychoneuroendocrinology*, 37, 1700–11.
- Blair, C., Granger, D. A., Kivlighan, K. T., Mills-Koonce, R., Willoughby, M., Greenberg, M. T., ... Fortunato, C. K. (2008). Maternal and child contributions to cortisol response to emotional arousal in young children from low-income, rural communities. *Developmental Psychology*, 44, 1095–109.

- Blair, C., Raver, C. C., Granger, D., Mills-Koonce, R., Hibel, L., & Family Life Project Key Investigators (2011). Allostasis and allostatic load in the context of poverty in early childhood. *Development and Psychopathology*, 23, 845–857.
- Bobo, L., & Gilliam, F. D. (1990). Race, sociopolitical participation, and black empowerment. *American Political Science Review*, 84(02), 377-393.
- Bornstein, M. H., Putnick, D. L., & Suwalsky, J. T. D. (2012). A longitudinal process analysis of mother-child emotional relationships in a rural Appalachian European American community. *American Journal of Community Psychology*, 50, 89–100.
- Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual Reviews Psychology*, 53, 371–399.
- Bradley, R. H., Corwyn, R. F., McAdoo, H. P., & García Coll, C. (2001). The home environments of children in the United States part I: Variations by age, ethnicity, and poverty status. *Child development*, 72(6), 1844-1867.
- Brehm, J. M., Eisenhauer, B. W., & Krannich, R. S. (2004). Dimensions of community attachment and their relationship to well-being in the amenity-rich rural west. *Rural Sociology*, 69, 405–429.
- Briggs-Gowan, M.J. & Carter, A.S. (2008). Social-emotional screening status in early childhood predicts elementary school outcomes. *Pediatrics*, 121, 957-96.
- Briggs-Gowan, M.J., Carter, A.S., Irwin, J.R., Wachtel, K., Cicchetti, D.V. (2004). The Brief Infant-Toddler Social and Emotional Assessment: screening for social-emotional problems and delays in competence. *Journal of Pediatric Psychology*, 29, 495-515.

- Briggs-Gowan, M. J., Carter, A. S., McCarthy, K., Augustyn, M., Caronna, E., & Clark, R. (2013). Clinical validity of a brief measure of early childhood social-emotional/behavioral problems. *Journal Of Pediatric Psychology, 38(5)*, 577-587. doi:10.1093/jpepsy/jst014.
- Britto, P. B. (2012). School readiness: A conceptual framework. New York, NY: United Nations Children's Fund.
- Brody, G. H., Chen, Y. F., Kogan, S. M., Murry, V. M., Logan, P., & Luo, Z. (2008). Linking perceived discrimination to longitudinal changes in African American mothers' parenting practices. *Journal of Marriage and Family, 70*, 319-331.
- Brody, G. H., Kogan, S. M., Chen, Y. F., & Murry, V. M. (2008). Long-term effects of the strong African American families program on youths' conduct problems. *Journal of Adolescent Health, 43*, 474-481.
- Brody, G. H., Murry, V. M., Kim, S., & Brown, A. C. (2002). Longitudinal pathways to competence and psychological adjustment among African American children living in rural single-parent households. *Child Development, 73*, 1505-16.
- Brody, G. H., Stoneman, Z., & Flor, D. (1996). Parental religiosity, family processes, and youth competence in rural, two-parent African American families. *Developmental Psychology, 32*, 696-706.
- Brody, G.H., Stoneman, Z., Flor, D. (1995). Linking family processes and academic competence among rural African American youths. *Journal of Marriage and The Family, 57*, 567-579.

- Brody, G.H., Stoneman, Z., Flor, D., & McCrary, C. (1994). Religion's role in organizing family relationships: family process in rural, two-parent African American families. *Journal of Marriage and The Family*, 56, 878–888.
- Bronfenbrenner, U. (2005). *Making human beings human*. Thousand Oaks, CA: Sage.
- Bronfenbrenner, U., & Evans, G. W. (2000). Developmental science in the 21st century: Emerging questions, theoretical models, research designs, and empirical findings. *Social Development*, 9, 115–125.
- Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental processes. In R. M. Lerner (Ed.), W. Damon (Series Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (5th ed., 993–1028). New York, NY: John Wiley and Sons, Inc.
- Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology, Vol. 1: Theoretical models of human development* (6th ed., 793-828). New York, NY: John Wiley.
- Brooks-Gunn, J. (2003). *Do you believe in magic: What we can expect from early childhood interventions programs?* SRCD Policy Report.
- Brown, A. C., Brody, G. H., & Stoneman, Z. (2000). Rural black women and depression: a contextual analysis. *Journal of Marriage and The Family*, 62, 187–198.
- Brown, R.B. (1993). Rural community satisfaction and attachment in mass consumer society. *Rural Sociology*, 58, 387-403.
- Brown, D. L., & Schafft, K. A. (2011). *Rural people and communities in the 21st century: Resilience and transformation*. Polity.

- Burchinal, M., Vernon-Feagans, L., & Cox, M. (2008). Cumulative social risk, parenting, and infant development in rural low-income communities. *Parenting: Science and Practice, 8*, 41–69.
- Burchinal, M., Vandergrift, N., Pianta, R., & Mashburn, A. (2010). Threshold analysis of association between child care quality and child outcomes for low-income children in pre-kindergarten programs. *Early Childhood Research Quarterly, 25*, 166-176.
- Burton, L. M., Lichter, D. T., Baker, R. S., & Eason, J. M. (2013). Inequality, family processes, and health in the “new” rural America. *American Behavioral Scientist, 0002764213487348*.
- Cabrera, N., Fagan, J. V. Wight, & Schadler, C. (2011). The influence of mother, father, and child risk on parenting and children’s cognitive and social behaviors. *Child Development, 82*, 1985-2005.
- Calkins, S. D. (1994). Origins and outcomes of individual differences in emotion regulation. *Monographs of the Society for Research in Child Development, 59*(2-3), 53-72.
- Calkins, S. D., & Hill, A. (2007). Caregiver influences on emerging emotion regulation. *Handbook of emotion regulation, 229248*.
- Caldwell, B. M. & Bradley, R. H. (1984). Home observation for measurement of the environment. Little Rock, AR: University of Arkansas at Little Rock.
- Campbell, S. B., Denham, S. A., Howarth, G. Z., Jones, S. M., Whittaker, J. V., Williford, A. P., ... & Darling-Churchill, K. (2016). Commentary on the review of measures of early childhood social and emotional development: Conceptualization, critique, and recommendations. *Journal of Applied Developmental Psychology*.

- Carr, P. J., & Kefalas, M. J. (2009). *Hollowing out the middle: The rural brain drain and what it means for America*. Beacon Press.
- Carroll, J. B. (1993). *Human cognitive abilities: A survey of factor-analytic studies*. Cambridge University Press.
- Catts, H. W., Fey, M. E., Tomblin, J. B., & Zhang, X. (2002). A longitudinal investigation of reading outcomes in children with language impairments. *Journal of speech, Language, and hearing Research*, 45(6), 1142-1157.
- Chang, Y. & Fine, M. A. (2007). Modeling parenting stress trajectories among low-income young mothers across the child's second and their years: Factors accounting for stability and change. *Journal of Family Psychology*, 21, 584-594.
- Chavis, D.M., Lee, K.S., & Acosta J.D. (2008). The Sense of Community (SCI) Revised: The Reliability and Validity of the SCI-2. Paper presented at the 2nd International Community Psychology Conference, Lisboa, Portugal.
- Cicchetti, D., Rogosch, F. A., & Toth, S. L. (1998). Maternal depressive disorder and contextual risk: Contributions to the development of attachment insecurity and behavior problems in toddlerhood. *Development and psychopathology*, 10(02), 283-300.
- Cochran, C., Skillman, G.D., Rathge, R.W., Moore, K., Johnston, J., & Lochner, A.(2002). A rural road: Exploring opportunities, networks, services, and supports that affect rural families. *Child Welfare*, 81, 837–848.
- Coldwell, J., Pike, A., & Dunn, J. (2006). Household chaos—links with parenting and child behaviour. *Journal of Child Psychology and Psychiatry*, 47(11), 1116-1122.

- Coleman, P. K. & Karraker, K. H. (1998). Self-efficacy and parenting quality: Findings and future applications. *Developmental Review*, 18, 47–85.
- Coleman, P. K. & Karraker, K. H. (2003). Maternal self-efficacy beliefs, competence in parenting, and toddlers' behavior and developmental status. *Infant Mental Health Journal*, 24, 126–148.
- Coley, R. L., Ribar, D., & Votruba-Drzal, E. (2011). Do children's behavior problems limit poor women's labor market success?. *Journal of Marriage and Family*, 73(1), 33-45.
- Collard, C. S. (2007). Linking housing, social services and family well-being: A model for reducing welfare-dependency among the hard-to-employ. *Journal of Human Behavior in the Social Environment*, 15, 415–433.
- Conger, R. D. (1995). Unemployment. In D. Levinson (Ed.), *Encyclopedia of marriage and the family*, 731-735. New York, NY: MacMillan.
- Conger, R. D. & Conger, K. J. (2002), Resilience in midwestern families: Selected findings from the first decade of a prospective, longitudinal study. *Journal of Marriage and Family*, 64, 361–373.
- Conger, R.D. & Donnellan, M.B. (2007). An Interactionist perspective on the socioeconomic context of human development. *Annual Review of Psychology*, 58, 175–99.
- Conger, R.D. & Elder, G.H.J. (1994). *Families in troubled times: Adapting to change in rural America* (1st ed.). New York, NY: Aldine De Gruyter.

- Conger, R. D., Ge, X., Elder, G. H., Lorenz, F. O., & Simons, R. L. (1994). Economic stress, coercive family process, and developmental problems of adolescents. *Child Development, 65*, 541–61.
- Conger, K. J., Rueter, M. A., & Conger, R. D. (2000). The role of economic pressure in the lives of parents and their adolescents: the family stress model.
- Conger, R. D., Rueter, M. A., & Elder, G. H. (1999). Couple resilience to economic pressure. *Journal of Personality and Social Psychology, 76*, 54–71.
- Conger, R. D., Wallace, L. E., Sun, Y., Simons, R. L., McLoyd, V. C., & Brody, G. H. (2002). Economic pressure in African American families: A replication and extension of the Family Stress Model. *Developmental Psychology, 38*, 179–193.
- Cook, C. C. (1988). Components of neighborhood satisfaction: Responses from urban and suburban single- parent women. *Environment and Behavior, 20*, 115–149.
- Conduct Problems Prevention Research Group. (1992). A developmental and clinical model for the prevention of conduct disorder: The FAST Track Program. *Development and Psychopathology, 4*, 509–527.
- Corapci, F., & Wachs, T. D. (2002). Does parental mood or efficacy mediate the influence of environmental chaos upon parenting behavior?. *Merrill-Palmer Quarterly, 48*(2), 182-201.
- Corrigan, P. W., Watson, A. C., & Miller, F. E. (2006). Blame, shame and contamination: The impact of mental illness and drug dependence stigma on family members. *Journal of Family Psychology, 20*, 239–247.
- Costa, P., & McCrae, R. (1978). The NEO Personality Inventory. Odessa, FL: Psychological Assessment Resources.

- Costello, E. J., Compton, S. N., Keeler, G., & Angold, A. (2003). Relationships between poverty and psychopathology: A natural experiment. *Jama*, *290*(15), 2023-2029.
- Corapci, F., & Wachs, T. D. (2002). Does parental mood or efficacy mediate the influence of environmental chaos upon parenting behavior?. *Merrill-Palmer Quarterly*, *48*(2), 182-201.
- Crane, J., Mincic, M. S., & Winsler, A. (2011). Parent-teacher agreement and reliability on the Devereux Early Childhood Assessment (DECA) in English and Spanish for ethnically diverse children living in poverty. *Early Education and Development*, *22*, 520–547.
- Crnic, K. A., Greenberg, M. T., Ragozin, A. S., Robinson, N. M., & Basham, R. (1983). Effects of stress and social support on mothers and premature and full term infants. *Child Development*, *54*, 209–217.
- Crowe, J. (2010). Community attachment and satisfaction: The role of a community's social network structure. *Journal of Community Psychology*, *38*, 622–644.
- Crowley, M., Lichter, D. T., & Qian, Z. (2006). Beyond gateway cities: Economic restructuring and poverty among Mexican immigrant families and children. *Family Relations*, *55*, 345–360.
- Cummings, E. M. & Davies, P. T. (1994). *Children & marital conflict: The impact of family dispute and resolution*. New York, NY: Guilford Press.
- Currie, J. (2005). Health disparities and gaps in school readiness. *The Future of Children*, 117-138.

- Dadds, M. R., Fraser, J., Frost, A., & Hawes, D. (2005). Disentangling the underlying dimensions of psychopathy and conduct problems in childhood: A community study. *Journal of Consulting and Clinical Psychology, 73*, 400–410.
- Dale, P. S., Price, T. S., Bishop, D. V., & Plomin, R. (2003). Outcomes of early language delay. Predicting persistent and transient language difficulties at 3 and 4 years. *Journal of Speech, Language, and Hearing Research, 46*(3), 544-560.
- Davidson, M. C., Amso, D., Anderson, L. C., & Diamond, A. (2006). Development of cognitive control and executive functions from 4–13 years: Evidence from manipulations of memory, inhibition, and task switching. *Neuropsychologia, 44*, 2037–2078.
- Dearing, E., McCartney, K., & Taylor, B. A. (2006). Within-child associations between family income and externalizing and internalizing problems. *Developmental psychology, 42*(2), 237.
- Deater-Deckard, K., Chen, N., Wang, Z., & Bell, M. A. (2012). Socioeconomic risk moderates the link between household chaos and maternal executive function. *Journal of Family Psychology, 26*, 391.
- Deater-Deckard, K., Mullineaux, P. Y., Beekman, C., Petrill, S. A., Schatschneider, C., & Thompson, L. A. (2009). Conduct problems, IQ, and household chaos: A longitudinal multi-informant study. *Journal of Child Psychology and Psychiatry, 50*(10), 1301-1308.
- De Marco, A., Crouter, A. C., & Vernon-Feagans, L. (2009). The relationship of maternal work characteristics to childcare type and quality in rural communities. *Community, Work & Family, 12*, 369–387.

- De Marco, A., & Vernon-Feagans, L. (2013). Rural neighborhood context, child care quality, and relationship to early language development. *Early Education & Development, 24*, 792–812.
- De Marco, A., Vernon-Feagans, L., & Family Life Project Key Investigators. (2015). Child Care Subsidy Use and Child Care Quality in Low-Wealth, Rural Communities. *Journal of Family and Economic Issues, 36*(3), 383-395.
- Dempster, A. P., Laird, N. M., & Rubin, D. B. (1977). Maximum likelihood from incomplete data via the EM algorithm. *Journal of the royal statistical society. Series B (methodological)*, 1-38.
- Denham, S. A., Bouril, B., & Belouad, F. (1994). Challenging situations task. *Child Study Journal, 24*(1), 1–21
- Denton Flanagan, K., & McPhee, C. (2009). The children born in 2001 at kindergarten entry: First findings from the kindergarten data collections of the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B)(NCES 2010-005). *Washington, DC: National Center for Education Statistics, Institute of Education Sciences, US Department of Education.*
- Derogatis, L. R. (2000). BSI 18: Brief Symptom Inventory-18: Administration, scoring and procedures manual. Minneapolis, MN: Pearson Assessments.
- Dickinson, D. K., & Tabors, P. O. (2001). *Beginning literacy with language: Young children learning at home and school.* Paul H Brookes Publishing.
- Dodge, K. A., Pettit, G. S., & Bates, J. E. (1994). Socialization mediators of the relation between socioeconomic status and child conduct problems. *Child Development, 65*, 649–665.

- Downer, J. T., Booren, L. M., Lima, O. K., Luckner, A. E., & Pianta, R. C. (2010). The individualized classroom assessment scoring system (inCLASS): Preliminary reliability and validity of a system for observing preschoolers' competence in classroom interactions. *Early Childhood Research Quarterly, 25*(1), 1–16.
<http://dx.doi.org/10.1016/j.ecresq.2009.08.004>
- Dumas, J. E., Nissley, J., Nordstrom, A., Smith, E. P., Prinz, R. J., & Levine, D. W. (2005). Home chaos: Sociodemographic, parenting, interactional, and child correlates. *Journal of Clinical Child and Adolescent Psychology, 34*(1), 93-104.
- Duncan, C. (1996). Understanding persistent poverty: Social class in rural communities. *Rural Sociology, 6*, 103–124.
- Duncan, C. M. (1999). *Worlds apart: Why poverty persists in rural America*. New Haven, CT: Yale University Press.
- Duncan, G. J., & Brooks-Gunn, J. (2000). Family poverty, welfare reform, and child development. *Child Development, 7*, 188–196.
- Duncan, G.J., Dowsett, C.J., Claessens, A., Magnuson, K., Huston, A.C., Klebanov, P., Japel, C. (2007). School readiness and later achievement. *Developmental Psychology, 43*, 1428–1446.
- Dunn, L. M., & Dunn, L. M. (1981). *Peabody Picture Vocabulary Test— Revised*. Circle Pines, MN: American Guidance Service.
- Dunn, M., & Dunn, L. M. (2007). *Peabody Picture Vocabulary Test—4*. Circle Pines, MN: AGS.
- Eamon, K. (2011). The effects of poverty on children's social emotional development: An ecological analysis. *Social Work, 46*, 256-266.

- Eggebeen, D. (1992). Family structure and intergenerational exchanges. *Research on Aging*, 14, 427-47.
- Eggebeen, D. & Hogan, D. (1990). Giving Between Generations in American Families. *Human Nature*, 1, 211-32.
- Egeland, B. & Farber, E. (1984). Infant–mother attachment: Factors related to its development and changes over time. *Child Development*, 55, 753–771.
- Eisenberg, N. (2005). Temperamental effortful control (self-regulation). *Encyclopedia on early childhood development*.
- Elder, G.H.J. (1974). *Children of the Great Depression: Social Change in Life Experience*. Chicago: Univ. Chicago Press.
- Evans, G.W. (2003). A multimethodological analysis of cumulative risk and allostatic load among rural children. *Developmental Psychology*, 39, 924–933.
- Evans, G. W. (2004). The environment of childhood poverty. *American psychologist*, 59(2), 77.
- Evans, G. W., Boxhill, L., & Pinkava, M. (2008). Poverty and maternal responsiveness: The role of maternal stress and social resources. *International Journal of Behavioral Development*, 32(3), 232-237.
- Evans, G.W. & English, K. (2002). The environment of poverty: Multiple stressor exposure, psychophysiological stress, and socioemotional adjustment. *Child Development*, 73, 1238–1248.
- Evans, G.W., Gonnella, C., Marcynyszyn, L. A., Gentile, L., & Salpekar, N. (2005). The role of chaos in poverty and children’s socioemotional adjustment. *Psychological Science*, 16, 560–565.

- Evans, G.W., Li, D., & Whipple, S.S. (2013). Cumulative risk and child development. *Psychological Bulletin*, *139*, 1342–96.
- Evans, G., Maxwell, L. M., & Hart, B. (1999). Parental language and verbal responsiveness to children in crowded homes. *Developmental Psychology*, *35*, 1020–1023.
- Evans, G.W., Saegert, S., & Harris, R. (2001). Residential density and psychological health among children in low-income families. *Environment and Behavior*, *33*, 165–180.
- Farkas, C. & Valdés, N. (2010). Maternal stress and perceptions of self-efficacy in socioeconomically disadvantaged mothers: An explicative model. *Infant Behavior and Development*, *33*, 654-662.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*, 1149-1160
- Fearon, R. M. & Belsky, J. (2004). Attachment and attention: Protection in relation to gender and cumulative social–contextual adversity. *Child Development*, *75*, 1677–1693.
- Feldman, H. M., Dollaghan, C. A., Campbell, T. F., Kurs-Lasky, M., Janosky, J. E., & Paradise, J. L. (2000). Measurement properties of the MacArthur Communicative Development Inventory at ages one and two years. *Child Development*, *71*, 310–322.
- Fenson, L., Dale, P. S., Reznick, J. S., Bates, E., Thal, D. J., & Pethick, S. J. (1994). Variability in early communicative development. *Monographs of the Society for Research in Child Development*, *59*, i-185.

- Fiese, B. H., & Winter, M. A. (2010). The dynamics of family chaos and its relation to children's socioemotional well-being.
- Filkins, R., Allen, J. C., & Cordes, S. (2000). Predicting community satisfaction among rural residents: An integrated model. *Rural Sociology*, 61, 72–86.
- Fischer, R. L., Anthony, E., & Lalich, N. (2014). Addressing the early childhood mental health needs of families: Evaluating child outcomes. *Journal of Social Service Research*, 40, 721-737.
- Fish, M. & Pinkerman, B. (2003). Language skills in low-SES rural Appalachian children: normative development and individual differences, infancy to preschool. *Journal of Applied Developmental Psychology*, 23, 539–565.
- Fletcher, K. L. & Reese, E. (2005). Picture book reading with young children: A conceptual framework. *Developmental Review*, 25, 64–103.
- Friedman, L., & Wall, M. (2005). Graphical views of suppression and multicollinearity in multiple linear regression. *The American Statistician*, 59(2), 127-136.
- Froiland, J. M. (2011). Examining the effects of location, neighborhood social organization and home literacy on early cognitive skills in the United States. *International Journal Of Psychology: A Biopsychosocial Approach*, 929–942.
- Fuligni, A.S., Han W.J., Brooks-Gunn J. (2004). The infant-toddler HOME in the second and third years of life. *Parenting: Science and Practice*, 4, 139–159.
- Gayles, J. G., Coatsworth, J. D., Pantin, H., & Szapocznik, J. (2009). Parenting and neighborhood predictors of youth problem behaviors within Hispanic families. *Hispanic Journal of Behavioral Sciences*, 31, 277-296.

- Ge, X., Conger, R. D., Lorenz, F. O., Elder, G. H., Montague, R. B., & Simons, R. L. (1992). Linking family economic hardship to adolescent distress. *Journal of Research on Adolescence*, 2, 351 – 378.
- Geoffroy, M.C., Côté, S. M., Borge, A.I.H., Larouche, F., Séguin, J.R., & Rutter, M. (2007). Association between nonmaternal care in the first year of life and children's receptive language skills prior to school entry: the moderating role of socioeconomic status. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, 48, 490–497.
- George, C., Kaplan, N., & Main, M. (1985). An adult attachment interview: Interview protocol. Unpublished manuscript, University of California at Berkeley.
- Gerber, E. B., Whitebook, M., & Weinstein, R. S. (2007). At the heart of child care: Predictors of teacher sensitivity in center-based child care. *Early Childhood Research Quarterly*, 22, 327-346.
- Goldsmith, H., & Rothbart, M. (1996). The laboratory temperament assessment battery: Prelocomotor version 3.0. Madison, WI.
- Gonzales, N. A., Coxe, S., Roosa, M. W., White, R. M., Knight, G. P., Zeiders, K. H., & Saenz, D. (2011). Economic hardship, neighborhood context, and parenting: Prospective effects on Mexican–American adolescent's mental health. *American journal of community psychology*, 47, 98-113.
- Goodman, W. B., Crouter, A. C., Lanza, S. T., & Cox, M. J. (2008). Paternal work characteristics and father-infant interactions in low-income, rural families. *Journal of Marriage and The Family*, 70, 640–653.

- Goudy, W. J. (1977). Evaluations of local attributes and community satisfaction in small towns. *Rural Sociology*, 42, 371-82.
- Goudy, W.J. (1990). Community attachment in a rural region. *Rural Sociology*, 55, 178–198.
- Greenlee, R., & Lantz, J. (1993). Family coping strategies and the rural appalachian working poor. *Contemporary Family Therapy*, 15, 121–138.
- Gresham, F.M., & Elliott, S.N. (2008). Social Skills Improvement System-Rating Scales. Minneapolis, MN: Pearson Assessments.
- Gringeri, C. E. (2001). The poverty of hard work: Multiple jobs and low wages in family economies of rural Utah households. *Journal of Sociology and Social Welfare*, 28, 3–23.
- Grinstein-Weiss, M., Shanks, T. R. W., & Beverly, S. G. (2014). Family assets and child outcomes: evidence and directions. *The Future of Children*, 24(1), 147-170.
- Grusky, D. B., Western, B., & Wimer, C. (Eds.). (2011). *The great recession*. Russell Sage Foundation.
- Guest, K. C. & Biasini, F. J. (2001). Middle childhood, poverty, and adjustment: Does social support have an impact? *Psychology in the Schools*, 38, 549–560.
- Guryan, J., Hurst, E. & Kearney, M. (2008). Parental Education and Parental Time with Children. *Journal of Economic Perspectives*, 22, 23–46.
- Gutman, L. M., Sameroff, A. J., & Cole, R. (2003). Academic growth curve trajectories from 1st grade to 12th grade: Effects of multiple social risk factors and preschool child factors. *Developmental Psychology*, 39, 777–790.

- Gutman, L. M., Sameroff, A. J., & Eccles, J. S. (2002). The academic achievement of African American students during early adolescence: An examination of multiple risk, promotive, and protective factors. *American Journal of Community Psychology*, 30, 367–399.
- Hackman, D. A. & Farah, M. J. (2009). Socioeconomic status and the developing brain. *Trends in Cognitive Sciences*, 13, 65–73.
- Halle, T., Forry, N Hair, E., Perper, K., Wandner, L., Wessel, J. & Vick, J. (2009). Disparities in Early Learning and Development: Lessons from the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B). Washington, DC: Child Trends.
- Hammer, C. S., Farkas, G., & Maczuga, S. (2010). The language and literacy development of Head Start children: A study using the Family and Child Experiences Survey database. *Language, Speech, and Hearing Services in Schools*, 41(1), 70-83.
- Hamre, B. K. & Pianta, R. C. (2007). Learning opportunities in preschool and early elementary classrooms. In R. Pianta, M. Cox, & K. Snow (Eds.) *School readiness & the transition to kindergarten in the era of accountability*, 49-84. Baltimore, MD: Brookes.
- Hardina, D. (2003). Linking citizen participation to empowerment practice: A historical overview. *Journal of Community Practice*, 11(4), 11-38.
- Hart, S. A., Petrill, S. A., Deckard, K. D., & Thompson, L. A. (2007). SES and CHAOS as environmental mediators of cognitive ability: A longitudinal genetic analysis. *Intelligence*, 35(3), 233-242.

- Hart, B. & Risley, T.R. (1995). Meaningful differences in the everyday experience of young American children. Baltimore, MD: Paul H. Brookes.
- Hart, B., & Risley, T. R. (2003). The early catastrophe: The 30 million word gap by age 3. *American educator*, 27(1), 4-9.
- Hartley, D., Agger, M., & Miller, M. (2002). Effects of managed mental health care on service use in rural areas. Working paper # 16. Maine Rural Health Research Center. Portland, ME: University of Southern Maine.
- Hartley, D., Bird, D., & Dempsey, P. (1999). Mental health and substance abuse. In T. Ricketts (Ed.), *Rural health in the United States*. New York, NY: Oxford University Press.
- Hatcher, L. (1994), *A Step-by-Step Approach to Using the SAS System for Factor Analysis and Structural Equation Modeling*, Cary, NC: The SAS Institute.
- Hibel, L. C., Mercado, E., & Trumbell, J. M. (2012). Parenting stressors and morning cortisol in a sample of working mothers. *Journal of Family Psychology*, 26(5), 738.
- Hill, M., Morgan, J. & Herzog, R. (1993). Intergenerational aspects of family help patterns. Paper presented at the Annual Meeting of the Population Association of America, April.
- Hoff, E. (2003). The specificity of environmental influence: Socioeconomic status affects early vocabulary development via maternal speech. *Child Development*, 74, 1368–1378.
- Hoff, E. (2006). How social contexts support and shape language development. *Developmental Review*, 26, 55–88.

- Hoff, E., Laursen, B., & Tardif, T. (2002). Socioeconomic status and parenting. In M. H. Bornstein (Ed.), *Handbook of parenting. Biology and ecology of parenting*, 2. Mahwah, NJ: Erlbaum.
- Hofferth, S. L., & Iceland, J. (1998). Social capital in rural and urban communities. *Rural Sociology*, 63, 574–598.
- Hoff-Ginsberg, E. (1991). Mother-child conversation in different social classes and communicative settings. *Child Development*, 62, 782-796.
- Hoffman, K., Llagas, C., & Snyder, T. D. (2003). Status and Trends in the Education of Blacks.
- Hurst, E. (2010). Comments and Discussion. *Brookings Papers on Economic Activity*, 177–84. Washington, DC: Brookings Institution.
- Ispa, J.M., Fine, M.A., Halgunseth, L.C., Harper, S., Robinson, J., Boyce, L., ... Brady-Smith, C. (2004). Maternal intrusiveness, maternal warmth, and mother-toddler relationship outcomes: variations across low-income ethnic and acculturation groups. *Child Development*, 75, 1613–1631.
- Johnson, A.D, Martin, A., Brooks-Gunn, J., & Petrill, S.A. (2008). Order in the house! Associations among household chaos, the home literacy environment, maternal reading ability, and children's early reading. *Merril-Palmer Quarterly*, 54, 445–472.
- Johnson, D. R., White, L. K., Edwards, J. N., & Booth, A. (1986). Dimensions of marital quality: Toward methodological and conceptual refinement. *Journal of Family Issues*, 7, 31–49.

- Jones, D. J., Forehand, R., Brody, G., & Armistead, L. (2003). Parental monitoring in African American, single mother-headed families: An ecological approach to the identification of predictors. *Behavior Modification, 27*, 435–457.
- Jones, T. L. & Prinz, R. J. (2005). Potential roles of parental self-efficacy in parent and child adjustment: A review. *Clinical Psychology Review, 25*, 341–363.
- Kalil, A., Ryan, R., & Corey, M. (2012). Diverging Destinies: Maternal Education and the Developmental Gradient in Time with Children. *Demography, 49*, 1361–83.
- Kasarda, J.D. & Janowitz, M. (1974). Community attachment in mass society. *American Sociological Review, 39*, 328-339.
- Katras, M. J., Zuiker, V. S., & Bauer, J. W. (2004). Private safety net: Childcare resources from the perspective of rural low-income families. *Family Relations, 53*, 201–209.
- Keane, S. P. & Calkins, S. D. (2004). Predicting kindergarten peer social status from toddler and preschool problem behavior. *Journal of Abnormal Child Psychology, 32*, 409–423.
- Keene, D. E., & Padilla, M. P. (2010). Race, class and the stigma of place: Moving to opportunity in Eastern Iowa. *Health & Place, 16*, 1216–1223.
- Kerig, P. K. (1996). Assessing the links between interparental conflict and child adjustment: The conflicts and problem-solving scales. *Journal of Family Psychology, 10*, 454–473.
- Killen, M., & Coplan, R. J. (Eds.). (2011). *Social development in childhood and adolescence: A contemporary reader*. NY: Wiley/Blackwell Publishers.

- Klenbanov, P. K., Brooks-Gunn, J., & Duncan, G. J. (1994). Does neighborhood and family poverty affect mothers' parenting, mental health, and social support? *Journal of Marriage and the Family*, 56, 441- 455.
- Kneebone, E., Nadeau, C., & Berube, A. (2011). The Re-Emergence of Concentrated Poverty. *The Brookings Institution Metropolitan Opportunity Series*.
- Kogan, S. M., Simons, L. G., Chen, Y. F., Burwell, S., & Brody, G. H. (2013). Protective parenting, relationship power equity, and condom use among rural African American emerging adult women. *Family relations*, 62(2), 341-353.
- Kohen, E. D., Leventhal, T., Dahinten, V. S., & McIntosh, C. N. (2008). Neighborhood disadvantage: Pathways of effects for young children. *Child Development*, 79, 156–169.
- Kotchick, B.A., Dorsey, S., Heller, L. (2005). Predictors of parenting among African American single mothers: Personal and contextual factors. *Journal of Marriage and Family*, 67, 448–460.
- Kopp, C. B. (1982). Antecedents of self-regulation: A developmental perspective. *Developmental psychology*, 18(2), 199.
- Krishnakumar, A. & Black, M.M. (2002). Longitudinal predictors of competence among African American children: The role of distal and proximal risk factors. *Applied Developmental Psychology*, 23, 237–266.
- Kogan, S. M., Simons, L. G., Chen, Y., Burwell, S., & Brody, G. H. (2013). Protective parenting, relationship power equity, and condom use among rural African American emerging adult women. *Family Relations*, 62, 341–353.

- Kohler, J., Anderson, E., Oravec, L., & Braun, B. (2004). Relationship constellations and dynamics of low-income rural mothers. *Journal of Women and Social Work, 19*, 160-173.
- Kukla-Acevedo, S. (2009). Do teacher characteristics matter? New results on the effects of teacher preparation on student achievement. *Economics of Education Review, 28*(1), 49-57.
- La Paro, K. M., Pianta, R. C., & Stuhlman, M. (2004). The classroom assessment scoring system: Findings from the prekindergarten year. *The Elementary School Journal, 104*(5), 409–426. <http://dx.doi.org/10.1086/499760>.
- LeBuffe, P.A., & Naglieri, J.A. (1999). Devereux Early Childhood Assessment User's Guide. Lewisville, NC: Kaplan Press.
- Lee, J., Autry, M. M., Fox, J., & Williams, C. (2008). Investigating children's mathematics readiness. *Journal of Research in Childhood Education, 22*(3), 316-328.
- Lee, E. J., Murry, V. M., Brody, G., & Parker, V. (1995). Maternal resources, parenting, and dietary patterns among rural African American children in single-parent families. *Public Health Nursing, 19*, 104–111.
- Lee, M. A., & Singelmann, J. (2006). Welfare reform amidst chronic poverty in the Mississippi Delta. In *Population change and rural society* (pp. 381-403). Springer Netherlands.
- Leinonen, J.A., Solantaus, T. S., & Punamäki, R.L. (2002). The specific mediating paths between economic hardship and the quality of parenting. *International Journal of Behavioral Development, 26*, 423–435.

- Lengua, L. J., Honorado, E., & Bush, N. R. (2007). Contextual risk and parenting as predictors of effortful control and social competence in preschool children. *Journal of applied developmental psychology, 28*(1), 40-55.
- Leventhal, T., Fauth, R. C., & Brooks-Gunn, J. (2005). Neighborhood poverty and public policy: a 5-year follow-up of children's educational outcomes in the New York City moving to opportunity demonstration. *Developmental psychology, 41*, 933.
- Lev-Wiesel, R. (2003). Indicators constituting the construct of “perceived community cohesion.” *Community Development Journal, 38*, 332–343.
- Lichter, D. T. (2012). Immigration and the new racial diversity in rural America. *Rural Sociology, 77*(1), 3-35.
- Lichter, D. T., & Brown, D. L. (2011). Rural America in an urban society: Changing spatial and social boundaries. *Annual Review of Sociology, 37*, 565-592.
- Lichter, D. T., & Graefe, D. R. (2011). Rural economic restructuring: Implications for children, youth, and families. *Economic restructuring and family well-being in rural America, 25-39*.
- Lichter, D. T., & Jensen, L. I. (2002). Rural America in transition: Poverty and welfare at the turn of the 20th century. In L. A. Whitener, B. A. Weber, & G. Duncan (Eds.), *Rural dimensions of welfare reform* (pp. 77–112). Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.
- Lichter, D.T. & K.M. Johnson. (2007). The changing spatial concentrations of America's rural poor population. *Rural Sociology, 72*, 331-358.
- Lichter, D. T., Parisi, D., & Taquino, M. C. (2012). The geography of exclusion: Race, segregation, and concentrated poverty. *Social Problems, 59*(3), 364-388.

- Li-Grining, C. P., Votruba-Drzal, E., Maldonado-Carreño, C., & Haas, K. (2010). Children's early approaches to learning and academic trajectories through fifth grade. *Developmental Psychology, 46*, 1062.
- Linver, M.R., Brooks-Gunn, J., & Kohen, D.E. (2002). Family processes as pathways from income to young children's development. *Developmental Psychology, 38*, 719–734.
- Liu, Q.A., Ryan, V., Aurbach, H., & Besser, T. (1998). The influence of local church participation on rural community attachment. *Rural Sociology, 63*, 432–451.
- Lloyd, P., Mann, S., & Peers, I. (1998). The growth of speaker and listener skills from five to eleven years. *First Language, 18*, 81–103.
- Lobao, L. M., Hooks, G., & Tickamyer, A. R. (Eds.). (2007). *The sociology of spatial inequality*. SUNY Press.
- Long, D. A., & Perkins, D. D. (2003). Confirmatory factor analysis of the sense of community index and development of a brief SCI. *Journal of Community Psychology, 31*(3), 279-296.
- MacTavish, K., & Salamon, S. (2001). Mobile home park on the prairie: A new rural community form. *Rural Sociology, 66*, 487–506.
- Marotz-Baden, R., Hennon, C. B., & Brubaker, T. H. (1988). *Families in rural America: Stress, adaptation and revitalization*. St. Paul, MN: National Council on Family Relations.
- Magnuson, K. A., & Waldfogel, J. (2005). Early childhood care and education: Effects on ethnic and racial gaps in school readiness. *The future of children, 169-196*.

- Massey, D. S. (2007). *Categorically unequal: The American stratification system*. Russell Sage Foundation.
- Massey, D. S., & Pren, K. A. (2012). Unintended consequences of US immigration policy: explaining the post-1965 surge from Latin America. *Population and Development Review*, 38(1), 1-29.
- Matheny, A.P., Wachs, T.D., Ludwig, J.L., & Phillips, K. (1995). Bringing order out of chaos: Psychometric characteristics of the confusion, hubbub, and order scale. *Journal of Applied Developmental Psychology*, 16, 429-444.
- Mattingly, M. J., Johnson, K. M., & Schaefer, A. (2011). More Poor Kids in More Poor Places: Children Increasingly Live where Poverty Persists. Issue Brief Number 38. *Carsey Institute*.
- McCabe, S., & Macnee, C.L. (2002). Weaving a new safety net of mental health care in rural America: A model of integrated practice. *Issues in Mental Health Nursing*, 23, 263–278.
- McCabe, P.C. & Altumura, M. (2011). Empirically valid strategies to improve social and emotional competence of preschool children. *Psychology in the Schools*, 48, 513–540.
- McClelland, M.M., Morrison, F. J., & Holmes, D.L. (2000). Children at risk for early academic problems: The role of learning-related social skills. *Early Childhood Research Quarterly*, 15, 307–329.
- McDaiel, M. & Lowenstein, C. (2013) Depression in low-income mothers of young children: Are they getting the treatment they need? Washington, DC: Urban Institute.

- McKown, C., & Weinstein, R. S. (2008). Teacher expectations, classroom context, and the achievement gap. *Journal of school psychology, 46*(3), 235-261.
- McLoyd, V.C. (1990). The impact of economic hardship on black families and children: psychological distress, parenting, and socioemotional development. *Child Development, 61*, 311–46.
- McLoyd, V.C. (1998). Socioeconomic disadvantage and child development. *American Psychological, 53*:185– 204.
- McMillan, D., & Chavis, D. (1986). Sense of community: A definition and theory. *American Journal of Community Psychology, 14*, 6–23.
- Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex “frontal lobe” tasks: A latent variable analysis. *Cognitive Psychology, 41*, 49–100.
- Mokrova, I., O’Brien, M., Calkins, S., & Keane, S. (2010). Parental ADHD symptomology and ineffective parenting: The connecting link of home chaos. *Parenting, Science and Practice, 10*, 119–135.
- Morrison, F. J., & Cooney, R. R. (2002). Parenting and academic achievement: Multiple paths to early literacy. In J. G. Borkowski, S. L. Ramey, & M. Bristol-Power (Eds.), *Parenting and the child’s world: Influences on academic, intellectual, and social-emotional development* (141–160). Mahwah, NJ: Lawrence Erlbaum Associates.
- Mulia, N., Schmidt, L., Bond, J., Jacobs, L., & Korcha, R. (2008). Stress, social support and problem drinking among women in poverty. *Addiction, 103*, 1283-1293.

- Murry, V. M., Berkel, C., Chen, Y.-F., Brody, G. H., Gibbons, F. X., & Gerrard, M. (2011). Intervention induced changes on parenting practices, youth self-pride and sexual norms to reduce HIV-related behaviors among rural African American youths. *Journal of Youth and Adolescence, 40*, 1147–63.
- Murry, V. M. & Brody, G. H. (1999). Self-regulation and self-worth of Black children reared in economically stressed , rural , single mother-headed families. *Journal of Family Issues, 4*, 458–484.
- Murry, V. M., Brody, G. H., Simons, R. L., Cutrona, C. E., & Gibbons, F. X. (2008). Disentangling ethnicity and context as predictors of parenting within rural African American families. *Applied Developmental Science, 12*, 202–210.
- Murry, V. M., Heflinger, C. A., Suiter, S. V., & Brody, G. H. (2011). Examining perceptions about mental health care and help-seeking among rural African American families of adolescents. *Journal of Youth and Adolescence, 40*, 1118–31.
- Musil, C. M., Warner, C. B., Yobas, P. K., & Jones, S. L. (2002). A comparison of imputation techniques for handling missing data. *Western Journal of Nursing Research, 24*(7), 815-829.
- Muthén, L. K., & Muthén, B. O. (2008). Mplus user's guide (5th ed.). Los Angeles, CA: Muthén & Muthén.
- National Advisory Committee on Rural Health and Human Services (2012). *Challenges to Head Start and Early Childhood Development Programs in Rural Communities Policy Brief*. Retrieved August 28, 2016:
<http://www.hrsa.gov/advisorycommittees/rural/publications/headstartearlychildhood2012.pdf>.

- National Center for Education Statistics (NCES). (2013). Navigating resources for rural schools. Retrieved November 1, 2013 from <http://nces.ed.gov/index.asp>.
- National Institute of Child Health and Human Development Early Child Care Research Network. (2003). Do children's attention processes mediate the link between family predictors and school readiness? *Developmental Psychology*, 39, 581–593.
- National Institute of Child Health and Human Development Early Child Care Research Network. (2005). Duration and developmental timing of poverty and children's cognitive and social development from birth to third grade. *Child Development*, 76(4), 795-810.
- National Poverty Center. (2014). *Poverty in the United States: Frequently asked questions*. Retrieved on 8/13/16: <http://www.npc.umich.edu/poverty>.
- Nelson, P. B. (2005). Migration and the regional redistribution of nonearnings income in the United States: metropolitan and nonmetropolitan perspectives from 1975 to 2000. *Environment and Planning A*, 37(9), 1613-1636.
- Newland, R. P., Crnic, K. A., Cox, M. J., & Mills-Koonce, W. R. (2013). The family model stress and maternal psychological symptoms: Mediated pathways from economic hardship to parenting. *Journal of Family Psychology*, 27, 96.
- Noble, K. G., McCandliss, B. D., & Farah, M. J. (2007). Socioeconomic gradients predict individual differences in neurocognitive abilities. *Developmental Science*, 10, 464–480.
- Odom, E.C & Vernon-Feagans, L. (2010). Buffers of racial discrimination: links with depression among rural African American mothers. *Journal of Marriage and The Family*, 72, 346–359.

- Odom, E.C, Vernon-Feagans, L., & Crouter, A. C. (2013). Nonstandard maternal work schedules: Implications for African American children's early language outcomes. *Early Childhood Research Quarterly, 28*, 379–387.
- O'Hare, W. P. (2009). *The Forgotten Fifth: Child Poverty in Rural America*. Durham, NH: Carsey Institute, University of New Hampshire.
- O'Hare, W. P., & Johnson, K. M. (2004). *Child poverty in rural America* Washington, D.C.: Population Reference Bureau. (PRB Reports to America).
- Oller, D. K & Eilers, R. E. (Eds.). (2002). *Language and literacy in bilingual children*. Clevedon, UK: Multilingual Matters LTD.
- Ontai, L., Sano, Y., Hatton, H., & Conger, K. J. (2008). Low-income rural mothers' perceptions of parent confidence: The role of family health problems and partner status. *Family Relations, 57*, 324–334.
- Pancsofar, N., Vernon-Feagans, L., & Odom, E. C. (2013). Work characteristics and fathers' vocabulary to infants in African American families. *Journal of Applied Developmental Psychology, 34*, 73–81.
- Park, L. S. H., & Pellow, D. N. (2011). *The slums of Aspen: immigrants vs. the environment in America's Eden*. NYU Press.
- Parke, R. D., Coltrane, S., Duffy, S., Buriel, R., Dennis, J., Powers, J., ... Widaman, K. F. (2004). Economic stress, parenting, and child adjustment in Mexican American and European American families. *Child Development, 75*, 1632–56.
- Paulsell, D., Avellar, S., Martin, E. S., & Del Grosso, P. (2010). *Home visiting evidence of effectiveness review: Executive summary* (No. 5254a2ab30e146ce900220dbc4f41900). Mathematica Policy Research.

- Peterson, N. A., Speer, P. W., & McMillan, D. W. (2008). Validation of a brief sense of community scale: Confirmation of the principal theory of sense of community. *Journal of community psychology, 36*(1), 61-73.
- Petrill, S. A., Pike, A., Price, T., & Plomin, R. (2004). Chaos in the home and socioeconomic status are associated with cognitive development in early childhood: Environmental mediators identified in a genetic design. *Intelligence, 32*, 445–460.
- Pianta, R. C., Cox, M. J., & Snow, K. L. (2007). School readiness and the transition to kindergarten in the era of accountability. Paul H Brookes Publishing.
- Pike, A., Iervolino, A. C., Eley, T. C., Price, T. S., & Plomin, R. (2006). Environmental risk and young children's cognitive and behavioral development. *International Journal of Behavioral Development, 30*(1), 55-66.
- Pinderhughes, E. E., Nix, R., Foster, E. M., & Jones, D. (2001). Parenting in context: Impact of neighborhood poverty, residential stability, public services, social networks, and danger on parental behaviors. *Journal of Marriage and Family, 63*(4), 941-953.
- Pineo, P.C., Porter, J., & McRoberts, H.A. (1977). The 1971 Census and the socioeconomic classification of occupations. *Canadian Review of Sociology and Anthropology, 14*, 91–102.
- Pinkerton, J. R., Hassinger, E. W., & O'Brien, D. J. (1995). In-shopping by residents of small communities. *Rural Sociology, 60*, 467–480.
- Pooley, J. A., Cohen, L., & Pike, L. T. (2005). Can sense of community inform social capital? *The Social Science Journal, 42*, 71–79.

- Prins, E., & Toso, B. W. (2008). Defining and measuring parenting for educational success: A critical discourse analysis of the parent education profile. *American Educational Research Journal*, 45(3), 555-596.
- Pullmann, M. D., VanHooser, S., Hoffman, C., & Heflinger, C. A. (2010). Barriers to and supports of family participation in a rural system of care for children with serious emotional problems. *Community Mental Health Journal*, 46, 211–20.
- Putnam, R. (1993). *Making democracy work: Civic traditions in modern Italy*. Princeton, NJ: Princeton University Press.
- Qi, C. H., Kaiser, A. P., Milan, S., & Hancock, T. (2006). Language performance of low-income African American and European American preschool children on the PPVT–III. *Language, Speech, and Hearing Services in Schools*, 37(1), 5-16.
- Raikes, H., Alexander Pan, B., Luze, G., Tamis-LeMonda, C. S., Brooks-Gunn, J., Constantine, J., ...& Rodriguez, E. T. (2006). Mother–child bookreading in low-income families: Correlates and outcomes during the first three years of life. *Child development*, 77(4), 924-953.
- Raver, C.C. (2002). Emotions matter: Making the case for the role of young children’s emotional development for early school readiness. *Social Policy Report*, 16, 3–6.
- Raver, C. C. (2004). Placing emotional self-regulation in sociocultural and socioeconomic contexts. *Child development*, 75(2), 346-353.
- Raver, C.C., Blair, C., & Willoughby, M. (2013). Poverty as a predictor of 4-year-olds’ executive function: new perspectives on models of differential susceptibility. *Developmental Psychology*, 49, 292–304.

- Reardon, S. F. (in press). The widening socioeconomic status achievement gap: new evidence and possible explanations. In R. Murnane & G. Duncan (Eds.), *Social and inequality and economic disadvantage*. Washington, DC: Brookings Institution.
- Reeves, R. & Howard, K. (2013). *The Parenting Gap*. Washington, DC: Brookings Institution.
- Rescorla, L. & Alley, A. (2001). Validation of the Language Development Survey (LDS): A parent report tool for identifying language delay in toddlers. *Journal of Speech, Language, and Hearing Research, 44*, 434–445.
- Resnick, G., & Burt, M. R. (1996). Youth at risk: definitions and implications for service delivery. *American Journal of Orthopsychiatry, 66*(2), 172.
- Reynolds, A. J., & Temple, J. A. (2006). Economic returns of investments in preschool education. *A vision for universal preschool education*, 37-68.
- Rice, T. W. & Steele, B. (2001). White Ethnic Diversity and Community Attachment in Small Iowa Towns. *Social Science Quarterly, 82*, 397–407.
- Richters, J. E. (1992). Depressed mothers as informants about their children: a critical review of the evidence for distortion. *Psychological Bulletin, 112*(3), 485–99.
Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/1438639>.
- Rivers, K. (2005). Rural Southern children falling behind in well-being. Population Reference Bureau, Washington, D.C., 1–3.
- Roberts, J., Jurgens, J., & Burchinal, M. J. (2005). *Speech Lang Hear Res*.
- Rossi, A. & Rosi, P. (1990). *Of Human Bonding: Parent-Child Relations Across the Life Course*. New York, NY: Aldine de Gruyter.

- Rowe, M.L. (2008). Child-directed speech: relation to socioeconomic status, knowledge of child development, and child vocabulary skill. *Journal of Child Language, 35*, 185-205.
- Rothbart, M. K., Ziaie, H., & O'Boyle, C. G. (1992). Self-regulation and emotion in infancy. *New Directions for Child and Adolescent Development, 55*, 7–23.
- Rubin, K.H., Burgess, K.B., Dwyer, K.M., & Hastings, P.D. (2003). Predicting preschoolers' externalizing behaviors from toddler temperament, conflict, and maternal negativity. *Developmental Psychology, 39*, 164-176.
- Rudolph, K. D., Hammen, C., & Burge, D. (1995). Cognitive representations of self, family, and peers in school-age children: Links with social competence and sociometric status. *Child Development, 66*, 1385–1402.
<http://dx.doi.org/10.2307/1131653>.
- Saenz, R., & Torres, C. C. (2003). Latinos in rural America. In D. L. Brown & L. D. Swanson (Eds.), *Challenges for rural America in the twenty-first century* (pp. 57–70). University Park, PA: Pennsylvania State University.
- Salamon, S. (2003). *Newcomers to old towns: Suburbanization of the heartland*. Chicago, IL: University of Chicago Press.
- Sameroff, A. (2010). A unified theory of development: A dialectic integration of nature and nurture. *Child development, 81*(1), 6-22.
- Sameroff, A. J., & MacKenzie, M. J. (2003). Research strategies for capturing transactional models of development: The limits of the possible. *Development and Psychopathology, 15*, 613-640.

- Sampson, R.J. (1988). Local friendship ties and community attachment in mass society: A multilevel systematic model. *American Sociological Review*, 53, 766–79.
- Sampson, R. J. (1991). Linking the micro- and macrolevel dimensions of community social organization. *Social Forces*, 70, 43–64.
- Sarason, I., Johnson, J., & Siegel, J. (1978). Assessing the impact of life changes: Development of the Life Experiences Survey. *Journal of Consulting and Clinical Psychology*, 46, 932–946.
- Sbarra, D. A., & Pianta, R. C. (2001). Teacher ratings of behavior among African American and Caucasian children during the first two years of school. *Psychology in the Schools*, 38(3), 229-238.
- Scaramella, L. V., Neppl, T. K., Ontai, L. L., & Conger, R. D. (2008). Consequences of socioeconomic disadvantage across three generations: parenting behavior and child externalizing problems. *Journal of Family Psychology*, 22(5), 725.
- Schwirian, K. P. & Schwirian, P.M. (1993). Neighboring, residential satisfaction, and psychological well-being in Urban elders.” *Journal of Community Psychology*, 21, 285–99.
- Schafer, J. L., & Graham, J. W. (2002). Missing data: our view of the state of the art. *Psychological methods*, 7(2), 147.
- Shelleby, E. C., Votruba-Drzal, E., Shaw, D. S., Dishion, T. J., Wilson, M. N., & Gardner, F. (2014). Income and children’s behavioral functioning: A sequential mediation analysis. *Journal of Family Psychology*, 28(6), 936.
- Shonkoff, J. P. (2010). Building a new biodevelopmental framework to guide the future of early childhood policy. *Child development*, 81(1), 357-367.

- Shonkoff, J. P., Garner, A. S., Siegel, B. S., Dobbins, M. I., Earls, M. F., McGuinn, L., ... & Wood, D. L. (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, *129*(1), e232-e246.
- Simmons, L.A., Braun, B., Charnigo, R., Havens, J. R., & Wright, D. W. (2008). Depression and poverty among rural women: A relationship of social causation of social selection? *National Rural Health Association*, 282–298.
- Simmons, L.A., Braun, B., Wright, D. W., & Miller, S. R. (2007). Human capital, social support, and economic well-being among rural, low-income mothers: A latent growth curve analysis. *Journal of Family and Economic Issues*, *28*, 635–652.
- Simons, R. L., Johnson, C., Conger, R. D., & Lorenz, F. O. (1997). Linking community context to quality of parenting: A study of rural families¹. *Rural Sociology*, *62*(2), 207-230.
- Skowron, E. A. (2005). Parental differentiation of self and child competence in low-income urban families. *Journal of Counseling Psychology*, *52*, 337-346.
- Smith, K. (2006). Rural families choose home-based child care for their preschool-aged children (Policy Brief No. 3). Durham, NH: Carsey Institute.
- Smith, K. E., & Mattingly, M. J. (2012). Rural families in transition. In *International handbook of rural demography* (pp. 239-253). Springer Netherlands.
- Smith, K. E., & Tickamyer, A. R. (2011). *Economic restructuring and family well-being in rural America*. Penn State Press.
- Snipp, C. M. (1989). *American Indians: The first of the land*. New York, NY: Russell Sage Foundation.

- Snow, C. E., Burns, M. S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. National Academies Press.
- Snow, D. (2007). *From Language Learner to Language Teacher*. Teachers of English to Speakers of Other Languages, Inc. 700 South Washington Street Suite 200, Alexandria, VA 22314.
- Snow, J.A. (1998). A review of three papers on self-determination. *Journal Of The Association For Persons With Severe Handicaps*, 23, 38-40.
- Snyder, A. R., & McLaughlin, D. K. (2006). Economic well-being and cohabitation: Another nonmetro disadvantage?. *Journal of Family and Economic Issues*, 27(3), 562-582.
- Snyder, A. R., McLaughlin, D. K., & Findeis, J. (2006). Household composition and poverty among female-headed households with children: Differences by race and residence. *Rural Sociology*, 71(4), 597-624.
- Song, L., Spier, E. T., & Tamis-Lemonda, C. S. (2014). Reciprocal influences between maternal language and children's language and cognitive development in low-income families. *Journal of child language*, 41(02), 305-326.
- Steele, R.G., Nesbitt-Daly, J.S., Daniel, R.C., & Forehand, R. (2005). Factor structure of the Parenting Scale in a low-income African American sample. *Journal of Child and Family Studies*, 14, 535-549.
- Stern, M. J., & Adams, A.E. (2010). Do rural residents really use the Internet to build social capital? An empirical investigation. *American Behavioral Scientist*, 53, 1389-1422.

- Stevenson, H. C., Herrero-Taylor, T., Cameron, R., & Davis, G. Y. (2002). “Mitigating instigation ”: Cultural phenomenological influences of anger and fighting among “ Big-Boned ” and “ Baby-Faced ” African American youth. *Journal of Youth and Adolescence*, 31, 473–485.
- Stevenson, H.C., & Renard, G. (1993). Trusting ole’ wise owls: Therapeutic use of cultural strengths in African-American families. *Professional Psychology: Research and Practice*, 24, 433–442.
- Straus, M.A. & Gelles, R. J. (1990). Physical violence in American families: Risk factors and adaptations to violence in 8,145 families. New Brunswick, NJ: Transaction.
- Struthers, C.B. & Bokemeier, J.L. (2000). Myths and realities of raising children and creating family life in a rural county. *Journal of Family Issues*, 21, 17-46.
- Supplee, L. H., Unikel, E. B., & Shaw, D. S. (2007). Physical environmental adversity and the protective role of maternal monitoring in relation to early child conduct problems. *Journal of Applied Developmental Psychology*, 28, 166–183.
- Swanson, J.A., Olson, C. M., Miller, E. O., & Lawrence, F. C. (2008). Rural mothers’ use of formal programs and informal social supports to meet family food needs: A mixed methods study. *Journal of Family and Economic Issues*, 29, 674–690.
- Tarnowski, K. J., Kelly, P. A., & Mendlowitz, D. R. (1987). Acceptability of behavioral pediatric interventions. *Journal of consulting and clinical psychology*, 55(3), 435.
- Teti, D. M. & Gelfand, D. M. (1991). Behavioral competence among mothers of infants in the first year: The mediational role of maternal self-efficacy. *Child Development*, 62, 918–929.

- Teti, D.M., Black, M.M., Viscardi, R., Glass, P., O'Connell, M.A., Baker, L., Cusson, R., Hess, C.R. (2009). Intervention with African American premature infants: Four-month results of an early intervention program. *Journal of Early Intervention*, 31, 146–166.
- Theodori, G.L. & Luloff, A.E. (2000). Urbanization and community attachment in rural areas. *Society and Natural Resources*, 13, 389–420.
- Thorndike, R.M. (1978). *Correlations procedures for research*. New York, NY: Gardner Press.
- Tickamyer, A. R., & Henderson, D. A. (2003). Rural women: New roles for the new century. *Challenges for rural America in the twenty-first century*, 109-117.
- Towe-Goodman, N. R., Stifter, C. A., Coccia, M. A., & Cox, M. J. (2011). Interparental aggression, attention skills, and early childhood behavior problems. *Development and Psychopathology*, 23, 563–76.
- Towe-Goodman, N. R., Stifter, C. a, Mills-Koonce, W. R., & Granger, D.A. (2012). Interparental aggression and infant patterns of adrenocortical and behavioral stress responses. *Developmental Psychobiology*, 54, 685–99.
- Tudge, J. R. H., Mokrova, I., Hatfield, B., & Karnik, R. B. (2009). Uses and misuses of Bronfenbrenner's bioecological theory of human development. *Journal of Family Theory and Review*, 1, 198-210
- Twiss, P. C., & Mueller, T. R. (2004). Exploring public housing use in rural Pennsylvania. Report for the Center for Rural Pennsylvania. Retrieved July 20, 2010, from <http://www.rural.palegislature.us/publichousing.pdf>

- Ulrich, J. D. & Stanley, M. J. (2011). Rural Americans in chronically poor places report less access to health services than other rural Americans (Carsey Brief, Fall 2011). Durham, NH: The Carsey Institute, University of New Hampshire.
- Ursache, A., Blair, C., Stifter, C., & Voegtline, K. (2013). Emotional reactivity and regulation in infancy interact to predict executive functioning in early childhood. *Developmental Psychology*, *49*, 127–37.
- U. S. Census Bureau. (2010). *American Fact Finder fact sheet*. Retrieved November 6, 2014, from <http://factfinder.census.gov/>.
- United States Department of Agriculture (2011). *American Recovery & Reinvestment Act Report*. Retrieved on 8/13/16: http://www.usda.gov/documents/USDA_ARRA_RD_Report_v10_LoRes.pdf.
- United States Department of Agriculture Economic Research Service. (2009). *Broadband Internet's Value for Rural America*. Retrieved on 8/13/16: <http://www.ers.usda.gov/publications/err-economic-research-report/err78/report-summary.aspx>.
- United States Department of Agriculture Economic Research Service. (2016). *Rural Poverty & Well-being*. Retrieved on 8/13/16: <http://www.ers.usda.gov/topics/rural-economy-population/rural-poverty-well-being/poverty-overview.aspx>.
- U.S. Department of Health and Human Services Administration for Children and Families. (2013). Buffering Children from Toxic Stress. Retrieved from <https://www.acf.hhs.gov/programs/opre/research/project/early-head-start-university-partnership-grants-buffering-children-from>

- Vernon-Feagans, L., Gallagher, K., & Kainz, K. (2010). The transition to school in rural America: A focus on literacy. In J. Eccles, & J. Meece (Eds.), *Handbook of schooling and development* (pp. 163–184). Mahwah, NJ: Erlbaum.
- Vernon-Feagans, L. (1996). *Children's talk in communities and classrooms*. Wiley-Blackwell.
- Vernon-Feagans, L., Garrett-Peters, P., De Marco, A., & Bratsch-Hines, M. (2012). Living in rural poverty: The role of chaos in early development. In V. Maholmes & R. King (Eds.), *The Oxford handbook of poverty and child development* (448–466). New York, NY: Oxford University Press.
- Vernon-Feagans, L., Garrett-Peters, P., Willoughby, M., & Mills-Koonce, R. (2012). Chaos, Poverty, and Parenting: Predictors of Early Language Development. *Early Childhood Research Quarterly*, 27, 339–351.
- Vernon-Feagans, L., Hurley, M., Yont, K. M., Wamboldt, P. M., & Kolak, A. (2007). Quality of childcare and otitis media: Relationship to children's language during naturalistic interactions at 18, 24, and 36 months. *Journal of Applied Developmental Psychology*, 28, 115–133.
- Votruba-Drzal, E. (2006). Economic disparities in middle childhood development: Does income matter?. *Developmental psychology*, 42(6), 1154.
- Wachs, T. D., & Corapci, F. (2003). Environmental chaos, development and parenting across cultures. *Social and cognitive development in the context of individual, social, and cultural processes*, 1, 54-83.

- Wachs, T.D., & Evans, G.W. (2010). Chaos and its influence on children's development: An ecological perspective.(pp. 3-13). Washington, DC, US: American Psychological Association, xviii, 277 pp. <http://dx.doi.org/10.1037/12057-001>
- Waldfogel, J., Craigie, T., & Brooks-Gunn, J. (2010). Fragile families and child wellbeing. *Future of Children*, 20, 87-112.
- Walker, S. K., & Reschke, K. L. (2004). Child care use by low-income families in rural areas: A contemporary look at the influence of women's work and partner availability. *Journal of Children and Poverty*, 10(2), 149-167.
- Ward, S., & Turner, H. (2005, May). Work and welfare strategies among single mothers in rural New England: The role of social networks and social support. In Paper presented at the Rural Poverty Workshop, Northeast Regional Center for Rural Development. PA: Pennsylvania State University
- Washington, J. A., & Craig, H. K. (1992). Performances of low-income, African American preschool and kindergarten children on the Peabody Picture Vocabulary Test-Revised. *Language, Speech, and Hearing Services in Schools*, 23(4), 329-333.
- Weber, B. A., Duncan, G. J., & Whitener, L.A. (2001). Welfare reform in rural America: What have we learned? *American Journal of Agriculture Economics*, 83, 1282–1292.
- Weber, B., Jensen, L., Miller, K., Mosley, J., & Fisher, M. (2005). A critical review of rural poverty literature: Is there truly a rural effect?. *International Regional Science Review*, 28(4), 381-414.
- Wechsler, D. (2003). Wechsler Preschool and Primary Scale of Intelligence-Third Edition (WPPSI-III). San Antonio, TX: The Psychological Corporation.

- Weiler, M. D., Bellinger, D., Marmor, J., Rancier, S., & Waber, D. (1999). Mother and teacher reports of ADHD symptoms: DSM-IV questionnaire data. *Journal of the American Academy of Child & Adolescent Psychiatry*, 38, 1139–1147.
- Weinfield, N. S., Sroufe, L.A., & Egeland, B. (2000). Attachment from infancy to early adulthood in a high-risk sample: continuity, discontinuity, and their correlates. *Child Development*, 71, 695–702.
- Werner, E. E. (2000). Protective factors and individual resilience. *Handbook of early childhood intervention*, 2, 115-132.
- Wheeler, D., & Tiefelsdorf, M. (2005). Multicollinearity and correlation among local regression coefficients in geographically weighted regression. *Journal of Geographical Systems*, 7(2), 161-187.
- Whitesell, C. J., Teti, D. M., Crosby, B., & Kim, B. R. (2015). Household chaos, sociodemographic risk, coparenting, and parent-infant relations during infants' first year. *Journal of Family Psychology*, 29(2), 211.
- Wilkinson, K.P. (1991). *The Community in Rural America*. Middleton, WI: Social Ecology Press.
- Willoughby, M. T., Blair, C. B., Wirth, R. J., & Greenberg, M. (2010). The measurement of executive function at age 3 years: psychometric properties and criterion validity of a new battery of tasks. *Psychological Assessment*, 22, 306.
- Willoughby, M. T., Wirth, R. J., & Blair, C. B. (2011). Contributions of modern measurement theory to measuring executive function in early childhood: An empirical demonstration. *Journal of Experimental Child Psychology*, 108, 414–35.

- Wright, C., Diener, M., & Kay, S. C. (2000). School readiness of low-income children at risk for school failure. *Journal of Children and Poverty, 6*(2), 99-117.
- Yoshikawa, H., Aber, J.L., Beardslee, W. (2012). The effects of poverty on the mental, emotional, and behavioral health of children and youth: Implications for prevention. *American Psychologist, 67*(4), 272–284.
- Zelazo, P. D., & Muller, U. (2002). Executive function in typical and atypical development. In U. Goswami (Ed.), *Handbook of childhood cognitive development* (445–469). Oxford, England: Blackwell.
- Zhai, F., Brooks-Gunn, J., & Waldfogel, J. (2011). Head Start and urban children's school readiness: A birth cohort study in 18 cities. *Developmental Psychology, 47*, 134–152.
- Zhou, Q., Lengua, L. J., & Wang, Y. (2009). The relations of temperament reactivity and effortful control to children's adjustment problems in China and the United States. *Developmental psychology, 45*(3), 724.
- Zimmerman, J.N. & Hirschl, T.A. (2003). Welfare reform in rural areas: A voyage through uncharted waters. In D.L. Brown, L.E. Swanson & A.W. Barton (Eds.), *Challenges for rural America in the twenty-first century* (363-374). University Park, PA: The Pennsylvania State University Press.
- Zimmerman, I. L., Steiner, V. G., & Pond, R. E. (1992). PLS-3: Preschool Language Scale-3. San Antonio, TX : The Psychological Corporation.
- Zimmerman, I. L., Steiner, V. G., & Pond, R. E. (2002). Preschool Language Scale, Fourth Edition. San Antonio, TX: Psychological Corporation.

Zimmerman, I. L., Steiner, V, G., & Pond, E. (2011). *Preschool Language Scales- Fifth Edition (PLS-5)*. San Antonio, TX: Pearson.