

ABSTRACT

Title of dissertation: THE MATERNAL ROLE IN PROMOTING
EMOTIONAL COMPETENCE: PREDICTING HEAD
START MOTHERS' EXPRESSIVENESS, PERCEIVED
ROLE AND RECEPTIVITY TO SUPPORT

Nicole Megan Edwards, Doctor of Philosophy, 2010

Dissertation directed by: Professor Joan A. Lieber,
Department of Special Education

Guided by Bioecological Systems Theory and Schema Theory, I investigated mothers' perceptions regarding the emotional development of their preschool children. Researchers acknowledge mothers' contributing role in influencing children's behavioral displays of emotion, but there is a dearth in the literature on mothers' emotion-related behaviors, beliefs, and needs. In my quantitative study, I collected self-report data from a mid-Atlantic, low-income, urban sample of Head Start mothers (n = 114) and assessed which child, mother, and/or community-based factors may predict the probability of mothers being high in negative expressiveness, low in positive expressiveness, not strongly supportive of the literature in their perceived role in emotional development, and not highly receptive to parent-focused support. I pretested my devised Perceived Role and Receptivity to Support measure and conducted interviewer-administered interviews (using my devised measure, the Parenting Stress Scale, the Early Childhood Behavior Problem Screening Scale, and the Self-Expressiveness in the Family Questionnaire).

Results supported only a few instances of group uniformity, with mostly group variability in Head Start mothers' emotion-related behaviors, beliefs and needs. Further, logistic regression analyses suggested: (1) mothers are likely to be high in negative expressiveness when raising a preschooler with a combination of internalizing and externalizing behaviors, high in parenting stress, and obtaining at least an Associate's degree; (2) mothers are predicted to be less positive in expressiveness when raising a preschooler with a delay, not having had any child in the family receive specialized services, raising only one child, dropping out of high school, and not having received advice from Head Start staff; (3) mothers are predicted to be less supportive of the purported role of mothers in the literature when raising only one child and not having received behavior advice from Head Start staff; (4) mothers are predicted to be lower in receptiveness to parent-focused support when raising a preschooler with no perceived behavior concerns, anticipating maladaptive behaviors to improve with age, raising only one child, dropping out of high school, and having had fewer outreach efforts in the past. I discuss implications for research and practice, including how results may inform early screening and parenting intervention initiatives.

**THE MATERNAL ROLE IN PROMOTING EMOTIONAL COMPETENCE:
PREDICTING HEAD START MOTHERS' EXPRESSIVENESS,
PERCEIVED ROLE AND RECEPTIVITY TO SUPPORT**

by

Nicole Megan Edwards

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirement for the degree of
Doctor of Philosophy
2010

Advisory Committee:

Dr. Joan Lieber, Chair
Dr. Andrew Egel
Dr. Brenda Jones Harden
Dr. Deborah Speece
Dr. Christy Tirrell-Corbin

©Copyright by

Nicole Megan Edwards

2010

Dedication

My dissertation is dedicated to my husband and best friend, Adam, for his unwavering love, encouragement, humor, and perspective throughout this entire journey. Thank you for believing in my dreams and always standing by my side.

I also dedicate the findings of this study to my joyful baby boy, Jacob, and all young children who look to primary caregivers for guidance in developing emotional competencies. We will one day do a better job of meeting everyone's emotional needs.

Acknowledgement

I would like to thank my family and friends for their love and support. I am fortunate to have such wonderful people in my life and appreciate each of you.

Special thanks go to Joan Lieber for serving as my advisor and guide over the past four years. As I transition from teacher to researcher, I will never forget your constructive advice and the valuable opportunities you have provided to enhance my professional growth. In addition, I would like to thank my dissertation committee for their unique perspectives and insightful feedback. I also extend my appreciation to the expert reviewers, who assisted in devising a more credible measure. Further, to Dr. David Cooper, thank you for encouraging me to pursue this avenue of research and serving as one of my mentors throughout this process. To Dr. Jeff Haring, thank you for bolstering my confidence in conducting logistic regression analyses.

Moreover, I am grateful to the director of both preschool sites for believing in the importance of this line of inquiry and so willingly offering a student researcher access to an often hard-to-reach group of parents. Conducting this study would not have been possible without your help and support. Following site approval, I could not have recruited so many parents had it not been for the impressive and dedicated education coordinators, family support workers, office staff, and teaching staff who warmly welcomed me (and my son) into their programs and aided recruitment efforts. I also extend a heartfelt thank you to all the mothers who participated in my study. Thank you for sharing personal beliefs and concerns with me. Your responses speak to an often-overlooked need in our communities and I hope that this and similar studies can catapult researchers and practitioners to take action.

“... [O]nly those genetic predispositions of the individual can find realization for which the necessary opportunity structures exist, or are provided, in the particular immediate settings in which that person lives... For parents to further their children's learning and skill typically requires knowledge, know-how, and materials that, at some point, originated in the external world and, in effect, had to be imported into the family from the outside. Families who live in environmental contexts that contain such needed resources are therefore placed at an advantage...”

– Bronfenbrenner & Ceci (1994)

TABLE OF CONTENTS

Table of Contents	v
List of Tables	ix
List of Figures	x
Chapter 1: Introduction	1
Adverse Outcomes from Early Onset Maladaptive Behavior	2
Link between Emotional Competence and Behavior	3
Role of Mothers in Emotional Competence	5
Mothers' Perception of their Role	5
Mothers' Behavior during Parent-Child Interactions	6
Potentially Influential Child, Family and Community Variables	8
Children's Age, Level of Functioning and Behavior	8
Low Socio-Economic Status	10
Maternal Stress Level	11
Perceived Support from the Community	12
Theoretical Frameworks	13
Bioecological Systems Theory	13
Schema Theory	16
Statement of the Problem	16
Purpose of the Proposed Research	18
Research Questions	20
Chapter 2: Review of the Literature	21
Method	21
Developmental Processes Guiding Emotional Development	22
Results	27
Parent-Child Interactions	27
Summary: Parent-Child Interactions	38
Contextual Factors Linked to Parent-Child Interactions	39
Summary: Contextual Factors	45
Intervention Studies	47
Summary: Intervention Studies	55
Parental Beliefs on Parenting	57
Summary: Parental Beliefs	68
Discussion	69
Research Questions	73
Chapter 3: Research Methodology	75
Participants and Sites	75
Pretesting	75
Actual study	76
Procedures	78
Pretesting	78
Contacting Head Start for actual study	80
Recruiting families for actual study	80

Tracking response rates.....	82
Sample size determination	83
Data collection	84
Incentives for mothers.....	84
Incentives for director	85
Determining Mode of Administration	85
Measures	86
Perceived Role and Receptivity to Support Scale (PRRSS).....	87
Scoring of the PRRSS	89
Parenting Stress Scale (PSS).....	93
Scoring of the PSS	93
Early Childhood Behavior Problem Screening Scale (ECBPSS)	93
Scoring of the ECBPSS	94
Self-Expressiveness in the Family Questionnaire (SEFQ)	95
Scoring of the SEFQ	96
Data Analysis	96
Outcome Variables.....	96
Explanatory Variables.....	97
Descriptive Statistics.....	97
Binomial Logistic Regression Analyses	98
Chapter 4: Results	101
Section I	101
Descriptive Information on Potential Covariates.....	101
Descriptive Information on Potential Explanatory Variables	103
Section II – Within-Group Comparisons (Research Question #1)	108
Within-group comparison of emotion-related behaviors	108
Uniform behaviors	108
Variability in behaviors.....	111
Within-group comparison of emotion-related beliefs.....	113
Uniform beliefs	113
Variability in beliefs	114
Within-group comparison of emotion-related needs	118
Variability in needs.....	118
Summary of within-group comparisons.....	123
Section III – Logistic Regression Analyses (Research Questions #2-4)	125
Assessing Multicollinearity	125
Analysis of Mean Differences	125
Research Question 2a: High Negative Expressiveness Model	127
Likelihood ratio test	127
Final negative expressiveness model	129
Interpretation in terms of the odds	131
Interpretation in terms of probabilities	133
Research Question 2b: Low Positive Expressiveness Model	133
Likelihood ratio test	134
Final low positive expressiveness model.....	135

Interpretation in terms of the odds	138
Interpretation in terms of probabilities	141
Research Question 3: Perceived Role in Emotional Development Model	141
Likelihood ratio test	142
Final model predicting not being strongly supportive of literature	143
Interpretation in terms of the odds	146
Interpretation in terms of probabilities	147
Research Question 4: Low Receptivity to Support Model	148
Likelihood ratio test	149
Final low receptivity model	150
Interpretation in terms of the odds	153
Interpretation in terms of probabilities	155
Chapter 5: Discussion	157
Summary of Results	157
Recruitment Efforts	158
Child Attributes	159
Participants' Community Outreach	160
Research question #1 – Within-Group Comparisons	161
Logistic Regression Analyses	163
Research Question 2a – Predicting High Negative Expressiveness	164
Research Question 2b – Predicting Low Positive Expressiveness	165
Research Question 3 – Predicting Views on Perceived Role	165
Research Question 4 – Predicting Low Receptivity to Support	166
Consideration of Key Findings	167
Child Variables	167
Maternal Variables	168
Community Variables	170
Limitations	172
Implications for Future Research	175
Implications for Practice	181
Concluding Remarks	184
Appendices	186
Appendix A1. Definition of Terms	186
Appendix A2. Summary of Literature – Parent-Child	189
Appendix A3. Summary of Literature – Contextual Factors	191
Appendix A4. Summary of Literature – Interventions	193
Appendix A5. Summary of Literature – Parent Beliefs	195
Appendix B1. Empirically Sound Procedures Used/Reported Across Studies	197
Appendix B2. Studies Assessing Parents of Children with Special Needs	200
Appendix B3. Studies from Chapter 2 Informing Items on Devised PRRSS	202
Appendix C1. Content Validity Protocol Questions	204
Appendix C2. Survey Methodology Protocol Questions	207
Appendix C3. Focus Group Questions	210
Appendix C4. Examples of Probes Asked During Cognitive Interviews	211

Appendix D1. Perceived Role and Receptivity to Support Measure.....	212
Appendix D2. Parenting Stress Scale (Berry & Jones, 1995).....	228
Appendix D3. ECBPSS (Epstein & Nelson, 2006)	230
Appendix D4. SEFQ (Halberstadt et al., 1995)	231
Appendix D5. Uniform Probes for SEFQ.....	232
Appendix D6. Show Cards Used in Interviews	233
Appendix E1. Orientation Meeting Speech	235
Appendix E2. Letter to Parents	236
Appendix E3. Incentive Packet for Parents	237
Appendix F1. Multicollinearity Tables.....	242
Appendix F2. Hypotheses and Decision Rules for tests in Analyses	243
Appendix F3. Additional SPSS Output for Research Question 2a	244
Appendix F4. Additional SPSS Output for Research Question 2b	253
Appendix F5. Additional SPSS Output for Research Question 3	259
Appendix F6. Additional SPSS Output for Research Question 4	265
Appendix F7. Computing Probabilities for Logistic Regression Models.....	272
Appendix F8. Assessing Residuals in Logistic Regression Models	277
References.....	287

List of Tables*

Table 1. <i>Descriptive Statistics on Potential Covariates</i>	102
Table 2. <i>Descriptive Statistics on Potential Explanatory Variables</i>	104
Table 3. <i>Comparing Behavior-Related Outreach among Head Start Mothers of Preschoolers with and without Diagnosed Delays</i>	109
Table 4. <i>Direct Avenues of Support Sought by Mothers</i>	110
Table 5. <i>Indirect Avenues of Support Sought by Mothers</i>	112
Table 6. <i>Perceived Role Scale Responses Strongly in Support of the Literature</i>	116
Table 7. <i>Percent in Support of Literature for Items in Perceived Role Scale</i>	118
Table 8. <i>Mother-Teacher Exchanges in Past 12 Months</i>	120
Table 9. <i>Proposed Avenues Mothers would Consider Receiving and Most Prefer</i>	121
Table 10. <i>Logistic Regression Predicting Mothers with High Negative Expressiveness</i>	131
Table 11. <i>Logistic Regression Predicting Mothers with Low Positive Expressiveness</i>	139
Table 12. <i>Logistic Regression Predicting Mothers Not Strongly Supportive of the Literature in their Perceived Role in Emotional Development</i>	146
Table 13. <i>Logistic Regression Predicting Mothers who are Not Highly Receptive to Behavior Support</i>	153

Note. *List excludes SPSS output in Appendices F1-F8

List of Figures

Figure 1. Scores on Receptivity to Support Scale123

Chapter One

Mental health needs of young children and their families, including issues that arise from emotion dysregulation, have resulted in global public health concerns that warrant more mindful consideration (Bayer, Hiscock, Ukoumunne, Price, & Wake, 2008; Powell, Fixsen, & Dunlap, 2003). Researchers have been increasingly vocal in emphasizing a pressing need to reduce children's maladaptive behavior at younger ages. Aggression, for example, often originates in the early years of development with the potential for continuity through adulthood (Kimonis et al., 2006). Interest in proactively addressing behavioral concerns stems from a realization that considerable growth occurs at early developmental stages (Gamble et al., 2007), at which time trajectories may be more easily altered (Smith, Calkins, Keane, Anastopoulos, & Shelton, 2004). More research now focuses on preschool children who continue exhibiting emotional or behavioral difficulties despite having aged beyond the typical time during which externalizing behaviors are most problematic (Alink et al., 2006). There are two overarching behavior domains: externalizing behaviors, which include outward defiance, impulsiveness, hyperactivity, or aggression, and internalizing behaviors, such as extreme shyness, social withdrawal, or being overly anxious or cautious (Stacks & Goff, 2006). The literature indicates that externalizing and internalizing behaviors oftentimes co-occur (Bayer et al., 2008), and both can reveal a deficit in the ability to regulate emotions and behavior (Spinrad et al., 2007).

As hypothesized by Eisenberg, Cumberland, and Spinrad (1998), maladaptive behavior may stem from shortfalls within the area of emotional competence, and primary caregivers may influence this emerging developmental task. {Note: Although mothers,

fathers, or grandparents may be highly influential primary caregivers in the home context, I focus specifically on the perceptions and actions of mothers in my dissertation; as acknowledged by Gilliom et al. (2002), mothers tend to be responsible for the majority of childrearing in most families.} In this chapter, I highlight negative outcomes that may ensue from early onset maladaptive behavior, explain how emotional competence relates to behavior, discuss how mothers may serve as a relevant antecedent, and underscore child, mother and community-based variables that may warrant further investigation in understanding this connection. I then discuss guiding theoretical frameworks and conclude chapter one with a statement of the problem, the purpose of my research, and central research questions.

Adverse Outcomes from Early Onset Maladaptive Behavior

In a recent review, Powell et al. (2003) noted that an estimated 10-20% of preschoolers exhibit maladaptive behavior. Such behaviors can adversely affect social and academic success in kindergarten (Ladd, 1990). Additionally, schools may place children with poor social skills into a lower academic track, which can diminish expectations among caregivers and negatively influence peer relations (Peth-Pierce, 2000). In fact, this latter author acknowledged that social and emotional competence is essential for a smooth transition to kindergarten as well as positive outcomes, both as a student and as an adult seeking employment. There may be a particularly adverse, enduring association for those with more severe maladaptive behavior and those exposed to numerous risk factors (Benedict, Horner & Squires, 2007). Others have acknowledged additional concern for children and adolescents with special needs, since cognitive and/or language delays may coincide with emotional and behavioral difficulties (Nungesser &

Watkins, 2005). For school-aged children, aggressiveness accounts for a large proportion of special education referrals (Smith, Lochman, & Daunic, 2005). Denham (2006) added that early onset aggressive or antisocial behavior can lead to poor school performance and grade retention, with persistent maladaptive behavior linked to dropping out of school.

In addition to the aforementioned outcomes that may transpire for the child, a prolonged display of maladaptive behavior may contribute to marital discord (Dadds, Sanders, Behrens, & James, 1987), parental stress and/or diminished confidence in childrearing abilities (Levac, McCay, Merka, & Reddon-D'Arcy, 2008). There may also be substantial financial ramifications that burden the general public due to the number of children with early-onset behavior problems (Knapp, Scott, & Davies, 1999). Early identification and treatment of behavioral concerns may circumvent what might otherwise lead to long-term adverse consequences for the child, family and community (Gagnon, Nagle, & Nickerson, 2007). Given the negative relationship between maladaptive behavior and later outcomes, there is a burgeoning desire to pinpoint factors that would place a child at risk for emotional and behavioral problems. Researchers anticipate that such insights could augment early detection and intervention efforts (Nelson, Stage, Duppong-Hurley, Synhorst, & Epstein, 2007).

Link between Emotional Competence and Behavior

Increasingly, researchers gravitate to the study of emotional competence or emotion regulation, both of which are terms authors use in the literature to reflect a subdomain of social-emotional development (Dunsmore & Karn, 2001). Emotional competence comprises three main components, including emotion knowledge, emotional

expression, and emotion regulation (Denham et al., 2003). In this dissertation, I place more attention on adult scaffolding of and children's emerging proficiency in the expression and regulation of emotions (with less focus on children's emotion knowledge). Emotional competence occurs in tandem with other neurological processes (see *Developmental Processes*, p. 22) and may be comprised of such strategies as being able to self-soothe, redirect attention away from a distressing situation, and to express or hinder the expression of emotionally-fueled behavior (Chang, Schwartz, Dodge, & McBride-Chang, 2003). It also includes the ability to transition between activities with only minor reluctance and being able to manage personal disappointment (Fitzgerald et al., 2006). It is maladaptive if children exhibit prolonged, excessive positive or negative emotions that bring about maladaptive behavior and/or inappropriate social interactions (Contreras, Kerns, Weimer, Gentzler, & Tomich, 2000). Researchers recently observed this in a longitudinal study of boys with and without developmental delays; they found emotional competence played a notable role in both the quality of peer interactions and school adjustment (Wilson, Fernandes-Richards, Aarskog, Osborn, & Capetillo, 2007). Society may view children who have difficulty regulating the expression of negative emotions or who exhibit internalizing and/or externalizing behaviors as presenting with emotion dysregulation (Cole, Michel, & Teti, 1994). Further, a child's emotional expressiveness as well as regulation of emotions and behavior influences teachers' perceptions of school readiness (Denham, 2006). Researchers are beginning to view emotional competence as a vital developmental task in the early childhood years with notable implications for later development (Rodriquez et al., 2005). Specifically, there is a noteworthy connection between the formation of emotional competence (i.e.,

understanding emotions, expressing emotions behaviorally, regulating emotions when distressed) during early development and long-term growth during middle and late childhood (Izard, Trentacosta, King & Mostow, 2004).

Role of Mothers in Emotional Competence

Although biological factors can play a role in children's outcomes, environmental and social factors may contribute to the development of emotional competence (Fitzgerald, McKelvey, Schiffmen, & Montanez, 2006). Mothers, for example, have a unique opportunity to model and react to varying behavioral displays of emotion on a direct and ongoing basis. In this section, I discuss two major ways mothers may influence early emotional development: 1) how they perceive their own role in a child's emotional growth, and 2) their actual scaffolding and responsiveness during ongoing interactions.

Mothers' perception of their role. In terms of how mothers view themselves, they may less overtly or intentionally make childrearing decisions based on whether they see a child as developmentally ready for direct guidance (Dunsmore & Karn, 2001) and whether they feel outside efforts could considerably modify a child's behavior. Some researchers propose that all parents should collaborate with service providers in being accountable for general child outcomes (Brotherson, 2001). However, even if mothers believe early-onset behavior is influenced by external forces, they may vary in whether they feel personally liable (e.g., compared to the role of teachers) to intentionally offer scaffolding and reinforcement of skills thought to promote adaptive behavior and emotional competencies. Moreover, for those mothers who perceive themselves as playing a notable role in emotional development, it is unclear whether they understand

how this role would translate into developmentally appropriate practice (e.g., perhaps if lacking specific tools or resources to know which actions on their part may have long-term benefits or adverse consequences for the child). Maternal perceptions may affect willingness to model emotional strategies and the extent to which children learn about emotions in families (Dunsmore & Karn, 2001).

Mothers' behavior during interactions. With regard to level of responsiveness or expressiveness, the extent to which mothers are attuned to their children's needs and respond in a consistent, sensitive manner may directly contribute to children's behavior and emotional development. Burgeoning research suggests the emergence of adaptive or maladaptive behaviors may likely develop within the context of basic interactions with primary caregivers (Singh et al., 2006). Beginning in the first year of life, infants receive information from the "quality, timing, and pacing of parent-child interactions" as to the type of emotional demands and emotional support that exist in their immediate environment (Gilliom, Shaw, Beck, Schonberg & Lukon, 2002, p. 223). Toddlers, who have limited self-regulation capabilities (e.g., an emergent ability to engage in effortful control), may rely on caregivers to expose them to fundamental socialization practices (Spinrad et al., 2007). The mother-child relationship also precedes learning opportunities outside the home in facilitating development among preschool children (Caspi et al., 2004). Authors increasingly argue that mothers can promote preschoolers' coping ability if they are supportive and non-punitive in how they react to negative emotions (e.g., Eisenberg, Fabes, Carlo, & Karbon, 1992) and if they offer emotion coaching (i.e., being aware and accepting of the child's emotions and providing the child with direct scaffolding on how to manage emotions) (Ramsden & Hubbard, 2002). The effects of

child irritability, for example, may worsen with harsh, unsupportive parenting or conversely improve with sensitive parenting (Gilliom et al., 2002). In support of such a connection, Morrison, Rimm-Kauffman, and Pianta (2003) found maternal sensitivity displayed via mother-child interactions on the first day of kindergarten correlated with children's social competence and school performance in eighth grade (when controlling for maternal education, ethnicity, estimated child IQ and child's gender). In another study, Raver and Spagnola (2003) found low-income children exposed to high levels of maternal negative expressiveness showed deficits in emotion knowledge (i.e., more difficulty in identifying maternal anger) and were more likely to predict that their mothers would use punitive solutions in response to child anger compared to low-income children exposed to low levels of maternal negative expressiveness. Based on their sample, these authors also found that children exposed to negative expressiveness in the home had a more restricted repertoire of effective responses to deal with parental distress. Maternal negative expressiveness has also been associated with children being less proficient at confronting emotional situations or dealing with negative emotions in the school setting (Eisenberg & Fabes, 1994; Fabes et al., 1999). At the same time, the literature is inconsistent in whether parenting styles among African American mothers [in terms of being authoritarian (punitive and directive in disciplining one's child) or authoritative (emotionally supportive, responsive, with reciprocal communication)] may be associated with different social-emotional child outcomes compared to parenting styles among Caucasian mothers (Baumrind, 1972; McLeod, Kruttschnitt, & Dornfield, 1994; Querido, Warner, & Eyberg, 2002).

Promoting adaptive behaviors in part necessitates that children build an array of effective techniques for managing unfavorable circumstances. They may need direct support and scaffolding from caregivers to help with emotion regulation, social interaction skills, and learning alternatives to acting in an aggressive or socially inappropriate manner (Bronson, 2000). As Hoeksma et al. (2004) explained, if a child fears a neighbor's dog, the mother could attempt to alter this emotion by changing what information is transmitted to the emotional system (e.g., patting the dog or saying, "Doggy doesn't bite"). There is a belief that early positive affect exchanges within mother-child relationships promote constructive social interaction, and that "[w]ithout these social and emotional foundations, the play and learning capacities of toddlerhood and early childhood are compromised" (Koplow, 1996, p. 20).

Potentially Influential Child, Family and Community Variables

Given the plausible link between mothers' perceptions and actions, children's emotional competence, and early behavior, this next section highlights child-related (age, level of functioning, type and frequency of behavior), mother-related (income level, perceived stress level) and community-related (type of outreach and helpfulness of individuals and resources outside the mother-child unit) considerations that may warrant further investigation in relation to this connection.

Children's age, level of functioning and behavior. Although the task of enhancing emotional competence merits investigation across the lifespan, I focus attention specifically on mothers of preschool-aged children (ages 3-5) in this dissertation. Early childhood is a time during which children typically make great strides in developing emotional competence. At the same time, they are still reliant on

caregivers to model socialization practices (Spinrad et al., 2007). Moreover, the need to cope with stimuli is augmented in the preschool years, during which there are heightened social demands coupled with greater cognitive proficiency at understanding and regulating emotions (Denham et al., 2003). These authors also believed that preschoolers need external support to reach their full emotional competence. Given the physical and developmental changes across the preschool years, however, it is unclear whether emotion-based perceptions and needs would be affected by whether the mother has a three year old as opposed to a four or five year old.

Researchers have theorized that a child's unique attributes affect mothers' emotion-related beliefs (Dunsmore & Halberstadt, 1997). It may be worthwhile to examine views among mothers of children with and without delays as well as with varying maladaptive behaviors [ranging in frequency as well as type (from none to a combination of prolonged internalizing and externalizing symptoms)]. Few studies, however, have investigated mothers' perceived role in the behavior and emotional competence of children with such varying needs (Roskam & Schelstraete, 2007). With regard to current level of functioning, Herring et al. (2006) suggested more research focus on maladaptive emotions and behaviors among young children with special needs. At the same time, rather than solely focusing on families of children who have been receiving special education services, it is important to assess beliefs among mothers of preschool children without diagnosed conditions but who may exhibit mother-reported internalizing and/or externalizing behaviors. According to Spratt, Saylor, and Macias (2007), externalizing and/or internalizing behaviors were consistently linked to maternal stress. Further, they found highest levels of parenting stress reported among parents of

children solely with behavior problems and among parents of children with a combination of behavior problems and cognitive delay, and raising a child with neither cognitive delay nor maladaptive behaviors was significantly related to lower parenting stress. Similarly, it is important to explore whether the presence of a diagnosed delay and/or certain maladaptive behaviors affect mothers' self-expressiveness in the home, perceived role in emotional competence, or receptivity to external support in promoting adaptive behaviors.

Low socio-economic status. Although all mothers, regardless of income level, may likely contribute to preschool children's behavior and emotional development in the aforementioned ways (i.e., perceived role and sensitivity during interactions), some authors argue that heightened attention should be placed on low-income mother-child dyads, who tend to experience multiple risk factors and fewer protective factors (e.g., Fitzgerald et al., 2006). According to Crowe's (2009) summary from a recent United States Census, the poverty rate in 2007 was 13.0%, with 38.1 million Americans living in poverty; the 2007 poverty rate for children under age 5 was 20.8%, with 4.2 million of them living below the federal policy threshold. In a detailed review of how such widespread socioeconomic disadvantage correlates with child development, McLoyd (1998) found maladaptive emotions and behaviors to be more prevalent among low-income children (i.e., compared to higher income peers), socio-economic status (SES) has a more discernible effect on externalizing than internalizing behaviors, and both internalizing and externalizing behaviors become increasingly common as the length of time in poverty increases. In addition, living in poverty has been associated with poor parenting skills (The Carnegie Corporation, 1994). More specifically, McLoyd's (1998)

summary of research findings indicated that, compared with higher income individuals, mothers experiencing poverty and economic stress tend to have a greater likelihood of using punitive, harsh, inconsistent parenting. The compounding effects of various risk factors facing low-income families can subsequently impact children's long-term development (Coll, 1990).

In terms of the influential contributions of mothers, Raver and Spagnola (2003) conjectured that exposure to maternal positive expressiveness may buffer young children from the negative impact of poverty-related stressors. It would be beneficial to investigate perceived behaviors and attitudes among low-income mothers with regard to children's early emotional development as well as examine factors that may affect those perceptions.

Maternal stress level. In addition to better understanding perceptions among low-income Head Start mothers, perceived level of stress may also warrant investigation when striving to understand mothers' relation to children's emotional competence. It is important to assess stress levels given that mothers experiencing high levels of parenting stress may have significantly lower positive perceptions and higher negative perceptions of their children (Renk et al., 2007). Moreover, mothers who are distracted by various life stressors may not be able to perceive how their child is feeling; this can in part affect how well mothers help modulate their child's emotions (Hoeksma et al., 2004). Exposure to environmental stressors can also adversely affect a child's development (Coll, 1990). Webster-Stratton (1990) noted that various parenting stressors can result in more punitive, critical parenting with an increased likelihood of establishing negative mother-child interactions and the development of conduct problems in children. Mothers'

perceived financial stress, for example, was one of the risk factors associated with children's mental health in a low-income, urban, African-American sample (Kidwell & Barnett, 2007). In a recent study, Anthony, Glanville, Naiman, Waanders, and Shaffer (2005) found that parenting stress significantly correlated with teacher ratings of preschoolers' internalizing and externalizing behaviors as well as social competence in both private daycare centers and Head Start programs. They viewed assessment of parenting stress levels as an important implication for future research. Stressors may actually range in type and severity (potentially including child-rearing stress, drug abuse, family violence or homelessness in some families) and can differentially influence each family unit (Swick & Williams, 2006). Even within the same parental subgroup, Raver and Spagnola (2003) speculated that low-income mothers facing cumulative risks (e.g., being a single parent, experiencing a higher number of life stressors) would be more likely to exhibit negative emotional expressiveness than low-income mothers facing fewer risks.

Perceived support from the community. Investigating the type, extent, and perceived helpfulness of past mother-focused support from the community are additional variables that may be associated with perceived role in emotional development, self-reported expressiveness in the home and willingness to receive additional behavior-related support. Very few studies have begun to explore such factors (Kenny & McGilloway, 2007; Santos & McCollum, 2007). Satisfaction with support has been linked with mothers' ability to cope with general childrearing demands (Kenny & McGilloway, 2007); perceived lack of appropriate support has been correlated with parenting stress among mothers of children with behavioral and/or cognitive concerns

(Spratt, Saylor, & Macias, 2007). At the same time, there appears to be a dearth of quantitative information regarding mothers' outreach or self-advocacy efforts and receipt of behavior-related information from community members when experiencing behavior-related concerns. We are ill informed as to which individuals or community resources, if any, diverse maternal subgroups seek and deem helpful in offering emotional support or strategy-specific advice on child behavior. Emerging findings suggest that offering community-based support to parents can significantly enhance parenting skills and reduce children's maladaptive behavior (e.g., Havighurst et al., 2004; Zubrick et al., 2005). Better understanding nuances related to maternal outreach efforts may help inform this limited but promising literature on emotion and/or behavior-related parenting interventions.

Given the plausible associations among mothers' responsivity and perception of their role, young children's emotional competence, and children's behavior (e.g., Eisenberg et al., 1998) as well as the aforementioned child, maternal, and community variables that may warrant consideration, the following section includes two theoretical frameworks that inform my thinking with regard to how the mother-child relationship may be affected by others in the community and how mothers may be influenced by their own early perceptions of their children.

Theoretical Orientation

Two overarching theories, Bioecological Systems Theory and Schema Theory, guide my understanding of how mothers contribute to children's emotional competence.

Bioecological systems theory. Bronfenbrenner's (1977, 1992, 2001, 2005) Bioecological Systems Theory captures inherent reciprocity within an ecology; that is,

people influence the individuals and establishments within their ecosystem to the same extent as they are influenced by them. In terms of the long examined nature-nurture contribution, this theory emphasizes that one's biology or degree of heritability (e.g., extent to which genetic potential is actualized) is notably affected by proximal processes. These processes can result in varying developmental outcomes based on surrounding environmental conditions and opportunities (Bronfenbrenner & Ceci, 1994). Bronfenbrenner and Ceci further proposed that the emergence of basic psychological processes, such as perception and emotion, initially are generated by the outside environment (i.e., since such processes are comprised of content found in other people and objects); at the same time, a growing child concurrently exerts increasingly greater influence on the environment, with the child and environment transforming one another in a bidirectional manner (with a young child's influence initially limited to affecting the reactions of primary caregivers).

Bronfenbrenner's framework accounts not only for the direct role of mothers in a child's early development, but also for distinct levels of contextual factors that can directly or indirectly influence the family unit. The micro-system has the most immediate impact in shaping a child's development and includes psychological and cognitive factors (i.e., both innate and learned, including social identity and beliefs) (Gregson, 2001). Just as a child's unique behavior, temperament and level of functioning can influence family members, the family unit comprises one of the direct sources of influence on the child. The mother-child relationship is considered one of the long-lasting and enduring interactions in which basic human development can effectively occur (Bronfenbrenner & Ceci, 1994). Children and their mothers engage in reciprocal

dynamic interactions, actively influencing one another's responses and perceptions (Bell, 1968; Snyder et al., 2005). Similarly, Farran and Haskins (1977) suggested that mother-child dyads participate in direct and indirect attempts to slightly modify or control one another's behavior (e.g., with indirect attempts referring to contextual cues, such as awareness of what the other is doing and varying responses accordingly). With regard to the role of mothers at this level, they may positively support development by modeling ways of managing emotions and behaviors (Spinrad et al., 2007). Mothers may be viewed as emotion-coaching (responding to negative emotions by offering support, guidance, and displaying empathy), emotion-dismissing (concerned that focusing on emotions will make things worse and feeling they need to make the child stop expressing negative emotions), or disapproving (critical of the child's negative emotion expression as a waste of time, lacking empathy, and/or perhaps punishing displays of sadness, anger, or fear) (Gottman, Katz & Hooven, 1996). At the same time, Bronfenbrenner (2005) stressed the need for the surrounding community to support families' childrearing efforts.

The next level, the meso-system, encompasses the organizational or institutional factors that influence and are influenced by the environment within which mother-child interactions take place (Gregson, 2001). This level may include mothers' exchanges or rapport with educators, social services, pediatricians, extended family, or friends. The exo-system consists of established standards or norms at the level of one's community (e.g., such as political affiliation, geographical region, mothers' jobs, or legislation and policies affecting individuals). The macro-system incorporates cultural ideology and expectations transmitted via avenues such as religion or media. To enhance awareness of how mothers from different cultures may regard emotional competence, we must be

cognizant of how cultural views can impact which behaviors are valued and expressed, as well as how we perceive various behaviors (Marshall, 2001). Such views may offer “culturally grounded developmental scripts” that encourage mothers’ actions to be aligned with preferred cultural outcomes (Santos & McCollum, 2007, p. 244).

Schema theory. Whereas Bronfenbrenner’s theory informs awareness of how various ecological components can indirectly and directly impact a mother-child dyad, I was also guided by Schema Theory (Markus, 1977) which emphasizes the importance of parental perceptions. According to this constructivist framework, mothers establish early internal beliefs, or mental representations, of their children. The way in which they perceive children’s subsequent behavior is informed by these preexisting assumptions (Renk, Roddenberry, Oliveros & Sieger, 2007). This theory depicts schemas as knowledge structures in the brain that support the formation of new understanding based on inferences, and acknowledges the lingering impressions that remain following an early set of experiences (Collins, Laursen & Hartup, 1999). Dunsmore and Halberstadt (1997) viewed emotion-based beliefs as influencing mothers’ emotional expressions, which in turn may affect a child’s emerging schemas for emotional experience and expression.

Statement of the Problem

As noted earlier, there is growing acknowledgement that addressing the mental health needs of young children with maladaptive behaviors and their families is of critical importance. The Individuals with Disabilities Education Act (IDEA, 2004) highlighted the need for prevention and early detection of social-emotional problems, and has sought to “involve families to enhance their capacity as a means of improving children’s outcomes” (The Division for Early Childhood, 2006, p. 1). Policymakers and researchers

are urged to commit more time to devising promising family initiatives; such heightened focus may dramatically minimize concerns (e.g., New, Razzino, Lewin, Schlumpf, & Joseph, 2002) and likely result in economic benefits for our society (Lucas, 2006).

In tandem with developing such initiatives, however, we need to better understand this issue and elucidate the extent to which mothers have been empowered to understand and address their role in children's early development. When mothers do voice concerns regarding their child's early behavior or emotion dysregulation, there is often a time lag between referral, screening and the signing of the service document, which delays receipt of specialized supports (Wall et al., 2005). When initiated, these services tend to focus on the child – without necessarily encouraging mothers in the home setting to carry over and effectively use developmentally appropriate, concrete approaches that could bolster existing efforts. At the same time, there should be more easily accessible and viable options for those who desire professional support or advice on childrearing issues pertaining to behavior without having to go through the channels of seeking an at risk or special needs label for their child. Information on mothers' outreach efforts and the availability of helpful behavioral supports within the community remain largely unknown.

Although those responsible for the majority of childrearing are increasingly perceived by researchers as contributors to emotional competence and behavioral displays of emotion (e.g., Rodriguez et al., 2005), there does not appear to be a clear understanding of whether mothers are aware of this purported connection, how they express themselves during ongoing interactions in the home (or how they respond during

emotionally distressing events), or of what community-based support, if any, they would actually be receptive to receiving.

Purpose of the Proposed Research

It is increasingly apparent that emotion dysregulation can affect children's developmental outcomes. Bronfenbrenner's framework supports that mothers play a direct and vital role during a child's formative years, with the surrounding community affecting the family unit. Schema Theory emphasizes the importance of assessing mothers' beliefs (i.e., processing their child's maladaptive behavior as being in line with early mental representations, with a suspected connection between child-related beliefs and mother-child interactions).

In line with Schema Theory, I sought to explore factors that correlate with maternal perceptions and self-reported actions to assess how best to empower families and indirectly foster children's emotional competence (Renk et al., 2007). The earliest research I could locate that came closest to this topic was by Hyson and Lee (1996); they collected self-report data from early childhood teachers pertaining to children's emotional development and the teachers' role in socializing children to learn to identify and cope with varying emotions (Dunsmore and Karn, 2001). To the best of my knowledge, however, the literature is remarkably insufficient in explaining how mothers perceive their role in this area of development.

Building on the above frameworks and seeking to address an apparent gap in the literature, the purpose of my study is to inform future family-based initiatives by determining if within-group variability exists among a sample of Head Start mothers with regard to their self-expressiveness in the home, perceived role in emotional competence,

and willingness to receive mother-focused interventions at the level of the meso-system. Whiteside-Mansell and colleagues (1996) viewed parenting as an array of behaviors that may influence a child's development, and they speculated that since mothers likely vary with regard to competencies, cultural values, and their support network, this warrants investigating whether subsets of mothers demonstrate distinct patterns in childrearing. More recently, researchers express a need to detect factors that contribute to mothers being less responsive or actively involved in children's early development (Rodriguez et al., 2005). Further, the Division for Early Childhood advocates that one of our field's research priorities is to "[identify] which early education and intervention services, resources, and supports are most relevant and useful for families, and under what conditions" (2006, p. 2). Investigating perceived contributions to emotional development may help in devising screening tools and tailored supports that may empower mothers to promote children's emotional competence in ways that are respectful of diversity and well received.

There remains a need to examine specific maternal beliefs in relation to children's early behavior and emotional development. In my study, I investigate emotion- and behavior-related perceptions and needs among a sample of urban, low-income Head Start mothers, and examine child, maternal and community-based factors that may be associated with their self-report. Since, to the best of my knowledge, there is no research to guide my hypotheses, I examine the following research questions in an exploratory study.

Research Questions

1. What are emotion-related behaviors, beliefs, and needs among low-income Head Start mothers?
2. Holding all else constant (potentially including child's gender, child's age, foster parent, number of children in the family, single- versus two-parent home, mother's age, mother's education level, mother's race/ethnicity), which child, maternal, and/or community-based variables help predict whether mothers are highly negative in expressiveness or low in positive expressiveness within the home?
3. Holding all else constant (see covariates in #2), which child, maternal and/or community-based variables predict mothers who are not strongly supportive of the literature in how they perceive their role in early emotional development?
4. Holding all else constant (see covariates in #2), which child, maternal and/or community-based variables predict status on not being highly receptive to professional, mother-focused support?

Chapter Two: Review of Literature

I conducted a literature review to evaluate research evidence for whether parenting factors (e.g., childrearing practices, emotion coaching, specific adult responses when a child is visibly distraught or exhibiting maladaptive behavior) are associated with the emotional development of young children with and without special needs. Additionally, using Bronfenbrenner's bioecological framework, I examined demographic and contextual factors that may correlate with diverse parent-child units. Similarly, as an experimentally manipulated contextual factor, I reviewed the impact of community outreach on parenting and children's emotional development by assessing relevant intervention studies. Using Schema theory, I looked at beliefs regarding parenting and/or perceived roles within specific developmental domains. The subsequent sections of this chapter include the method by which I retrieved relevant articles, an overview of developmental processes that contribute to emotional development, and results of my methodological literature review.

Method

To review literature on whether primary relationships are associated with the development of emotional competence or emotion regulation, I conducted electronic and ancestral searches of relevant research.

For the electronic searches, I used the Education Resources Information Center (ERIC) and PsycINFO databases with the descriptors: *behavior, regulation, self-regulation, emotion, emotional, impulse control, aggression, social-emotional, support, role, perceptions, understanding, qualitative, intervention* and *coping*; I combined each of these (separately or in combination) with one or more of the following: *toddler,*

preschool, parent, mother, teacher, parent-teacher, parent-child, parent beliefs, maternal beliefs, maternal role, and early childhood. Moreover, I did an ancestral search by examining references of obtained articles (e.g., found in *New Directions for Child and Adolescent Development, Journal of School Psychology, and Cultural Diversity and Ethnic Minority Psychology*). I narrowed search results by examining abstracts and skimming articles. My criteria for inclusion were to identify studies that specifically addressed parent-child relations and behavior-related outcomes (e.g., excluding studies that solely correlated social-emotional competence with patterns in play). I based my final selection on relevance to the topic, novelty of a given finding, and seeking a representative depiction of methodological approaches. Further, I obtained articles in this portion of my paper from peer-reviewed journals. The analysis in this chapter comprises 26 studies (22 quantitative, 1 qualitative and 3 mixed method designs) published between 2001 and 2009 and relevant highlights from a large-scale database. I summarize and evaluate this information in an upcoming portion of this review. [For a definition of terms (i.e., contextual and demographic factors, delay, emotional competence, and magnitude of effects) see Appendix A1.]

Developmental Processes Guiding Emotional Development

In the previous chapter, I discussed how a child's emotional competence or emotion regulation may have a mediating role in the connection between parenting and child behavior (Eisenberg et al., 1998). I intend for my review of literature to examine how parenting is associated with preschool children's emotional development and discuss factors that authors have empirically shown to correlate with this connection. Notwithstanding these external influences on a child's emotional development (which I

review in the next section), it is important to first acknowledge how authors have begun to shed light on both the neurological underpinnings and typical evolution of emotional development.

Campos, Campos, and Barrett (1989) illuminated how the 1980s brought about a change from viewing emotions as feelings indexed by the expression of behavior to considering emotions as processes which help generate, sustain, or interrupt the connection between a person and his/her environment. More recently, Hoeksma, Oosterlaan, and Schipper (2004) noted that there may be an interconnected emotional system in our brains that is perpetually changing; they viewed these changes as being monitored and influenced by feelings (i.e., the inner mental state of emotion; the condition of the emotional system). According to a model for affective social competence (ASC), generated by Halberstadt, Denham, and Dunsmore (2001), the ability to send, receive and experience emotional messages comprises three integrated elements, each of which necessitates interrelated abilities. For example, the young child must learn to be attuned to his own and other people's affect, make sense of ever-changing social contexts, and demonstrate competencies in managing and regulating emotions (Denham, 2006).

With regard to the early stages of emotional development, Cummings, Davies, and Campbell (2002) explained that a distinct shift occurs during infancy, between 3-9 months, whereby an infant transitions from mainly automatic, reflexive patterns in response to emotions (e.g., sucking her finger) to using more purposeful and voluntary means of regulating emotions. They acknowledged that this shift is aided by developing motoric, visual, and cognitive abilities (e.g., actively turning her head; reaching and

grasping; distinguishing facial features; making sense of simple emotions expressed by others; beginning to understand the connection between caregiver-child behavior and changes in caregiver-child emotions). Then, between 10-18 months, infants become more intentional, aware, and goal-directed in navigating social contexts (with concurrent advances in motor development, attachment to primary caregivers, and growth in frontal lobe development). At this point, Cummings et al. (2002) note that infants can express more specific secondary, self-based emotions (e.g., fear, anger, jealousy). Moreover, their ability to manage emotions is aided by seeking out familiar caregivers both to maintain positive affect and when faced with an unfamiliar context (i.e., social referencing), devising specific plans to receive caregivers' support, and using play and exploration to divert attention from worrisome stimuli. Cummings et al. (2002) emphasize how advances across developmental domains in part contribute to legitimate adjustments taking place in how toddlers, preschoolers, and individuals at every stage of the lifespan continually reorganize their emotion regulation skills.

During the preschool years, there is enhanced self-awareness and an emerging understanding of which environmental triggers may produce stress (Gilliom et al., 2002) as well as a growing ability to recognize and expressively discuss emotional states displayed by oneself and by others (Denham et al., 2003). In terms of the three components of emotional competence (i.e., emotion knowledge, emotional expressiveness, and emotion regulation), children at this stage will especially benefit from continued gains in emotion knowledge (e.g., inferring basic emotions from facial expressions or situations, gaining proficiency in using emotion language and learning to identify others' emotions that may differ from their own in the same situation), emotional

expressiveness (e.g., displaying an appropriate, positive affect during social interactions), and emotion regulation (e.g., appropriately suppressing or activating the expression of emotion depending on the surrounding context). With regard to the latter component, new research suggests that negative emotions can sometimes serve an adaptive function depending on the situation (Dennis et al., 2009). According to Denham (2006), joint gains in all three areas bode well for social interactions with teachers and peers in addition to subsequent school success. Further, the onset of preschool or childcare is a notable transition that can place additional demands on a child's ability to regulate emotions and behaviors. With adult support, most children can learn to handle conflict that arises in play groups and gain knowledge of how to negotiate and earn peer acceptance (Denham, 2006). Rather than rely on one approach, Gilliom et al. (2002) found children likely experience more long-term success if they are able to select from an array of constructive strategies to use at different times (depending on the demands of a given situation). Approaches may include actively redirecting attention by focusing on a toy, passively redirecting attention by averting eye contact, concentrating on removing the source of distress, or seeking solace from a primary caregiver (the latter of which may be used less often as children transition to behaving more autonomously).

In an example, Hoeksma et al. (2004) explained how a child who is feeling angry because of a disagreement with a teacher needs emotion regulation to realign the emotional system on a more favorable path (e.g., perhaps to prevent a tantrum to avoid punishment or embarrassment). This regulation occurs by modifying what information is sent to the emotional system (by redirecting focus, walking to a different area, or using

other cognitive- or behavior-related strategies). If successful, the emotion system will change its course (e.g., reducing this child's anger).

Researchers increasingly believe the study of emotional development should focus on the changeability of feelings and the external factors that may influence this process (Hoeksma et al., 2004). Goldsmith and Davidson (2004), however, acknowledge the difficulty in studying emotion regulation given the multi-faceted process involved in regulating or changing oneself. Denham (2006), too, explained that it is difficult to measure emotion regulation since emotions both regulate and are regulated by thoughts and behavior. It was further speculated (based on research conducted primarily on animals and adult humans) that emotion regulation is partly genetic, and is comprised of both automatic and voluntary processes; as a child matures, voluntary regulation might become more automatic (Goldsmith & Davidson, 2004). Since the pre-frontal cortex does not fully develop until later in development, this might help explain the developmental changes that occur in how we respond to emotions. These authors further suggest that better understanding changes in brain development that underlie emotion regulation may illuminate why emotions appear so variable during childhood (Goldsmith & Davidson, 2004).

With regard to inherent individual differences in emotional expression, individuals may differentially respond to contexts – with emotions deemed out-of-context (e.g., expressing fear in a non-threatening situation) perhaps better linked to behavior-related concerns compared with in-context emotions (Goldsmith & Davidson, 2004). Varying executive functioning across individuals may partially correlate with these differences (Hoeksma et al., 2004). At the same time, external considerations may serve

a protective role in the face of risk associated with an individual's genotype (Kochanska, Philibert, & Barry, 2009). Parental socialization, for example, can help shape emotion-related physiological mechanisms in children (Hastings et al., 2008). In the following four sections, I summarize my review of the literature on external factors that may directly or indirectly influence this continuous reorganization of emotional competencies.

Results

The 26 studies that I reviewed assess parents' role in promoting or hindering emotional development and are organized into four sections: (1) Parent-child relationships that may impact the development of emotional competence, (2) Contextual factors that may more accurately explain how the parent-child relationship might contribute to emotional competence, (3) Interventions that address maladaptive behavior and/or promote emotional competence, and (4) Parental beliefs regarding their role in parenting. I summarize studies from each section in Appendix A2-A5.

Parent-child relations associated with emotional development. Eight studies focused specifically on relationships between parents and their young children. Chang, Schwartz, Dodge, and McBride-Chang (2003) examined the possible mediating role of emotion regulation, and analyzed whether maternal and paternal harsh parenting directly and indirectly impacted aggression among Chinese children ($n = 325$; ages 3-6) from two schools in a Southern Chinese city. Harsh parenting included "yelling, frequent negative commands, name calling, overt expressions of anger, and physical threats and aggression...[which] can be summarized into categories of coercive acts and negative emotion expressions" (p. 599). Parents completed self-administered questionnaires (measuring harsh parenting and child emotion regulation); six months later, the teacher

and two teaching assistants in each classroom independently completed behavioral checklists (to measure child aggression). The authors found maternal and paternal harsh parenting each had a significant, positive correlation with child aggression. Boys had notably higher levels of school aggression and emotion dysregulation than girls, fathers had significantly higher harsh parenting towards sons (with sons' aggression more than daughters' aggression linked to fathers), and mothers' harsh parenting did not result in any gender differences. Their model had adequate goodness-of-fit statistics for the whole sample, for sons, and for daughters. Harsh parenting from mothers and fathers had moderately weak positive correlations with emotion regulation, which had a moderately weak significant association with school aggression. Although fathers had both an indirect and direct significant correlation with aggression across genders, mothers mainly had an indirect relation to aggression across genders – with this correlation almost entirely mediated by its association with emotion regulation.

The strengths of Chang et al.'s (2003) study include: an empirical test of Eisenberg et al.'s (1998) theory, data collection from multiple raters, and assessing the role of mothers and fathers. They also reported standardized regression coefficients (i.e., promoting interpretation across units of measurement) and effect size (i.e., the practical significance of a correlation). With regard to procedures, however, it was unclear whether teachers sent home and collected self-administered questionnaires, with a reduction in perceived privacy possibly heightening socially desirable responses (DeLeeuw, Borgers, & Strijbos-Smits, 2004). Also, sample items from the questionnaires appeared double-barreled (i.e., containing more than one implied question: “When my child does not behave, I will scold, kick, hit, get really mad with, or humiliate

him/her”, p. 601), which precludes knowing which embedded item a respondent’s rating actually reflects. It was perhaps most concerning that they did not provide validity estimates for chosen measures. Despite such concerns, their findings and subject pool offered cultural insights, as they acknowledged that Asian populations are not well-represented in the literature. Although Chang et al. (2003) sought to study “a possibly universal process” (p. 600), one should replicate this study across cultures to ascertain the likelihood of generalizing findings linking parenting directly to aggressive behavior and indirectly via a child’s emotion regulation.

Similar to how the preceding study touched on differential parenting based on a child’s gender, Chaplin, Cole, and Zahn-Waxler (2005) examined gender differences in the expression of children’s non-verbal submissive emotions (e.g., sadness, anxiety) and disharmonious emotions (e.g., anger, laughing at others). They recruited 60 urban children viewed as hard to manage. Investigators coded a 10-minute video of children’s emotion expression and mothers’ and fathers’ responses during a competitive, emotionally arousing game at two times: in preschool and after six months of first grade. Overall, children displayed increasing disharmonious emotions across time points. Compared to boys, girls expressed notably more submissive emotion over time. However, they did not find a significant gender difference in disharmonious expression. Mothers gave more attention to daughters’ submissive emotions than to sons’; fathers attended more to girls’ submissive emotions in preschool and more to boys’ disharmonious emotions in first grade. Parents’ emotion-based attention during preschool predicted greater expression of submissive emotions in first grade, but did not predict disharmonious emotions. Children’s disharmonious expression in preschool

predicted mother-reported externalizing behavior in first grade (controlling for externalizing symptoms in preschool). There was no correlation between submissive expression in preschool and internalizing problems in first grade.

Chaplin et al. (2005) included a detailed description of their coding scheme, used log transformation to remedy non-normality, reported findings with and without outliers, and noted adequate inter-rater reliability using Cohen's kappa (which accounts for the fact that Likert-scale items provide a high likelihood of simply agreeing by chance; Fleiss, Levin, & Paik, 2004). At the same time, results may have been affected by observing both mothers and fathers simultaneously playing with their child (i.e., perhaps a parent would have responded differently had the other parent not been present). They did not disclose whether observations occurred in a lab or the family's home, or explain why 11 families withdrew after the first time point (and whether they were significantly different from remaining families). Further, they only coded the first 5 seconds after a child expressed an emotion – looking solely at consequences without considering antecedents to a child's emotion. With this in mind, these authors showed that parents (more so for fathers) attended differently to daughters' and sons' emotions.

Unlike the previous study's interest in emotion expression among children, Caspi et al. (2004) explored maternal emotion expression towards monozygotic (MZ) twins ($n = 565$) at age 5. They then assessed if maternal negativity or warmth played a role in a child's parent- and teacher-rated antisocial behavior problems at age 7 (above and beyond behavior problems reported at age 5). Two-thirds of their probability sample included representative mothers from England and one-third included a high risk stratified sample of mothers who initially gave birth when age 20 or younger. The researchers taped five

minute speech samples (talking freely about what each twin is like) to code maternal emotion expression and conducted qualitative interviews with a subset of mothers ($n = 7$) to explore reasons for differential treatment. They found that mothers' emotion expression was significantly linked to behavior problems across time, mothers tended to convey notably different attitudes toward MZ pairs, and the 5-year-old twin receiving less warmth and more negativity had significantly more antisocial behavior at age 7 (compared to the more favored twin). Interviews revealed four major themes: illness resulted in treating one of the twins differently, believing one of the twins is dominant or more feminine, perceiving one twin as more reminiscent of the mother (and reacting favorably or unfavorably), and viewing a twin as resembling her ex-partner and acting negatively towards that child.

It was of concern that Caspi et al. (2004) did not operationally define antisocial behavior, include demographic information (e.g., income, special needs, marital status), or clarify if the way in which parents talk about their children is highly correlated with the way they talk to these children during actual interactions. At the same time, they incorporated a mixed methods design, offered a clear description of criteria (e.g., rating tone of voice) in coding four features of their categorical predictor, and, as a result of examining identical twins, eliminated potential confounding from different home lives or genetic variability. Overall, findings from their probability sample support that maternal attitudes and emotional expression may play a significant role in whether a child develops maladaptive behavior.

To assess if parenting specifically correlates with emotional development, Garner (2005) recruited African-American urban families ($n = 70$) with preschoolers ranging

from low to higher socio-economic status (SES). The author conducted home observations of parent-child interactions during free play and snack and school observations of peer episodes at free play. She explored two subdomains of social-emotional development: prosocial behavior and emotion regulation to determine if parents' prosocial-related and emotion regulation-related socialization variables differentially impacted these areas. SES was unrelated to maternal behavior and, as expected, prosocial maternal variables did not predict emotion regulation. Positive predictors of constructive emotion regulation behavior (i.e., active resistance, venting, seeking an adult when provoked) included: maternal matching of emotion, discussing emotions, and distracting attention from an emotionally challenging situation. Positive predictors of prosocial behavior included: social approval of the act, praise, and maternal comforting of emotions.

Garner's (2005) study compared subjects of the same ethnicity across SES, and was designed to be sensitive towards families during home observations (i.e., videotaping deemed too intrusive, diverse research teams to enhance comfort level, and providing children with access to the same play objects). Garner used a Bonferroni correction (so as not to inflate Type I error), and established relatively high inter-rater reliability using Cohen's kappa (0.79 – 0.92). Areas of concern included an absence of validity estimates, and not clarifying constructive and non-constructive behaviors. Since Garner recruited the low-SES group from a Head Start program, findings may not generalize to other low-SES families. Even though one should be mindful of such concerns, Garner found prosocial and emotional variables to be distinct dimensions of parenting that are associated with aspects of social-emotional development.

In comparison to the above study, Garner, Dunsmore, and Southam-Gerrow (2008) also conducted home- and preschool-based tasks, but examined a 90% Caucasian, upper middle-income sample of mother-child dyads ($n = 85$) from mainly two-parent homes. Participants engaged in untimed conversations about emotions when reading a wordless picture book (with transcripts coded based on a number of maternal and child variables); the authors also interviewed participants' children in the preschool setting (assessing responses to 10 vignettes) and coded peer interactions with randomly grouped same-gender triads. When controlling for age and gender, findings supported the authors' hypotheses that mothers' emotion-related discourse (e.g., frequently explaining emotions) and preschool children's emotion knowledge uniquely predict children's physical aggression and prosocial behavior with peers. (Refer to study for child-specific findings). Maternal emotion explanations enhanced sensitivity to others' emotional cues; in turn, children used this awareness either to cooperate with peers (prosocial behavior) or to obtain resources for themselves (i.e., relational aggression). Rather than mothers merely labeling emotions (unelaborated comments about emotion), the authors argued that discussing causes and consequences of emotions are necessary to help minimize physical and relational aggressive behavior. Further, mothers' use of positive emotion themes was negatively associated with children's erroneous attributions of anger (i.e., anger perception bias) and physical aggression.

Garner et al. (2008) thoroughly described demographics, procedures and steps of each analysis. They also operationally defined key terms, reported the practical significance of findings (i.e., effect size), and did a laudable job of acknowledging bidirectional influences of each correlation. As the authors acknowledged, they need to

replicate findings with a larger, more diverse sample. Further, it was unclear whether coding and scoring procedures were pre-existing or devised for this study. Overall, the authors reinforce how maternal emotion socialization variables and child emotion variables each contribute to preschoolers' behavior; with a bidirectional link between emotion socialization and emotional development.

Similar to the previous study, Spinrad et al. (2007) mainly assessed Caucasian mothers (and some fathers) but they did not assess behavior in school. They instead examined supportive parenting and a child's ability to exhibit effortful control (i.e., a voluntary ability to focus and shift attention and to inhibit or initiate behaviors; deemed vital for emotion regulation). Further, they assessed if effortful control correlated with externalizing behaviors, internalizing problems, and social competence across two time points: at a mean age of 17.8 months ($n = 256$) and at a mean age of 29.8 months ($n = 230$). Using self-report and lab-based observation, parental sensitivity and warmth had a moderately weak negative relationship with externalizing problems and a moderately weak positive connection with social competence. The hypothesized model (i.e., maternal support → effortful control → lower separation distress, lower externalizing behaviors, higher social competence) fit the data well across time. Supportiveness had a moderately weak negative relation with externalizing behavior at the first time point (and more indirect with age), and an indirect link to social competence.

Spinrad et al. (2007) noted that lost subjects were lower in income and education; remaining parents also had greater supportiveness as well as children with significantly fewer behavior problems, more competence, and greater effortful control. Further, relying on brief 3-minute laboratory observations imposes artificial restrictions that may

deviate from what occurs in a more natural home context. They also did not report efforts to obtain higher response rates on questionnaires sent to homes. Nonetheless, the study had positive correlations among ratings, within-rater stability over time, sufficient internal consistency across subscales, test-retest reliability on a sub-sample of mothers, and adequate inter-rater reliability. They also noted how subjects lost due to attrition ($n = 33$) compared to those who stayed ($n = 233$). Despite being justifiably reluctant to generalize findings to those in poverty, minorities, or different cultures, it is notable that observed parental sensitivity linked with fewer behavior problems and greater social competence in their young children.

In contrast to the preceding studies, Kimonis et al. (2006) assessed predominately African American high risk preschoolers ($n = 49$) from solely low SES families. They recruited mothers during Head Start registration and orally read rating scales to participants during individual interviews at the registration site (to assess parenting attitudes, including views on corporal punishment, and children's callous-unemotional features and behavioral inhibition). Three months into the school year, teachers rated each child's aggressive behavior. The authors believed different causal factors contribute to proactive aggression (i.e., unprovoked behavior to attain external reinforcement) and reactive aggression (i.e., retaliatory in response to a real or perceived threat). They found callous-unemotional features had a moderately weak positive link to both proactive aggression and total aggression, and behavioral inhibition had a significant negative relationship with reactive, proactive, and total aggression. Parental attitudes on harsh punishment had moderately weak negative correlations with both proactive aggression and total aggression, but were not related to reactive aggression.

Kimonis et al. (2006) were sensitive to non-readers, reported each measure's validity and internal consistency (using coefficient alpha), and cited evidence that behavioral inhibition can be validly assessed via ratings in lieu of direct observations. They also verified the normality assumption and included indices of kurtosis and skewness (to assist understanding the nature of the sample data; Huck, 2008). Nonetheless, they did not report that their approach might have caught mothers off guard, with the possibility of feeling rushed or distracted by surrounding events and not fully attending to the ratings. Also, three months in a new school setting may be insufficient for teachers to accurately assess components of aggressive behavior. With such considerations in mind, their findings suggest that emotional competence is related to short-term aggression, and parenting can differentially impact subdivisions of aggression.

Kidwell and Barnett (2007) also recruited low-income mothers of preschoolers, solely looking at urban African American families. They measured children across two time points: at a mean age of 4.5 years ($n = 69$), and a mean age of 6.4 years ($n = 56$). They evaluated unique and combined effects of baseline Vagal tone (V_{NA}) (low versus high) and parent-child attachment (secure versus insecure) on adaptive emotion regulation or dysregulation. *Vagal tone* is "...a stable, intrinsic contributor to individual differences in development... [that refers to] ...an index of the parasympathetic nervous system's capacity to regulate sympathetic arousal... [and] reflects the role of the brainstem's nucleus ambiguus in governing the vagus nerve's coordination of heart rate and respiration in response to stimulation" (p. 157; citing Doussard-Roosevelt, Porges, Scanlon, Alemi, & Scanlon, 1997). They measured V_{NA} via a heart rate monitor in a lab, assessed attachment via videotaped parent-child interaction, and collected child-

mother-, and teacher-ratings of children's emotional competence, and internalizing and externalizing behavior. As anticipated, there was no correlation among the IVs (reflecting two distinct variables). Although V_{NA} and attachment did not separately correlate with emotion regulation (i.e., no main effects), there was a significant interaction between these IVs and regulation (i.e., children with insecure attachment exhibited more regulation difficulties when V_{NA} baseline was high; those with secure attachment presented with better regulation when V_{NA} baseline was high). Emotion regulation in preschool predicted internalizing and externalizing problems in kindergarten. They did not detect any gender differences in emotion regulation.

Unfortunately, Kidwell and Barnett (2007) did not define a high baseline V_{NA} , clarify attachment patterns, disclose the length of time teachers had worked with children before completing checklists, explain their protocol for interviewing children (e.g., if synonyms to emotion words were offered, if parents were present), or include reliability and validity indices for the measures. Also, their true/false child measure may have led to acquiescence bias (i.e., responding in the affirmative without necessarily reflecting an accurate stance; Fowler, 1995). At the same time, merits of this study consist of a multi-informant, longitudinal design measuring externalizing and internalizing behaviors (since both are "...indications that adaptive regulation may be going awry", p. 160), adjusting for non-normality; establishing inter-rater reliability (using Cohen's Kappa), discussing attrition rates (i.e., 13 children who left had lower SES and a significantly higher rate of insecure attachment), and considering the reciprocal nature of a parent and child's contribution to emotion regulation. Though wary of the aforementioned concerns, it is noteworthy that an internally high baseline for arousal may not always be protective in

promoting emotion regulation, depending at least in part on the security of attachment with primary caregivers.

Summary of studies on parent-child relations. These studies connected parenting, emotional development (labeled as emotional competence or emotion regulation), and behavior. For those exploring whether parenting is associated with emotional development, it was found that parents respond differently to varying emotional expressions based on gender (Chaplin et al., 2005), aspects of parenting predict either prosocial behavior or emotion regulation (Garner, 2005; Garner et al., 2008), and a child's physiology and parent-child attachment security interact to affect emotion regulation (Kidwell & Barnett, 2007). Of the studies that found a link between insensitive parenting and behavior, harsh parenting impacted aggression directly and indirectly via emotion regulation (Chang et al., 2003). When mothers verbally expressed less warmth and more negativity toward one of her MZ-twins, this difference correlated with maladaptive behavior 18-months later (Caspi et al., 2004). Parental sensitivity lessened these behaviors and enhanced social competence across time through the mediating effects of a child's effortful control (Spinrad et al., 2007). Further, in addition to linking a child's emotional state with proactive aggression, parental attitude toward corporal punishment was associated with unique variance in predicting total aggression and proactive aggression (Kimonis et al., 2006).

These studies recruited parents of preschoolers, except for one sample of mainly toddlers (Spinrad et al., 2007). In making within-cultural comparisons, two studies investigated urban African American families (Garner, 2005; Kidwell & Barnett, 2007). Two studies included child-ratings of their own emotional competence (Chaplin et al.,

2005; Kidwell & Barnett, 2007). Regarding parental beliefs, Caspi et al. (2004) examined caregiver perceptions of children's behavior, and Kimonis et al. (2006) explored thoughts on corporal punishment, with attitudes linked to parent- and teacher-ratings of maladaptive behavior in both samples.

In terms of gaps, the studies used nonprobability samples without random selection (except for Caspi et al., 2004), there was no mention of power analyses, and only three studies (Caspi et al., 2004; Chang et al., 2003; Garner et al., 2008) discussed effect size. Further, small samples coupled with a narrow subject pool may reduce detection of significant findings (Garner et al., 2008; Kidwell & Barnett, 2007).

Although studies ranged in SES with some variation in ethnicity (namely Caucasian or African American), none included children with diagnosed special needs and all but three solely recruited mothers (excluding Chang et al., 2003, Chaplin et al., 2005, & Spinrad et al., 2007, who included mothers and fathers). All authors (excluding Chaplin et al., 2005 & Garner et al., 2008) recommended parenting interventions to address behavior- and/or emotion-related concerns.

This section has promoted awareness of parenting-factors as antecedents in emotional development. The authors have laid a foundation for understanding the link between parenting, emotional competence, and behavior. I will now consider how demographic or contextual variables (see Definition of Terms in Appendix A1) may influence parent-child relations.

Contextual and family-specific situational factors. In line with Bronfenbrenner's Bioecological Systems Theory, five studies examined contextual or situational factors (i.e., specific to certain family units) that may help explicate variability

in whether parent-child relationships promote emotional dysregulation or competence. Factors discussed in this section are at the level of the micro-system (i.e., perceived stressfulness of a situation, parental antisocial behavior, parental depression, raising children with special needs) and exo-system (i.e., urban families in poverty; neighborhood violence). Two studies also discussed cumulative risk across these levels.

Rodriguez et al. (2005) assessed the link between maternal unresponsivity during high and low stress situations when children were 18 months ($n = 211$) and ability to delay gratification at ages 4-5 ($n = 109$). The authors believed unresponsivity during times of stress may be more detrimental than during non-stressful events. They observed parent-child interactions during three episodes of varying stress; four years later they assessed children's ability to delay gratification using a self-imposed procedure (i.e., asked to wait 15-minutes before eating candy that remained in sight). They found a moderately strong positive correlation in stability in unresponsivity across high and low stress situations. Also, maternal unresponsivity during highly stressful events had a significant moderately positive association with children's inability to delay gratification in preschool; toddlers' negative affect during stressful episodes was also associated with this negative outcome.

It was concerning that Rodriguez et al. (2005) did not disclose whether the selection process was random, or if subjects lost to attrition differed from those who remained. There was also no comparison measure for delayed gratification when first assessing children (although the authors expressed reluctance in assessing this prior to age 4). Further, they did not include reliability or validity evidence from those who developed or previously used the instruments, and did not offer validity estimates using

their own sample. Moreover, there may be limited generalizability to those from diverse backgrounds. Despite these concerns, positive aspects of the study included a longitudinal design, use of an unresponsivity index to assess seven maternal dimensions (i.e., to capture variation in type of unresponsivity to cues), use of age and gender as covariates in the multiple regression analysis, and good inter-rater agreement (~85-88%). Overall, it is notable that parent-child interactions during stressful moments may more accurately predict later social-emotional competence than at other times.

In contrast to the previous study's analysis of middle-to-high SES families, Fantuzzo, McWayne, Perry, and Childs (2004) recruited urban low-SES families ($n = 144$). Using parent- and teacher-rating scales, they explored whether dimensions of family involvement assessed near the beginning of the school year impacted classroom outcomes six months later (e.g., approaches to learning, conduct problems, and receptive vocabulary). They found that, compared to school-based involvement and home-school conferencing dimensions, home-based family involvement was the strongest predictor of child outcomes (i.e., significantly correlated with motivation to learn, attention, task persistence, receptive vocabulary, and low conduct problems).

Among the merits of Fantuzzo et al.'s (2004) study were data from a range of primary caregivers, and concurrent and convergent/divergent validity for their measures (e.g., how concurrent validity had been established through independent observation and teacher and parent ratings). With regard to concerns, there were weak to moderately weak correlations (ranging from $r = -0.18$ to $r = 0.36$), which translate to a low proportion of variance accounted for by each variable (i.e., R^2) (Huck, 2006). Moreover, they did not report using a correction (e.g., Bonferroni) to avoid inflating Type I error

given the multiple correlation tests. They did not use random sampling, nor report reliability or validity estimates for their own sample. With these concerns in mind, their findings suggest caregivers' active involvement in early development can offset potentially negative child outcomes among urban families facing economic stressors.

Fitzgerald et al. (2006) similarly looked at low-income urban families, viewing poverty as contributing to adverse development. They assessed the independent and additive impact of neighborhood violence and paternal antisocial behavior on emotion regulation. They recruited subjects ($n = 47$) from a national sample of fathers, collected numerous self-report measures (see Appendix A3), and placed preschoolers into one of four groups based on violence exposure. Contrary to expectations, exposure to just one source of violence did not significantly predict cognitive or emotional difficulties. In line with their "cumulative effect of risk" hypothesis (p. 245), children exposed to higher levels of neighborhood violence and higher paternal antisocial behavior performed more poorly on indicators of emotion regulation than those exposed to less violence. Children in all three risk groups experienced greater family conflict than the no risk group, and children exposed to either high neighborhood violence or high paternal antisocial behavior were more likely to be spanked (e.g., an odds ratio showed the high neighborhood violence group as 1.9 times more likely than the low neighborhood violence group to be spanked, $p < 0.05$).

In reviewing Fitzgerald et al.'s (2006) study, it is concerning that only two affirmative answers resulted in a high risk classification, and it is unknown whether reliability or validity had been established for these items previously or in their current sample. There was also questionable content validity since two of the five neighborhood

violence items did not necessarily assess one's neighborhood (i.e., "Have you had a relative or close friend in jail; Have you been robbed, mugged, or attacked in the past year?"; p. 246), debatable accuracy of self-report with private and perhaps incriminating antisocial behavior questions (e.g., "Have you ever been fired or laid off from a job because of behavior, attitude, or work performance?"; p. 246), and an unclear timeline as to when and where they administered measures. Nonetheless, they examined an ethnically diverse sample and explained how fathers dropped due to missing data did not differ from remaining subjects. They also controlled for age, education level, and ethnicity. Although aware that the concerns may skew or limit replication of results, findings suggest that both fathers and the surrounding community correlate with emotion regulation.

Nelson et al. (2007) agreed with the notion of cumulative risk (i.e., the presence of several risk factors in tandem results in developing and maintaining maladaptive behavior), but assessed predictors of borderline/clinical levels of problem behavior in urban kindergarten ($n = 78$) and first grade ($n = 79$) students at risk for emotional and behavioral disorders (E/BD). They viewed risk factors as either fixed (i.e., not able to change, such as minority status), variable (i.e., changeable but not necessarily altering an outcome, such as possessing a high school diploma), or causal (i.e., changeable and likely to alter the risk of outcome, such as low-quality childcare or poor parenting practices). They considered 40 risk factors across 11 domains based on prior research, and obtained self-report from parents and teachers. Logistic regression revealed a significant omnibus chi square statistic for five domains: externalizing, internalizing, child maladjustment, family functioning, and maternal depression. Within these domains, the most influential

set of individual risk factors included: difficult child (i.e., temperament, parents' management skills, and the interaction between temperament and management skills; $R^2 = 0.27$), destroys own toys ($R^2 = 0.33$), and maternal depression ($R^2 = 0.38$). These risk factors led to correctly classifying more than 70% of the sample as with or without problem behavior.

Strengths of Nelson et al.'s (2007) study include: detailed procedures, a clear criterion for maladaptive behavior (i.e., a *t*-score at or above 60), counterbalanced presentation of measures (to control for order effects), reported effect size, the absence of outliers and multicollinearity, and test-retest reliabilities among participating teachers (ranging from 0.75 to 0.93). Of concern, however, was basing subject selection solely on teacher-report after only knowing children for 5-6 weeks, offering no reliability or validity estimates for their current sample, and not having previously assessed the parent-rating measure intended to identify the 36 risk factors. With this in mind, findings support parents' behavior management and self-reported depressive symptoms as among the most influential antecedents in whether a young child presents with E/BD.

Whereas the previous study investigated factors related to children with E/BD, Herring et al. (2006) alternatively examined factors that may be affected by toddlers with Pervasive Developmental Disorder (PDD) and those with Developmental Delay without PDD (i.e., to ascertain if behavior and emotional problems impact parental mental health, parenting stress and family functioning). Children (20-51 months; $n = 123$) were recruited from a developmental assessment clinic in Australia with a follow-up visit one year post-diagnosis ($n = 117$). Initial and follow-up mother- and father-report measures (see Table 2) showed stability over time, with significant correlations among

emotional/behavioral problems, parent mental health, and family functioning. Emotional and behavioral problems had a greater impact on these factors than did a child's diagnosis, delay, or gender. Compared to mothers, fathers reported less parenting stress.

Positive features of Herring et al.'s (2006) study consisted of standardized measures to assess level of functioning (to determine the extent of delay), repeated measures one year post-diagnosis, demonstrating equivalence at baseline across the PDD and non-PDD groups, and reporting coefficient of determination (R^2) effect size values (ranging from 0.17 to 0.56). At the same time, measures were not adequately described, the parenting stress measure had no citation, they did not explain attrition rates, and they overlooked reliability or validity estimates from test designers or based on their sample. Extent of generalizability is difficult to determine since they did not offer demographic information (e.g., SES, ethnicity, parent education level, geographical region). Also, setting alpha at 0.01 was a pseudo-Bonferroni adjustment procedure that may not protect against Type I error; further, their use of a Yates' correction for continuity in the chi-square analysis may increase the likelihood of a Type II error (Huck, 2008). Despite being guarded by such limitations, findings suggest early onset emotional or behavioral problems in toddlers with special needs is significantly linked to parenting and caregivers' mental health.

Summary on contextual and family-specific situational factors. These studies illuminate some complexities surrounding parent-child relations. Rather than making a blanket statement regarding harmful effects of disengaged parenting, unresponsivity may be more detrimental if experienced by a child specifically during times of stress (Rodriguez et al., 2005), when a child is exposed to community violence and antisocial

paternal behavior (Fitzgerald et al., 2006), or when facing additive effects of maternal depression, parenting skills, and a child's negative temperament (Nelson et al., 2007). With regard to perceptions, these latter authors found parents who viewed their children as tough to manage had children who were more than six times more likely to display maladaptive behavior; children of mothers with self-reported depression were over 10 times more likely to have problem behavior. In addition, regardless of whether children live in poverty or have diagnosed special needs, it appears that the variables having a larger correlation with early development or family functioning are home-based family involvement (Fantuzzo et al., 2004) or whether the child exhibits emotional and behavioral concerns (Herring et al., 2006), respectively.

Across studies, several assessed the role of mental health status regarding parenting stress and maternal depression (i.e., Herring et al., 2006; Nelson et al., 2007) or as pertaining to paternal antisocial behavior (i.e., Fitzgerald et al., 2006). Two studies recruited children with suspected (Nelson et al., 2007) or diagnosed (Herring et al., 2006) special needs, and two noted the cumulative effect of factors on development (Fitzgerald et al., 2006; Nelson et al., 2007). At the same time, the studies did not consistently incorporate psychometrically sound procedures, investigate how contextual factors may differentially affect ethnically or economically diverse families or children with and without diagnosed disabilities, or consider the influence of contextual factors within the organizational level of the meso-system (e.g., supports from other parents, family members, friends, or service providers). Although awareness of contextual factors continues to unfold, these studies promote consideration for how various factors across Bronfenbrenner's ecological levels may impact the effectiveness of interventions.

Interventions. Seven intervention studies addressed behavioral concerns and/or emotional competence in young children at the level of the micro-system or less commonly within the meso-system. Two studies focused on intervening with children and teachers in a Head Start program, one study integrated an intervention that involved school and parents, and four studies involved working directly with parents in a small-group or home-based context.

Izard et al. (2004) conducted a pilot study of an emotion-based prevention program, Emotions Course (EC; see Table 3), which was guided by Differential Emotions Theory (i.e., a view that basic emotions evolve via maturation and environmental interactions, emotions are adaptive, learning to regulate emotions is vital for development, positive and negative emotions are beneficial, emotion feelings can be linked with adaptive or maladaptive acts or perceptions, and regulating emotion largely depends on knowing the expression and function of emotions). They randomly assigned rural Head Start classrooms to treatment ($n = 7$) and control ($n = 9$) groups, with a sample ($n = 116$) of ethnically diverse, low-SES preschoolers. They had pre- and post-intervention measures of emotion-based knowledge and teacher-rated negative emotions and social competence; they also used a post-test control measure of cognitive ability. As anticipated, the treatment group had a significant increase in emotion knowledge and less growth in negative emotion expression compared to the control group.

Disconcerting features of Izard et al.'s (2004) study were that ongoing support was not given to teachers (except via a manual), they did not assess fidelity of implementation, and it was unclear whether measures for emotion recognition, emotion labeling, and frequency of negative emotions were created for this study or based on

previous work. They also did not report validity estimates, and I questioned the social significance of findings (with R^2 ranging from 0.06-0.08). With this in mind, they used a stratified random assignment of intact classrooms (balancing groups based on teaching experience), re-ran analyses without cognition as a covariate to show comparable results, noted internal consistency among measures in their sample (although the range was only low to adequate), and disclosed that teacher ratings may be biased given awareness of conditions. They emphasized that replication using different measures, independent ratings, and parental involvement may yield more promising results.

In another school-based intervention, Domitrovich, Cortes, and Greenberg (2007) focused on low-income Head Start children. In contrast, though, they recruited an urban sample and included a blended theoretical framework (i.e., Affective-Behavioral-Cognitive-Dynamic model of development). They evaluated an adapted version of the Promoting Alternative Thinking Strategies curriculum (PATHS) for preschoolers ($n = 246$) using randomized placement at the building level (with 10 intervention classes and 10 wait-list control classes). Pre- and post-intervention (using child assessments, teacher- and parent-report), they assessed emotion knowledge, inhibitory control, attention, problem-solving, social competence, and behavior problems. They found no notable differences on measures of inhibitory control, attention, or problem solving. Results did indicate that the intervention group had significantly higher emotion knowledge skills, higher parent and teacher ratings of social and emotional competence, and lower teacher-ratings of social withdrawal nine months later.

Domitrovich et al. (2007) included support from PATHS coordinators, monitoring of fidelity of implementation, analysis of covariance (ANCOVA) to control for group

differences, multiple reporters with direct child assessments, effect sizes of all significant F values (with R^2 ranging from 0.24-0.50), and they explored the 18% attrition rate. It was concerning, however, that they reported only one measure as having good validity, with psychometric indices not reported for other measures; further, two measures were only post-tested. Nonetheless, findings suggest emotional competence can improve by means of direct instruction.

Although the preceding studies assessed school-based interventions, Lovering, Frampton, Crowe, Moseley, and Broadhead (2006) explored home-school connections in a community-based program entitled, “Scallywags Scheme”. Children in the United Kingdom ($n = 340$) with behavioral, emotional and social problems were referred to a multi-organizational program that incorporated evidence-based practice. Children and their parents received six months of individually tailored intervention with common features across participants (e.g., a psychologist and support worker directly aiding parents and teachers; a support worker assigned to each child to work in the home for three hours and the school for five hours per week). Parents unable to attend any of the 12 parent-groups received instruction at home. The team of caregivers set individualized target goals to reach within six months and reconvened to review goals and determine a plan for maintaining the behavior. Pre- and post-intervention self-report measures of disruptive behavior and parenting stress revealed a statistically significant decrease in problems at home and school, as well as a reduction in parenting stress. They did not detect any notable differences among the 49% of those who attended parent groups and those who did not attend (suggesting that parent groups were not crucial to this program’s success).

Lovering et al. (2006) provided a flow chart of their procedures, a case study of a child who benefited, had a range of demographic data on families (e.g., a high level of single-parents and children with special needs), and included previously cited reliability and validity estimates for selected measures. It was concerning, though, that they did not provide psychometric reliability or validity estimates for their current sample, have a control group, or operationally define disruptive behavior. With this in mind, they found tailoring goals and collaborating across contexts may significantly enhance social-emotional competence.

In contrast to the previous studies, the following interventions focused solely on families. Zubrick et al. (2005) conducted a group behavioral family intervention (BFI) for urban, mainly low SES parents of preschoolers in Australia. They recruited treatment ($n = 804$) and comparison ($n = 806$) groups. Over two years, they evaluated if an extensive, widely available intervention (Triple P-Positive Parenting Program) could be applied in a primary health care setting to reduce/prevent maladaptive behavior, dysfunctional parenting, depression, anxiety, childrearing stress, and marital dissatisfaction. They found that the 101 BFI groups showed a significant decrease in behavior problems [with a large (0.83) effect size immediately post-intervention and a moderate (0.47) effect size at a 24-month follow-up], a decrease in dysfunctional parenting and an increase in parent mental health and marital adjustment.

Zubrick et al. (2005) did not provide validity estimates, and greater clarification is needed on session topics, recommended activities, and their definition of problem behaviors (to facilitate accurate replication). On a positive note, they obtained a range of demographic data, addressed non-equivalence at baseline with use of covariates (see

Appendix A4), maintained high retention and attendance rates with a hard-to-reach population (reportedly from focus group research and ongoing efforts to maintain communication), reported effect sizes, noted internal consistency and test-retest reliability estimates, and assessed fidelity of implementation among health workers. Bearing in mind the above-mentioned concerns, their findings suggest that an intervention focused on low-SES families may foster positive mental health and social-emotional outcomes.

In line with the preceding study, Havighurst, Harley, and Prior (2004) assessed a group parenting intervention in Australia, but on a much smaller scale. They recruited low-middle SES parents ($n = 47$) of children who were typically developing (64%) and with behavior problems in the clinical range (36%). They taught parents skills in emotional awareness, acceptance and emotion coaching (e.g., labeling/validating emotions, solving problems pertaining to emotional events). Using parent- and teacher-report, they assessed emotional competence, parenting skills and child functioning pre- and post-intervention and at a 3-month follow-up. Parents were significantly more encouraging and less dismissive of children's emotional expression, and more willing to use emotion-focused approaches; children displayed less emotional negativity and a decrease in maladaptive behaviors. At follow-up, there was continued progress on many aspects of parenting. Improvements in emotion coaching were significant for those with lower emotion coaching scores pre-intervention, but non-significant for those with initially higher scores. Only those with greater problem behavior at baseline showed significant changes in behavior.

Qualities of Havighurst et al.'s (2004) intervention include: addressing emotions that may trigger maladaptive behavior, trying to personalize the group process (e.g., rearranging topics based on members' concerns, asking parents to share progress), assigning home tasks (i.e., monitoring children's emotions with a diary, using a wall chart of emotion faces, setting aside "emotion talk-time"; p. 428), and guiding parents to manage their own emotions. Additionally, they shared exclusion rates due to missing data, obtained ratings from multiple-reporters, noted practical significance (using Cohen's index *d* statistic, ranging from 0.38 to 0.65), and had an interrupted time-series design to *attempt* to counter internal validity threats. Conversely, practice and/or order effects may remain from multiple assessments in a short time span (Huck, 2008), they overlooked numerical indices when noting reliability or validity, and did not describe participants' ethnicity. Further, one of their measures was a 3-item rating scale lacking psychometric estimates. In addition, one may be skeptical that providing video examples, discussion and group role-playing captures real parent-child relations, fully addresses individual concerns, or is most effective at teaching emotion coaching. Although wary of such concerns, these authors encourage moving beyond behavioral approaches (e.g., reinforcement contingencies) in modifying social-behavioral functioning, focusing instead on how parenting practices correlate with emotional development.

Contrary to the two preceding group interventions, the remaining two studies solely assessed individualized parental supports. Mahoney and Perales (2003) used a relationship-based intervention to promote responsive interactive techniques in everyday parent-child exchanges. The convenience sample included mothers and children ($n = 20$)

diagnosed with autism or PDD (using a play-based assessment and parent-report to detect moderate delays in cognition and language, and severe social-emotional problems). Weekly, for 8-14 months, dyads received individual sessions from an early intervention specialist in a preschool or home setting, and a “Family Action Plan” (p. 81) recommended activities for parents to do with children in the home. Mahoney and Perales found significant changes in mothers’ interaction style, with gains in maternal affect and 80% of mothers displaying increased responsiveness. Post-intervention, children had significantly higher parent-ratings in attention, persistence, interest, cooperation, initiation, attention and affect; children were also significantly less detached, with fewer problems in self-regulation and higher social competence. They also detected a moderately positive connection between social-emotional growth and the impact of their intervention on responsive parenting. In fact, children exposed to this intervention only had a noteworthy change in their social-emotional behavior if mothers improved in their level of responsiveness.

With regard to concerns, Mahoney and Perales (2003) did not include a comparison group, did not clarify various aspects of responsive interactive behavior (i.e., reciprocity, contingency, shared control, affect, and match), nor did they specify whether observations occurred in the home, school, or research laboratory. They also did not acknowledge possible confounding from other services reportedly received beyond the scope of the intervention, whether the treatment across four instructors was in some way standardized and tested for fidelity of implementation, whether they asked other providers to implement techniques, or the criteria for whether a child made substantial improvement. At the same time, they sought to build on previous responsiveness

research, established adequate inter-rater reliability, used counter-balanced coding for the pre- and post-intervention play observations, and noted moderate to strong effect sizes (0.62 and 0.76). Taking into account the strengths and concerns, findings based on their sample suggest individualized support for parents may promote social-emotional competence among children with special needs.

Similarly, Singh et al. (2006) focused on mothers ($n = 3$) of young children with autism. These authors utilized a single subject design to provide a one-on-one 12-week course in each family's home on "mindful parenting" (i.e., being calm, non-judgmental, unconditionally accepting, focusing attention on one thing at a time, and considering useful ways of perceiving and responding to an incident; p. 169-170). Mothers recorded their child's behavior (i.e., aggression for all three children, non-compliance for two children, and self-injury for one child) during waking hours on a Palm personal digital assistant (PDA) and fathers served as reliability observers on evenings and weekends. They also used their event recording procedure to assess the impact of the intervention on satisfaction with parenting skills and parent-child interactions. Visual analysis showed behaviors fluctuated widely during baseline and were stable, with an infrequent number of incidences, by the end of the study (i.e., by week 65, there were occasional overlapping data points across phases but a clear declining trend). Specifically, child 1 had an 88% reduction in aggression and 68% decrease in noncompliance; child 2 had a 70% decrease in aggression and 64% decline in noncompliance; child 3 had an 85% drop in aggressiveness and a 17% decrease in self-injurious behaviors. They did not observe these benefits until after the training sessions, during an extra 11-week period to practice

this mindfulness approach. Mothers also expressed improved satisfaction with parenting skills and parent-child interactions.

Singh et al.'s (2006) study had a multiple baseline across dyads, with five data points in the first dyad's baseline and extended baselines for subsequent dyads, three phases (i.e., baseline, mindfulness training, and mindfulness practice), and high inter-observer reliability ($M = 96\%$, range = 82-100%). The children were similar (i.e., each diagnosed with autism and a comparable level of functioning on an adaptive behavior scale) but functionally independent (i.e., in separate family units, so as not to influence one another). In terms of concerns, results may only generalize to similar subjects who have 2-4 years of college, 1-3 children, and who are stay-at-home mothers with involvement in parent training programs. It would have been useful to include information on the recruitment process, ethnicity, SES, and geographic location. Further, fidelity of implementation was not assessed, it is unknown if parent-reported behavioral changes were also seen in the school setting, and they did not acknowledge possible confounding from other parenting techniques learned in previous training classes. Nonetheless, the notion of promoting social-emotional competence by altering parental thought processes within the home setting holds great promise for future initiatives.

Summary of interventions. These seven studies provide a representative glimpse of interventions designed to reduce behavioral concerns and/or promote emotional competencies in young children. For school-based interventions, Izard et al. (2004) found an increase in emotion knowledge and slowed growth in negative expression; Domitrovich et al. (2007) also detected greater emotion knowledge, greater social competence and less withdrawal. For the home-school intervention, authors found lower

parenting stress and reduced disruptive behavior across both settings (Lovering et al., 2006). Of the group family interventions, Zubrick et al. (2005) showed improved parenting skills, mental health and marital adjustment, with less maladaptive behavior; Havighurst et al. (2004) reported parents were more encouraging of emotional expression, more willing to use emotion-focused techniques, and children with high pre-intervention levels had less negative emotions and behavior problems. For the one-on-one parent interventions, Mahoney and Perales (2003) found that maternal responsiveness accounted for 25% of the variance in social-emotional growth; Singh et al. (2006) showed a declining trend in maladaptive behaviors and improved satisfaction with parenting and parent-child interactions.

In drawing comparisons, authors reported increased emotion knowledge (Domitrovich et al., 2007; Izard et al., 2004), decreased expression of negative emotions (Havighurst et al., 2004; Izard et al., 2004), improved mental health or reduction in parenting stress (Lovering et al., 2006; Zubrick et al., 2005), enhanced self-reported parenting skills (Singh et al., 2006; Zubrick et al., 2005), increased social-emotional functioning (Mahoney & Perales, 2003) and decreased child aggressiveness (Havighurst et al., 2004; Lovering et al., 2006; Singh et al., 2006; Zubrick et al., 2005). In contrast to interventions focusing on the school setting (i.e. Domitrovich et al., 2007; Izard et al., 2004), researchers only found the latter result (i.e., pertaining to a significant decrease in externalizing behavior) when intervening with parental caregivers was either part or the sole focus of the study. Mahoney and Perales (2003) and Singh et al. (2006) assessed caregivers of children with diagnosed special needs (i.e., autism). Most of the authors who recruited families solely recruited mothers (except for Havighurst et al., 2004 &

Zubrick et al., 2005, who primarily assessed mothers and a small percentage of fathers). It is unclear how fathers or grandparents exposed to such interventions or families from diverse backgrounds (e.g., ranging in SES, ethnicity, geographical region) would affect social-emotional outcomes. Moreover, it remains unclear how caregiver perceptions may affect the link between parenting and emotional competence, and how perceptions along with contextual factors may also be associated with receptivity to receiving and utilizing such supports. Domitrovich et al. (2007, p. 86) duly noted that even if an intervention actually improves behavior, the change may not be enough to influence caregivers' "global perceptions" of the child.

Parental beliefs regarding their role in parenting. This final section explores how caregivers view their role as parents and/or in promoting development. In line with Bronfenbrenner's framework, one may view such beliefs at the level of the micro-system (e.g., affected by and affecting the child's behavior) and the macro-system (e.g., influenced by cultural values, media or religion). Three of the studies explored perceptions on existing family supports. All six studies contribute to shedding light on diverse beliefs, expectations, and/or perceived needs. This section also includes insights from the National Early Intervention Longitudinal Study (NEILS), to assess if a large scale database has assessed questions pertaining to behavior- or emotion-related caregiver beliefs.

Dunsmore and Karn (2001) assessed emotion-related beliefs and the link between such beliefs and both maternal behavior and children's emotion understanding. They viewed emotion-based beliefs as distinct from emotional expressions, and expected correlations to be affected by which belief was measured (i.e., views on emotion

language, developmental readiness to discuss emotions). They recruited mothers ($n = 115$) of preschoolers and measured a subset of children ($n = 60$) on emotion understanding (i.e., their ability to label emotional expressions, and perspective-taking ability when detecting emotions). Mothers completed questionnaires to assess familial self-expressiveness and beliefs on feelings. They found no gender differences in how mothers of sons or daughters perceived items on the feelings questionnaire or in their positive or negative expressiveness. At the same time, there were some gender differences in emotion understanding (i.e., girls were more proficient at identifying emotions that coincide and contradict with how most children would feel in a given situation). With age, children displayed more emotion knowledge. There was a weak positive correlation between mothers having stronger beliefs that children are “too young to control emotional expression or to discuss emotions” and being more negatively expressive (p. 126). In contrast, there was a moderately weak relationship between those strongly believing “in socializing their children in the use of emotion language” and exhibiting more positive expressiveness (p. 126), and there was a moderately positive association with children in such dyads being more aware of verbal labels for facial expressions of emotion. Such beliefs enhanced emotion knowledge for those with mothers high in positive expressiveness (i.e., beliefs increasing R^2 from 0.25 to 0.57).

Dunsmore and Karn (2001) provided indices of skew and kurtosis, included children’s age and gender as covariates when significantly related to variables, and revised an original 23-item teacher-based measure to assess emotion beliefs among parents. It was concerning, however, that the original 23-item measure had low internal consistency of subscales ranging from 0.41 to 0.62, and their modifications still left room

for improvement (using factor analysis to reduce subscales from six to two; Cronbach's alpha was 0.53 for Developmental Beliefs and 0.68 for Emotion Language). Also, they did not clarify recruiting strategies and it was confusing that the category of high developmental beliefs was equated with viewing a child as too young for emotion socialization as opposed to perceiving a child as developmentally ready for such support. With these concerns in mind, their findings suggest that maternal emotion-based beliefs significantly correlate with parental behavior and child outcomes.

Although the previous study focused on mothers' beliefs regarding emotion understanding, Gamble et al. (2007) compared perceptions among mother-father dyads on four parenting dimensions: (1) parenting style (i.e., typical way of responding in parent-child interactions, including authoritarian, authoritative, or permissive), (2) meta-emotion beliefs (i.e., emotion-coaching, emotion-dismissing, or disapproving feelings about a child's emotional displays), (3) behavioral approaches to responding (i.e., emotion-coaching, minimizing, or disapproving) to a child's negative emotions (fear, anger, sadness), and (4) parental support and responsiveness. They recruited low-income Head Start two-parent families ($n = 57$) with young children of mainly Mexican-American descent. Subjects completed self-report questionnaires on the first three dimensions (translated into Spanish) and rated partners' parenting style. Coders observed behaviors during prompted parent-child emotion discussions in the home to measure the fourth dimension. A moderately weak correlation revealed that mothers and fathers were most likely to support an authoritative parenting style, although mothers had a significantly greater tendency towards this than fathers. Parents also had higher mean scores for emotion coaching than for dismissing/minimizing or disapproving, but mothers

scored higher than fathers in supportiveness/coaching and responsiveness. There was an association between parental reactions and beliefs, with minimizing responses having a moderately positive correlation with emotion-dismissing beliefs. Meta-emotion beliefs across dyads were non-significant. They detected a positive, significant relationship among authoritative parenting, coaching beliefs, coaching behaviors, monitored responsiveness, supportiveness, and reciprocal responding. In contrast, authoritarian parenting and disapproving beliefs and responses related positively to each other, and they had a negative relationship with authoritative and coaching beliefs and actions.

Gamble et al. (2007) did not specify whether questionnaires were self- or interviewer-administered and they did not report content, construct or predictive validity for any measure. At the same time, they reviewed literature on parenting dimensions, described values often ascribed to Latino populations (e.g., family unity and solidarity may lead to similarity across dyads; adhering to sex-role distinctions may result in parental disagreement in beliefs and attitudes) and noted that fathers in their sample did not hold traditional views of Latino men. They also held focus groups to determine whether measures would be understood by and meaningful for representatives of the target population, and exposed readers to meta-emotion beliefs. Based on their sample, views on managing children's negative emotions appear to have a direct association with how parents behave, and they support assessing the simultaneous contribution of mothers and fathers in potentially influencing each other and the emotional competence of their children.

In contrast to focusing on children who are typically developing, three studies investigated socialization beliefs among parents of children with diagnosed special needs.

Roskam and Schelstraete (2007) conducted a qualitative structured-interview format with statistical analysis (i.e., a mixed methods design). An early intervention support team recruited French-speaking mothers in Belgium ($n = 31$) to better understand variation in childrearing behaviors among mothers of children with differing disabilities (i.e., multiple disabilities, $n = 11$; intellectual disability, $n = 22$; hearing impairment, $n = 7$). They measured self-report of childrearing behaviors during a structured hour-long home-based interview, with transcripts coded to assess frequencies within eight categories of responses along a coercive-inductive “bipolar axis” (i.e., attention getters, directives, affirmatives, regulation, cognitive, explanations, supportive, and managing; p. 134) and sequences in responding to behaviors and personality traits. They found mothers often used a combination of coercive (i.e., authoritarian, directiveness, controlling, not promoting autonomy) and inductive (i.e., authoritative, democratic, responsive, supportive, autonomy-promoting) behaviors, with subjects viewed as adapting to a child’s attributes. Mothers differed in their childrearing categories based on disability, with mothers of those with hearing impairment using more explanations than other groups (and those with intellectual disability receiving more explanations than those with multiple disabilities), and mothers of children with intellectual disability and multiple disabilities giving more directives than mothers of those with hearing impairment. Across groups, coercive behavior (i.e., tending to control the child before bestowing some autonomy) negatively related to perceiving a child as agreeable and emotionally stable (with positive child behavior/traits leading to inductive responses); coercive behavior positively correlated with a child’s maladaptive behavior. Mothers scored

lowest on attention getting (i.e., the most coercive category) and both supportive and managing strategies (i.e., the two most inductive strategies).

Strengths of Roskam and Schelstraete's (2007) analysis included connecting objectives and findings to the limited literature, offering descriptions and quotes to coincide with categories, generating clear tables and figures, and systematically describing statistical analyses. It was surprising, however, that they had such a heavy emphasis on statistics given that both their title and abstract emphasized the novelty of their qualitative design. The authors also did not include triangulation, key themes, or a theoretical orientation, they showed complete disregard for person-first language, and they did not acknowledge the need to explore within-group variation. They did not provide demographic information (e.g., SES, maternal age, marital status, the number of children presenting with internalizing and/or externalizing behavioral concerns, birth order, type of specialized supports each family received, or length of time since the family had begun receiving such services). They also did not adequately explain the criterion for excluding families exposed to a stressful event (e.g., aside from divorce, did they consider illness, parental depression, marital discord, possible stressors from a child's recent diagnosis?). Although the reader should be cognizant of such concerns, it is noteworthy that the authors viewed attempts at labeling caregivers as either coercive or inductive as "simplistic" (p. 131), and offered a rare glimpse of how mothers of children with special needs may alter beliefs and responses depending on the type of disability, child's personality and behavior.

Whereas the preceding study compared mother-child interactions across distinct groups of children with special needs, Santos and McCollum (2007) compared Filipino

mothers (n = 28) of young children with (n = 14) and without (n = 14) disabilities in Southeast Asia. Using qualitative analysis, they identified themes (i.e., describing their role; describing the context; ideas on why they do what they do) stemming from hour-long structured, open-ended interviews in mothers' native language. More than four times as many mothers of children without disabilities spoke of a perceived role as play partners, while mothers of children with disabilities more frequently viewed their role as director/teacher (i.e., at least 10% of comments by 12 mothers of those with delays compared with comments by only 5 mothers of those without delays). Whereas mothers of those without disabilities viewed friends (26%), media (20%) and instinct (16%) as the most common sources for why they interact as they do, mothers of children with disabilities attributed the most credit to professionals (49%), family (13%), and instinct (13%). In terms of within-group differences, mothers of children with multiple disabilities more likely cited professionals as a source than did mothers of children with speech delays. The dyads with disabilities "...might use more of their interaction time to focus on therapeutic goals, rather than on interaction that is social in nature" (p. 257).

Santos and McCollum (2007) did not use member checking or triangulation, which would have promoted trustworthiness in their qualitative analysis. Moreover, it would have been advantageous to offer a breakdown of which professionals provided participants with the most/least sources of ideas regarding interactions. Having doctors, teachers, therapists, seminars, and professional organizations clustered into one category does not enhance understanding of where families are currently seeking or receiving support. With regard to strengths, they valued cultural sensitivity, explored how members of an underrepresented cultural group perceived their parenting role, used

person-first language, conducted peer debriefing with a researcher from the Filipino culture, and used two standard picture vignettes to elicit conversation about participants' parent-child interactions with and without objects. They also adequately described recruitment, included information on employment, child's birth order, and number of siblings, compared groups at baseline, as well as thoroughly described the process of developing themes, subthemes, and categories. Overall, their within-culture comparative study offered a rare qualitative analysis on caregiver beliefs across dyads with and without special needs.

Kenny and McGilloway (2007) also studied parents of children with special needs. They recruited parents in Ireland who were acquaintances of the first author; the majority belonged to parent support groups. Using a mixed methods design, they assessed parents' (n = 32) perceived ability to cope with social and behavioral concerns among children with learning disabilities. Caregivers completed two questionnaires during an hour-long interview, with subscales interpreted based on mean scores and open-ended sections assessed with thematic analysis. They found no differences among parents varying in age or among parents of children with and without physical disabilities. Perceived difficulty with social care tasks and managing problem behavior each had a moderately positive correlation with scores on total caregiver strain. Whereas many parents did use effective coping strategies (e.g., optimistic attitude; positive perceptions of child; family unity; seeking information on child's condition), caregivers reported feeling higher levels of internalized strain (e.g., worry, sadness) compared to externalized strain (e.g., anger or resentment toward the child or behavior). Mothers attributed the greatest amount of reported stress to negative perceptions of their caring

role. Moreover, parents felt that professionals offered insufficient support in helping them cope with childrearing.

Kenny and McGilloway (2007) did not report member checking or use triangulation, and results may not transfer to those not attending support groups. In addition, they drew a handful of ambiguous conclusions (e.g., not clarifying if the “considerable support” parents obtained from spouses/partners referred to emotional, physical and/or practical support; not stating if the “insufficient information about their child’s condition” – that more than half of participants felt professionals had given them – referred to social/academic milestones, longevity, co-morbidity with other conditions, community outreach for the family, and/or knowledge of specific childrearing techniques to help their child; p. 224). They did, however, cite reliability and validity information from an original measure, report good internal consistency (ranging from 0.74 to 0.93) on subscales for their sample, and define the terms “caregiver strain” and “adaptive forms of coping” (p. 222). The authors also tied findings to the literature, identified key themes, and captured voices by incorporating quotes. Overall, their findings support assessing caregivers’ satisfaction with service provisions; they showed that inadequate formal supports contributed to perceived strain in coping with this sample’s social-emotional concerns.

In line with the notion of assessing satisfaction with existing supports, Harwood, O’Brien, Carter, & Eyberg (2009) offered a rare glimpse into mothers’ existing and desired behavior support from mental health professionals in primary care settings. They recruited mothers of preschool children ages 3-6 (n = 110; 69% Caucasian; from private and university-affiliated pediatric offices ranging in income level). Participants

completed self-administered packets of information, including a behavior inventory and devised survey of maternal attitudes and practices in obtaining mental health services for preschoolers' behavior. Descriptive statistics and tests of mean differences indicated that, although rarely received, all participants desired behavior support from health care professionals; they identified pediatric offices as the most desirable location to receive behavior support (e.g., compared to schools, community centers). Further, they preferred advice on behavior management with less interest in medicating behaviors. Compared to higher-income mothers, a greater percentage of low-income mothers raised children with externalizing behavior in the clinical range (with financial obstacles to obtaining services). Mothers of preschoolers with behaviors in the clinical range were more likely to ask pediatricians behavior questions and desire direct support (clinician-related services, opportunities to call professionals) compared to mothers of children with behaviors in the non-clinical range (who preferred indirect avenues of support from handouts and books).

Although Harwood et al. (2009) included a rather detailed description of demographics to aid generalizability of findings, they overlooked mention of whether participants' children attended preschool, currently received behavior outreach from service providers in the education setting, or had diagnosed special needs. Further, they provided psychometric estimates on the Eyberg Child Behavior Inventory, but this scale does not assess possible internalizing behaviors, which may proactively warrant equal attention. It also would have helpful if they included a copy of the 12-item devised survey (reportedly available upon request); the authors did not report conducting pretesting with a representative sample of mothers or consider possible literacy concerns

with a self-administered packet of questions. Moreover, there was no mention of cross-disciplinary collaboration or research in supporting parents' behavior management efforts. Bearing in mind such concerns, the authors lucidly presented findings, tapped into maternal perceptions, and acknowledged mental health providers' contributing role in proactively offering behavior-related screenings and interventions to parent-child units.

To ascertain whether a large-scale database had addressed the topic of parents' emotion and/or behavior-related beliefs, I reviewed The National Early Intervention Longitudinal Study (NEILS, 1998-present). This study has tracked the experiences of a large sample of infants and toddlers ($n > 3338$) at risk for or who present with disabilities and their families, as they progress from Early Intervention through early elementary school. Parents were asked in only a handful of items within the 40-minute phone-administered *Family Enrollment Interview*, *Family Interim Interview*, and *Family Transition Interview* (<http://www.sri.com/neils/index.html>) whether they received support from service providers in understanding their child's development or special needs, or in learning how "to play with, talk with, or teach" their child; one item asked if they receive support from "relatives or friends" to address their child's "special needs"; one item followed up with asking if families have ever "used that advice" that professionals may have given (Section D). It was not clear, however, whether the notion of support referred to emotional and/or strategy-specific assistance. Moreover, although one item asked whether the child had mastered various milestones across developmental domains (Section A), there did not appear to be any items regarding families' perceived role in personally contributing to the development of these milestones nor awareness of the type of supports these diverse families would be willing to receive to promote development

within or across domains. Among the outcomes of this national study, parents reported feeling “...less competent in their ability to figure out what to do about their child’s behavior than in their ability to care for their child’s basic needs or to help their child learn and develop. This finding is consistent with extensive literature documenting the stress that behavior problems place on families and the challenges families experience in dealing with problem behavior, and suggests an area of enhanced service provision in early intervention, at least for some families” (Bailey, Scarborough, Hebbeler, Spiker, & Malik, 2004, p. 30).

Summary of parental beliefs. There is a paucity of research on whether parenting subgroups exist with regard to general parenting-beliefs (e.g., Kenny & McGilloyay, 2007; Roskam & Schelstraete, 2007; Santos & McCollum, 2007), or emotion-related beliefs (e.g., Dunsmore & Karn, 2001, Gamble et al., 2007). Findings indicate that parents in the same family are not necessarily interdependent in their parenting beliefs, observed childrearing behavior or responses to behavior (Gamble et al., 2007). Further, the type of emotion-based belief (pertaining to a focus on “socializing emotion language” or “children’s developmental readiness for emotion socialization”) separately correlates with and moderates the relationship between the nature of a parent’s emotional expression and a child’s emotion knowledge (Dunsmore & Karn, 2001, p. 132-134). Among the samples that included children with special needs, childrearing differences existed based on a child’s disability, personality, and behavior. Coercive/controlling parenting negatively related to emotional stability (Roskam & Schelstraete, 2007), mothers of children with disabilities were less likely to see themselves as play partners and more likely to seek and incorporate advice from professionals into daily parent-child

interactions than dyads without disabilities (Santos & McCollum, 2007), there was within-group variation (e.g., more frequent directives given by parents of children with disabilities than with delays) (Roskam & Schelstraete, 2007; Santos & McCollum, 2007), and a sample of mothers who attended support groups reported feeling high strain and inadequate support (Kenny & McGilloyay, 2007).

One study employed a qualitative analysis (i.e., Santos & McCollum, 2007), two studies incorporated mixed methods (Kenny & McGilloyay, 2007; Roskam & Schelstraete, 2007), and three studies used a quantitative design (i.e., Dunsmore & Karn, 2001; Gamble et al., 2007; Harwood et al., 2009). Four studies focused on maternal beliefs (i.e., Dunsmore & Karn, 2008; Harwood et al., 2009; Roskam & Schelstraete, 2007; Santos & McCollum, 2007), one compared maternal and paternal views within families (i.e., Gamble et al., 2007), and one recruited mainly mothers and some fathers (i.e., Kenny & McGilloyay). Only one study compared beliefs among parents with and without special needs (Santos & McCollum, 2007). In addition to the NEILS study, which was comprised of families of children receiving specialized services, two articles solely examined perceptions among dyads with special needs (i.e., Kenny & McGilloyay, 2007; Roskam & Schelstraete, 2007).

Discussion

Each study in the preceding review contained varying methodological strengths (see table 5) and limitations. Concerns ranged from restricting replication or generalizability (e.g., not operationally defining terms, inadequately describing procedures or the recruitment strategy, using non-probability samples), hindering clear interpretation of results (e.g., absence of effect size, not discussing reliability or validity

estimates), or possibly detracting from the results themselves (e.g., not reporting use of power analyses, small sample sizes, narrowed subject pools). While bearing in mind such concerns and acknowledging the correlational nature of the existing data, the collective pool of studies suggest some notable findings. There is empirical support for the significant association between parents and their young children's emotional competence. As expressed, "[t]here is clear evidence linking parenting and family risk factors to the development of... major behavioral and emotional problems" (Zubrick et al., 2005, p. 287). There is a noteworthy connection among parenting, emotional competence, and behavior. This review also illuminated how contextual factors correlate with caregiver-child interactions, and the intervention studies highlighted specific ways of empowering parents to promote children's early development and minimize perceived levels of parental stress. Researchers in this review have been vocal in stating the importance of addressing mental health needs of young children and their families, and they offer mounting empirical support for the urgency to "provide early intervention...for emotional and behavior problems, along with additional support, education and skills training for parents" (Herring et al., 2006, p. 880).

Based on the research, however, several areas of inquiry need additional research. There are too few intervention studies that focus on empowering families to promote their child's emotional competence (Domitrovich et al., 2007; Lovering et al., 2006; Zubrick et al., 2005). At the same time, although the recurring recommendation to implement an individualized parenting intervention may be intuitively sound, researchers appear to be overlooking an initial step. We may best precede attempts at devising supports by investigating how parents perceive their role and whether they are receptive

to such supports. Gamble et al. (2007, p. 83) recommended not only exploring perceptions among mothers and fathers, but to also “...determine how or whether parents are aware of their own... parenting practices and beliefs”.

Neither families of children with special needs (see Appendix B2) nor ethnically diverse parents have received adequate representation across the emotional competence research. Moreover, even though authors considered a range of income levels, findings were inconsistent as to whether parents with varying income differentially influence children’s emotional development. In terms of subject selection, five authors looked at middle-upper SES (e.g., Chang et al., 2003; Chaplin et al., 2005; Dunsmore & Karn, 2001; Mahoney & Perales, 2003; Rodriguez et al., 2005), three incorporated samples that spanned low, middle-high SES levels (Garner, 2006; Harwood et al., 2009; Kenny & McGilloyay, 2007), six had undisclosed restrictions on income level (e.g., Caspi et al., 2004; Herring et al., 2006; Nelson et al., 2007; Roskam & Schelstraete, 2007; Santos & McCollum, 2007; Spinrad et al., 2007), and eight articles solely recruited low SES families (e.g., Domitrovich et al., 2007; Fantuzzo et al., 2004; Fitzgerald et al., 2006; Gamble et al., 2007; Izard et al., 2004; Kidwell & Barnett, 2007; Kimonis et al., 2006; Zubrick et al., 2005). Garner (2006) found no relation between SES (spanning low, middle, and high SES) and maternal behavior in her sample. Havighurst et al. (2004) also found income level (in their low- and middle SES sample) not to be significantly correlated with parent and child variables. Similarly, Kidwell and Barnett (2007) noted that the majority of children in their low-income, small sample presented with adaptive emotion regulation skills and few internalizing or externalizing behaviors. For the low-income, less educated Mexican-American mothers and fathers in another study, subjects

used high levels of developmentally appropriate authoritative parenting and emotion coaching, compared to less supportive alternatives (Gamble et al., 2007). Such findings suggest we not solely gear interventions toward low-income families. Others have argued, however, that maladaptive behavior has an increased occurrence in low-SES samples, which face multiple risk factors and less protective factors; therefore parenting demands and need for support may depend on one's income bracket (e.g., Fitzgerald et al., 2006; Harwood et al., 2009; Izard et al., 2004; Kimonis et al., 2006). This necessitates more research to ascertain where best to focus attention and resources.

There are also notable gaps in the subset of literature on caregiver beliefs, with a substantial need for studies that assess views among diverse parenting subgroups (e.g., perceived roles in emotional competence). Although beliefs on topics other than emotion (e.g., nutrition, achievement) have been associated with child outcomes, and prior studies have begun to examine emotional expressive styles, "...parental attributions or beliefs among emotions [had] not yet, [prior to their analysis], received empirical study" (Dunsmore & Karn, 2001, p. 118). The newness of our emerging awareness is quite telling, with one study published in 2001, four studies in the section on caregiver beliefs published in 2007, and one published in 2009. We need to more clearly delineate the connection between caregivers' emotion-related belief system and caregivers' parenting practices (Gamble et al., 2007) and better understand possible patterns in such beliefs that may exist across a contextually diverse grouping of individuals.

Moreover, only three studies broached perceived views of existing supports (Harwood et al., 2009; Kenny & McGilloway, 2007; Santos & McCollum, 2007). Kenny and McGilloway (2007, p. 227) stated "...the lack of effective services and/or

inappropriate use of existing services... may have a detrimental impact on overall coping ability". Questions remain unanswered with regard to the type of support(s) at the level of the mesosystem different families prefer (e.g., emotional support or behavior-based strategies), perceived role in emotional competence in relation to the literature, which community members parents seek, and whether prior support enhances one's propensity to seek and/or receive additional advice in promoting children's emotional competence. Exploring such areas would move our understanding of emotional competence in a favorable direction.

Researchers have long discussed the utility of evaluating whether caregivers can be clustered into groupings that reflect specific parenting beliefs and/or practices (Whiteside-Mansell, Pope, & Bradley, 1996). Given that caregivers play an integral role in young children's emotional development, and based on what we do not yet know, I investigated child, mother, and community-related factors that may help predict needs and preferences among a subset of caregivers in promoting preschoolers' emotional competence. By focusing my dissertation on perceptions of low-income, urban Head Start mothers, I addressed the following questions.

Research Questions

1. What are emotion-related behaviors, beliefs, and needs among low-income Head Start mothers?
2. Holding all else constant (potentially including child's gender, child's age, foster parent, number of children in the family, single- versus two-parent home, mother's age, mother's education level, mother's race/ethnicity), which child, maternal, and/or community-based variables may help predict whether mothers

are highly negative in expressiveness or low in positive expressiveness within the home?

3. Holding all else constant (see covariates in #2), which child, maternal and/or community-based variables may predict mothers who are not strongly supportive of the literature in how they perceive their role in early emotional development?
4. Holding all else constant (see covariates in #2), which child, maternal and/or community-based variables may predict status on not being highly receptive to professional, mother-focused support

Chapter 3: Research Methodology

To answer my research questions, I utilized a quantitative, cross-sectional design to collect self-report data from a group of low-income, urban, English speaking Head Start mothers in the first half of the school year. Recruiting participants in person at an orientation meeting and during dismissal resulted in a convenience sample of 114 mothers (out of roughly 240 mothers at the Head Start site). During one-on-one meetings at the Head Start site, participants responded to ratings across four measures: *Perceived Role and Receptivity to Support Scale* with an added demographic section (pretested and devised for this study), *Parenting Stress Scale* (Berry & Jones, 1995), *Early Childhood Behavior Problem Screening Scale* (Epstein & Nelson, 2006), and the *Self-Expressiveness in the Family Questionnaire* (Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995). I first pretested my devised questionnaire by conducting a focus group and obtaining feedback from expert reviewers and cognitive interviewees. I then collected self-report data from Head Start mothers of preschool children (primarily ages three and four) using an interviewer-administered format.

Participants and Sites

I recruited urban mothers of preschoolers who were low in socio-economic status (SES) and fluent in English (given my limited proficiency in other languages). Given that the majority of early childrearing responsibilities rest with mothers in most families (Gilliom et al., 2002), this investigation focused on maternal self-report.

Pretesting. To pretest my devised Perceived Role and Receptivity to Support Scale (see Appendix D1), I obtained input from expert reviewers (n = 8; six faculty members and two doctoral candidates; see *Procedures*), and I conducted a focus group (n

= 7; approximately 1-hour) and one-on-one cognitive interviews (n = 8; ranging from 10- to 90-minutes) with mothers closely representative of the target population. These mothers were urban and English speaking with primarily low-income status (as reported by a Family Support Worker, who recruited volunteers). They ranged in education level (i.e., 10th grade to college), marital status, race (i.e., mainly Hispanic and African American) and age. They resided in a Northeastern state and each had a child between the ages of 3-5 enrolled at a center-based program for children with varying special needs. Only mothers of preschoolers with mild delays, however, volunteered (since those with significant disabilities would be unlikely to attend the site of the actual study). Although I previously worked at this site for several years, I had not met any of the volunteers prior to pretesting.

Actual study. Participants in the actual study (n = 114; out of approximately 240 mothers at the Head Start site) were of low-income status (as defined by Head Start eligibility requirements; a few participants may have been above the poverty line since a certain percentage of slots are open to such families, but this information was not disclosed). They resided in an urban region of a mid-Atlantic state (different from that of the pretesting site) and had preschool-aged children [predominately ages three and four, with 3 additional children turning five in the weeks or months preceding data collection] attending the center-based Head Start program for 1-2 months prior to data collection. [Note: To provide teachers with time to familiarize themselves with the children, identify behavior-related concerns, and potentially offer outreach to participating mothers, I requested that this study take place at least one-month into the school year (i.e., perhaps having worked directly with the children for 1-2 months, depending on when each mother

was interviewed).] This Head Start program (selected based on my committee chair's recommendation) was comprised of roughly 240 families, with 14 classrooms dispersed across eight sites (all within a 6 mile radius). Participants spoke English, had access to a phone (to set up, confirm and/or reschedule a meeting), were able to travel to the preschool site during school hours on a weekday (within walking distance from their homes) or on certain weekend mornings (within driving distance for some participants), and were willing to attend one structured interview (ranging from 35- to 60-minutes) to complete interviewer-administered questionnaires. Mothers did not need to be concerned about their child's emotions or behavior in order to participate. (See Section I of Chapter 4 for a more detailed description of participants.) In fall 2009, I recruited mothers (across one month of recruitment; see *Procedures*) and served as sole interviewer for this study (over two months of data collection, 4-6 days per week).

With regard to unique characteristics of Head Start, this program offers early childhood instruction and a range of services to low-income families. Head Start is funded by the federal government and was established during President Johnson's *war on poverty*; it has served more than 23 million low-income preschool children and their families since its inception in 1965 (Administration for Children, Youth and Families [ACYF], 2006). As highlighted by Mallory and Goldsmith (1991), Head Start staff and parents receive federally funded training and technical assistance, and Head Start families obtain comprehensive access to healthcare and social services. Service providers also encourage and facilitate parent involvement (i.e., a federally mandated expectation aided by teaching staff and tracked by a Parent Involvement Coordinator). Mothers, for example, may become involved by doing such things as volunteering in a classroom,

attending parent education classes, serving as a member of their Head Start policy council, or enrolling in job training programs. Mallory and Goldsmith further explained that Head Start strives to meet the individual needs of each family.

Procedures

Pretesting. To assess the content validity of my designed parent questionnaire, I sought feedback from five expert reviewers (i.e., four professors from University of Maryland and one professor from New York University) from the fields of Human Development and Special Education. One committee member offered suggestions to enhance the quality and appropriateness of the Content Validity protocol questions prior to having them disseminated to expert reviewers. After obtaining IRB approval, these individuals received an electronic copy of the consent form (“information sheet”), and a combined copy of the devised questionnaire and Content Validity Protocol (i.e., comprised of content-related questions pertaining to each of the four sections of the scale; see Appendix C1).

Further, I received input from three additional expert reviewers from the University of Maryland based on a devised Survey Design Protocol. This Protocol was comprised of survey-related questions aligned with the four sections of the scale (e.g., regarding such considerations as time frames, response options, skip patterns, show cards; see Appendix C2). The individuals reviewing this particular protocol included a Survey Methodology Professor, a doctoral candidate in Survey Methodology who served as a Teaching Assistant in a Survey Design course, as well as a doctoral candidate who had completed a Survey Design course and was a parent of preschool-aged children with and without diagnosed special needs.

With regard to Content Validity, expert reviewers verified the helpfulness or unhelpfulness of a given maternal action (in section I) and agreed that no additional items were warranted to assess each subsection of my measure (i.e., each section appeared to measure what it was intended to measure). Overall, reviewers suggested the questionnaire flowed in a logical order and would yield useful information; one of the main concerns was that I might encounter problems with trying to fit the interview into a limited time span. Based on their feedback, I omitted and revised numerous questions, clarified time frames, added a Parenting Stress measure with established psychometric data (in lieu of stress-related items initially devised), altered problematic wording and response options, modified show cards, and formulated pre-planned questions or probes for parent volunteers in the pretesting site based on reviewers' suspected concerns (i.e., to assess if representative parents would share similar concerns).

As part of pretesting, I arranged a focus group and cognitive interviews with the aforementioned representative group of parents to explore the topic/concepts being posed and to conduct a question-by-question critique. After obtaining permission from the director, the pretesting site's Family Support Worker invited parent volunteers to participate. The focus group and most of the cognitive interviews took place at the pretesting site during a two-day visit (with two cognitive interviews occurring via phone in succeeding weeks). I took notes on participants' responses to specific questions (see Appendix C3). Five of these mothers then agreed to arrange times to meet with me one-on-one; two additional mothers were unable to attend the focus group but requested to take part in cognitive interviews via phone. For the cognitive interviews, I asked respondents to provide a question-by-question evaluation; the length of each interview

varied based on their availability. I posed pre-selected and spontaneous probing and debriefing questions (see Appendix C4) to assess whether each item contained concise and familiar wording, whether mothers deemed any item as too personal to answer face-to-face, if response options were sufficient, and whether respondents had a consistent understanding of what I was asking them. None of these volunteers participated in the actual study or had responses included in the final data analysis. Each volunteer also provided ecological validity by strongly supporting this line of questioning to assess behavior-related needs of diverse families.

Overall, this pretesting process (i.e., including feedback from expert reviewers, a focus group, and cognitive interviews) shed light on extraneous questions and helped generate modifications to promote use of clarifying examples or probes, parent-friendly language, and concise but developmentally appropriate information.

Contacting the Head Start site for the actual study. I met with the director of the Head Start program to introduce my study and discuss participant eligibility and procedures. Following IRB approval, I submitted forms to the Head Start director highlighting what we discussed during our meeting. Further, I requested the director's feedback to verify the appropriateness of my speech for the Orientation Meetings (see Appendix E1), letter to parents (see Appendix E2), and incentive packet on behavior (see Appendix E3).

Recruiting families for actual study. Initially, I had requested access to a phone listing of all Head Start families (grouped by site; excluding mothers who did not speak English, children not raised by mothers, or children with severe disabilities) but the director expressed concerns regarding confidentiality. Instead, the director invited me to

attend three mandatory parent orientation meetings at the beginning of the school year to become acquainted with Head Start families and introduce my study. During three half-day sessions, I spoke to each group for approximately five minutes. See Appendix E1 for this Orientation speech (which the director approved in advance; the director requested that I say “*project*” rather than “study”). In response, 40 mothers expressed interest in participating at the conclusion of the orientation sessions and provided contact information (name, number, name of building their child attends) so they could be contacted to schedule a meeting time.

As another way of not catching parents off guard during dismissal, I asked the director to place my introductory letter on Head Start’s letterhead with her signature, and send it home with each child (to describe the study’s purpose, information on incentives, and my possible presence during dismissal over subsequent weeks); see Appendix E2. Due to extraneous circumstances, the director did not disseminate the letter until three weeks into data collection; approximately four parents approached or contacted me after receiving it.

After children had been attending school for at least one week, I began visiting each site at dismissal to recruit mothers. Recruitment per site ranged from 1-3 days depending on staff recommendations, for a total of 13 days of recruitment. Numerous mothers recognized me from the orientation sessions and I offered a brief explanation of my study to those who did not attend. I asked fathers and grandmothers who picked up children at dismissal if I could contact the child’s mother if they thought she might be interested. As done at orientation, those who expressed interest provided me with contact information.

Tracking response rates. I asked families who expressed interest in participating to place the mother's name, child's name, phone number and name of building her child attended on my lined notepad. I then assigned a number to each mother. For the mothers on this list (n = 175 out of roughly 240 families suspected to be attending the Head Start site), I maintained ongoing records of the preferred time to reach them, whether I had left a message or tried calling previously, the date/time of arranged meetings, and whether parents attended these meetings. I made reminder phone calls within 1-3 days of each scheduled meeting time and the morning of the scheduled date in most cases. Although the director permitted me to contact parents from a telephone at the Head Start site (using this local number to contact or confirm appointments with roughly 20 families), most participants willingly arranged meeting times with me via my personal phone number.

Although some parents agreed to a meeting time when signing up to participate, I arranged most meeting times via phone. In such cases, I attempted to contact moms up to four times, and left one or two voice messages for some mothers before making contact. Education coordinators or family support workers at the school helped in obtaining updated contact information for interested mothers who had a disconnected number or a number not receiving incoming calls. If a parent agreed to participate when contacted in person or via phone, but did not arrive at the pre-determined meeting time, I made up to two phone calls to that parent within a week of the missed appointment to reschedule (in an effort to improve response rates; Huck, 2008). However, parents who failed to attend two scheduled meeting times, without contacting me or responding to a final phone call, were no longer contacted to participate. Ultimately, 61 mothers from the initial sign-up

sheet did not participate in this study (i.e., 13 mothers could not be reached; 7 mothers no longer wished to participate when contacted; 5 mothers left the Head Start program before a meeting time could be arranged; 28 mothers could not be contacted after failing to attend the first scheduled meeting; 8 mothers were no longer contacted after failing to arrive at two scheduled meeting times). I offered three separate weekend dates to mothers (held at the main office's site); of 20 scheduled weekend meetings, only 5 mothers attended. Of the 115 individuals who met with me, I excluded one interviewee from the analysis (unintentionally interviewing a child's grandmother); I analyzed the resultant sample size of 114 mothers.

Sample size determination. I conducted several a priori power analyses to ascertain the required sample size (i.e., to detect potentially significant findings). One analysis suggested I would need a sample size of 149 subjects to detect significant findings that account for measurement error and a sample of 95 subjects to detect significant findings that do not account for measurement error. However, it appears that a sample size determination program that neatly aligns with my current needs does not exist for logistic regression (Dr. J. Harring, personal communication, February 10, 2009). In speaking with committee members about the lack of an accurate sample size determination package for logistic regression, they recommended that I collect data from a minimum of 80 subjects; this coincides with the general rule that there should be at least 10 subjects for every one predictor. For the initially anticipated 10-12 variables I planned to assess in each of the four models (which would include only significant covariates), this would mean that 100-120 subjects would be needed (to prevent substantial sampling error). As I described earlier in this chapter, I recruited 175 mothers

(61 of whom were not able to meet) and I ultimately obtained complete, non-missing data from 114 participants (out of roughly 240 mothers; exact numbers were not disclosed).

Data collection. During scheduled meeting times, I met participants individually at a pre-determined location inside their child's school building. After each mother signed the consent form, I then proceeded with recording responses for each of the interviewer-administered measures (Appendix D1-D4). During each interview, participants referred to eight show cards (see Appendix D6) to aid in recall of response options. I presented measures in the same order for each participant, to move potentially emotional questions on children's behavior and the parent's personal information towards the end of the interview. In addition, I administered the expressiveness measure at the end in case interviews ran too long and I would have to omit it from this analysis. All participants, however, willingly stayed to answer every item and many said they would have answered additional questions. At the end of each interview, I thanked them for participating, invited them to share views related to the questions that I posed, and provided them with incentives. With the exception of one participant (who verbally requested a follow-up phone call), I did not contact participants again after completing the measures and receiving incentives.

Incentives for mothers. At the conclusion of these one-time interviews, each participant received a packet of parent-friendly information highlighting varying aspects of emotional development, strategies to address emotional and/or behavioral concerns, and a list of resources to contact for relevant support or resources (see Appendix E); I sought to address the ethical dilemma of ensuring families were not left without some type of support. Families also received \$10 (*Note*: committee members and the Head

Start director suggested I offer the monetary incentive in cash. However, the family support worker at the pretesting site felt her families would be insulted if offered cash and instead requested that volunteers receive a \$10 metro card.)

Incentives for directors. The director of each participating program received an incentive for welcoming me into their schools and allowing me to use available space (in which to conduct the pretesting focus groups/cognitive interviews for the pretesting site as well as contact, recruit and conduct interviews for the actual study site). Both directors received a copy of the incentive packet for staff members to share user-friendly advice with future families. Moreover, the directors received a list of recommended emotion-related picture books to consider adding to their collection and, if funds permit for the full study, each classroom received an emotion regulation picture book to share with students. Furthermore, I offered to conduct a parent information session or workshop for the Head Start program in the full study (to openly discuss and personalize information shared in the written packet for interested families).

Determining Mode of Administration

In choosing from among an in-person or phone-administered mode (the latter of which was used in the NEILS data collection), both approaches circumvent possible literacy concerns. With regard to asking items via phone, this might result in parents being more willing to respond honestly about their parenting practices and desire for specific kinds of supports, without being influenced by the interviewer's appearance (e.g., age, race, or ethnicity). For instance, perhaps if the interviewer is relatively young, does not appear to be married or have children, or is a different race/ethnicity than the respondent, some parents may respond in a way they think the interviewer wants to hear

rather than disclosing what they actually do or believe. In support of this concern, Smith (2004) explained that respondent and interviewer attributes such as race/ethnicity, age, social class, and gender may influence the prevalence of socially desirable responses. However, there is a chance that requesting answers over the phone may enhance perceptions that this topic is a private or sensitive matter, with possibly high item non-response rates or socially desirable responses. Tourangeau and Yan (2007) noted that a self-administered mode may generate more accurate report of socially undesirable behavior. DeLeeuw et al. (2004) added that a more private method may be more reliable (i.e., with regard to accuracy of responses and decreased item non-response). In weighing the options, though, the existing literature indicates that both literacy rates and participation/retention rates are generally lower for low-income participants. Especially given the length of each interview and anticipated benefit of participants using show cards (see below), I opted to interview mothers in person (as did Kimonis et al., 2006) to reach these purportedly hard-to-reach families. Acknowledging the possibility of socially desirable responses, I incorporated recommended strategies to proactively attempt to offset this concern (e.g., having items in the first section ask about parents in general, using permissive statements for why parents may behave in a certain manner, emphasizing the confidential nature of responses; Dr. Kreuter, Survey Methodology Course, spring 2008).

Measures

I administered the following measures to each participant during one pre-arranged 35-60 minute meeting at the Head Start site (with variable interview lengths due to some parents elaborating on questions and responses). The order of presentation was

consistent across participants. Given the potentially emotionally-heated subject matter, items on parenting stress and the child's internalizing or externalizing behaviors came towards the end of the interview, followed by demographic questions. Although the expressiveness measure was not thought to be emotion laden, my committee chair and I agreed the potentially lengthy administration time warranted having it positioned as the final set of ratings, whereby the expressiveness outcome variable could be omitted if the interviewing process exceeded availability among a large number of mothers. As stated above, all participants completed this measure.

Perceived role and receptivity to support scale (PRRSS) (see Appendix D1). Section I focused on better understanding how mothers perceive their role in emotional competence and appropriate displays of behavior (i.e., one of the outcome variables). I incorporated findings from the preceding literature review (see Appendix B3) and feedback from expert reviewers of the Content Validity protocol in creating the Perceived Role items. Section II assessed mothers' past/existing community outreach efforts (i.e., to receive emotional and/or strategy-specific supports from teachers, therapists, doctors, friends, family, religious organizations, the internet, books, and so on at the level of the meso-system) and helpfulness of these supports, which served as potential explanatory variables in the subsequent logistic regression analyses. These items stemmed from an apparent dearth of a quantitative measure that both sufficiently isolates the type of individuals sought for support, operationally defines whether *support* refers to emotionally-based comfort (e.g., permitting the mother to vent, offering to provide financial or childcare support that does not specifically address behavioral concerns) or strategy-specific advice (e.g., 'You should react in this way...')] or examines the

perceived utility of such support. Section III of this questionnaire investigated mothers' receptivity to receiving professional parent-focused support at the level of the meso-system (i.e., one of the outcome variables). Examples of items in this section included selecting from avenues by which to receive support, identifying level of willingness to modify behavior and parenting views, and rating concerns if the child's behavior persists. Again, I incorporated findings from the preceding literature review (e.g., the type of interventions previously offered to parents), the guiding theoretical framework, and feedback from expert reviewers in devising these items.

I also created a demographic section (labeled in Appendix D1 as Section IV of the devised Perceived Role and Receptivity to Support Scale). I collected maternal self-report data on children's delay status (i.e., whether the Head Start child had a diagnosed delay and whether any child in the home had received services for a diagnosed delay; potential explanatory variables) as well as a menu of possible covariates to illuminate whether significant within-group differences existed during the post-hoc analysis [i.e., child's age and gender (e.g., Dunsmore & Karn, 2001; Rodriguez et al., 2005), single parent status and age of mother (e.g., Lovering et al., 2006), race/ethnicity (to ascertain if diverse cultural groups have significantly distinct self-reported attitudes/perceptions pertaining to the three outcome variables; Santos & McCollum, 2007), number of children in the home, whether the participant was raising a foster child (since pretesting revealed that such families receive prolonged training and support), and mother's highest education level (Domitrovich et al., 2007)]. {Note: In previous studies, parental education level has at times been used as an indicator of the family's socio-economic status because

it has been reported to be more highly linked to child outcomes than parent's self-reported income or type of employment (Bouchard & Segal, 1985; NICHD, 2002).}

In order to establish psychometric estimates for this devised measure (namely sections I-III), pretesting took place prior to conducting the actual study. In addition to finding support for ecological validity based on feedback from parent volunteers, content validity (using the protocol noted above) was established (for the Perceived Role Scale) a priori by expert reviewers. Although considered, committee members believed that assessing internal consistency of the sub-scales (e.g., perceived role in development) would not make sense given the nature of the items (Dr. D. H. Cooper, personal correspondence, February 19, 2009). Test-retest reliability and validity estimates need to be assessed in future analyses.

Scoring of the PRRSS. Scoring of this measure is as follows:

Section I: Perceived Role in Development (an outcome variable): Responses to items 2-13 were compared to a separate coding sheet, with a '+' placed next to those responses that corresponded with what has been supported in the literature and verified by expert reviewers (regarding if each parental act would be deemed very unhelpful or very helpful for the child); I assigned a '-' to responses that did not correspond with the literature. I summed all '+' responses (higher scores = more aware of one's role). A median split of scores resulted in categorizing mothers as "highly aware of their role in emotional development" (i.e., views being strongly in support of the literature) or "not highly aware of their role" (i.e., not being strongly supportive of the literature). (Note: I initially considered assigning a '+' for all 'somewhat' helpful/unhelpful responses that were in support of the literature; although the 'somewhat' option is beneficial in terms of

adding increased variance and helping to address social desirability, I felt that solely counting the ‘very’ helpful/unhelpful responses would more accurately capture the importance mothers place on engaging in each act.) (Note: qualitative information from item 14 offered useful insights on where participants see their role in relation to the role of teachers.)

Section II: Past/Existing Parent-Focused Support (an explanatory variable): I explored responses to items 15-39 [with a table included in my data analysis of all applicable community options, the percentage of options sought by mothers, level of perceived helpfulness, and whether parents felt the support from each was mostly strategy-specific, emotional-based, or a combination of both]: (a) All ‘yes’ responses (from items 15, 18, 21, 24, 27, 30, *33*, and 34a-34h) were counted, showing the number of avenues sought to obtain support or advice from others. If the parent sought support from at least one of these 15 external sources, parent-initiated support was labeled as “yes” (using the coding assigned in the data analysis section). (b) Of these ‘yes’ responses (from a), I assessed perceived helpfulness from how others responded to this attempt for support by counting the number of “very helpful” responses (from items 16, 19, 22, 25, 28, 31, and 35) (those with at least one ‘very helpful’ response were dummy coded as such in the data analysis). (c) Of the ‘yes’ responses (from a), actual type of support (from items 17, 20, 23, 26, 29, 32) offered by these community members were tabulated both individually and aggregated across participants. (d) For perceived *Head Start staff-initiated outreach* (item 38) I counted the number of ‘yes’ responses and separately coded each item.

Section III: Receptivity to professional parent-focused intervention (an outcome variable): I explored items in section III individually and across individuals to offer informative insights. Item #41 shed light on whether misbehavior is perceived as improving with age or only with direct adult scaffolding (assessed as a possible explanatory variable); item #42 offered insights as to reasons why mothers might be *highly concerned* (score of 4 or 5) if the child's behavior was not improving; mothers' response to item #43 showed initial receptivity ("definitely interested, somewhat interested, or definitely uninterested") to additional parent-focused support to enhance existing efforts; item #44 revealed which of the suggested types of support would be well-received by the sample (*what parents may say 'yes' to if they could have a tailored intervention that meets their unique needs*); item #45 highlighted which option they would most prefer; the last two items in this section noted willingness to change both their own behavior and their parenting views if guided by a parent educator to do so. For the current analysis, I was interested in knowing who would not be highly receptive to parent-focused behavioral support if such an option were available. I intended to rely solely on item #43 in deciphering this question, but initial data analysis revealed that 53% of the sample (n = 60) fit in the 'somewhat receptive' category. Further analysis (based on voluntary quotes and answers to other questions in this section) revealed a distinction between those who in fact were not interested (perhaps influenced by social desirability) and those who were clearly receptive to more support but hesitated because of logistical considerations (e.g., location, information covered). To more accurately capture participants' level of receptivity, I used an extended scale (the reliability of which must be assessed in future analyses) in the final analysis:

Interest (highly interested, 2 pts.; somewhat interested, 1 pt.) +
Willingness to change behavior (highly willing, 2 pts.; somewhat willing, 1 pt.) +
Willingness to change views (highly willing, 2 pts.; somewhat willing, 1 pt.) +
Avenues of support (1 pt. for each of the 6 avenues given a 'yes' response) =
a score of 0-12.

A median split resulted in the following categorization: *Above the median = highly receptive to additional support (coded as '0');* *below the median = not highly receptive (coded as '1')* (Note: This extended scale resulted in the original 60 'somewhat receptive' participants divided into two more accurate groupings: 33 highly receptive; 27 not highly receptive. Of the original 39 mothers who were 'highly receptive' in item #43, 5 of them fell in the not highly receptive category when using this extended scale; all 15 participants who reported not being interested in item #43 remained in the not highly receptive category.)

Section IV: Demographic Questions (to assess the explanatory variable of delay status and specialized supports for any children as well as potential covariates): The first item in this section was intended to assess whether participants' children had a diagnosed delay; a 'yes' response was tabulated in SPSS using the coding scheme described in the next section. I included each response from this section (including the two items on child's gender and age asked at the beginning of the interview) in a SPSS spreadsheet (e.g., child's gender, child's age, number of children in the family, whether any child in the family had received services for special needs, whether parent received behavioral support for any other children in the family, foster parent status, single versus two parent home, mother's age, mother's education level, mother's race/ethnicity).

Parenting stress scale (PSS; Berry & Jones, 1995; see Appendix D2). This measure assessed perceived parenting stress among participants (in lieu of stress items I had initially devised during pretesting). It is comprised of 18-items, with mothers asked to rate perceptions on parenting using a five-point Likert scale (i.e., strongly disagree, disagree, undecided, agree, strongly agree). It includes positive and negative components of parenting. Although designed as a self-report scale, I read each item to Head Start participants as part of the interviewer-administered format. In terms of psychometric data, the authors reported good internal reliability (0.83) and test-retest reliability (0.81) estimates. Convergent validity was also reported with certain measures of stress (i.e., perceived stress, work/family stress), emotion (i.e., loneliness, anxiety, guilt), and role satisfaction (i.e., marital and job satisfaction, social support). The PSS can reportedly discriminate between parents of children who are typically developing and parents of children with developmental and behavioral difficulties.

Scoring the PSS. To score this measure, I followed the author's instruction to reverse score the eight positive items and then sum all 18 items (ranging from a score of 18-90); higher scores would indicate higher parenting stress. (To the best of my knowledge, the authors provided no specific criteria for high versus low parenting stress.) In the current sample, scores ranged from 21-63 (M = 38.25, SD = 8.28). A median split resulted in the following groupings:

Above median = High stress group (n = 56; 49.12%)

Below the median (37 or less) = Low stress group (n = 58; 50.88%)

Early childhood behavior problem screening scale (ECBPSS; Epstein & Nelson, 2006; see Appendix D3). Similar to the approach used by Kerr, Lunkenheimer,

and Olson (2007), mothers completed this measure to provide information on the type of behavior, if any, exhibited by the child over the last two months (i.e., none, internalizing, externalizing or mixed) (with this variable serving as a possible categorical predictor). Rather than asking an open-ended question about any potential behavioral concerns, I used a standardized set of ratings to describe a range of possible behaviors that respondents may not otherwise consider at that specific moment. Griffith, Nelson, Epstein, and Pederson (2008) have advocated that the ECBPSS is a time-efficient instrument with universal appeal. This scale, with only 12 items, took relatively little time to administer. It is rooted in the literature, has a parent and teacher version, adequate to good internal consistency (i.e., for the parent version: 0.45 to 0.85 on the Internalizing scale; 0.63-0.70 on the Externalizing scale; 0.95 for the overall scale), as well as good convergent validity with the parent and teacher versions of the well-known Child Behavior Checklist (CBCL; Achenbach, 1997) (i.e., for the parent version: 0.72 between the Internalizing subscales; 0.79 between the Externalizing subscales; 0.86 between the Total Problem scales; $ps < 0.01$). As does the CBCL, the ECBPSS also examines both internalizing and externalizing behaviors.

Scoring the ECBPSS. With regard to scoring, Griffith et al. (2008, p. 284) explained that “for each item, the rater is asked to consider the child’s behavior and then rate the child on a scale that ranges from 0 (*not at all like the child*) to 3 (*very much like the child*). The higher a child’s score on the measure, the greater his or her risk for developing problem behaviors”. However, for the purposes of the current investigation, it made sense to convert the ordinal scale into a categorical scale. I used participants’ responses to classify the perceived

type of behavior exhibited by the target Head Start child over the past two months (i.e., solely internalizing, solely externalizing, a mix of internalizing and externalizing, or no concerning behavior during this time). To target heightened, maladaptive concerns, I decided a priori that only ratings of 3 ('very much like my child') counted towards a behavioral concern.

Self-expressiveness in the family questionnaire (SEFQ; Halberstadt, Cassidy, Stifter, Parke & Fox, 1995). This measure identified participants' primary emotional expressiveness with family members in the home environment. Using a 9-point Likert scale (ranging from Not At All to Very Frequently; presented on a Show Card devised for the current study), participants rated the frequency of their own emotional displays within the family (e.g., "spontaneously hugging a family member; putting down other people's interests"). The SEFQ can be divided into four subscales (positive dominant, positive submissive, negative dominant and negative submissive) but I followed the reported tendency to use the Positive and Negative overall scales. An affective balanced score used by some authors (e.g., subtracting the negative dominant scale from the positive scale (Dr. C. Valiente, Personal Correspondence, October 30, 2009) was not preferred by this measure's developer (Dr. A. Halberstadt, Personal Correspondence, December 16, 2009). According to Denham (2005), authors increasingly use the SEFQ in developmental studies, with subscales showing good internal consistency (ranging from 0.82-0.95) and significant *p*-values for one-year test-retest reliabilities (ranging from 0.38-0.53). The authors also acknowledge evidence of convergent and discriminant validity, with suspected construct validity as well. Dunsmore and Karn (2001), who similarly assessed mothers' emotion-related beliefs in the preceding literature review,

also used the SEFQ. Although Dunsmore and Karn used the SEFQ with middle to high SES families, authors have established validity and reliability estimates with low-income samples (Garner et al., 1994). Moreover, this measure reportedly has a moderate association with ratings of parents' emotional expression during laboratory observations (Halberstadt et al., 1995).

Scoring the SEFQ. I used median splits (Fabes, 2002) to group responses under two possible sets of categories: high positive or low positive in expressiveness and high negative or low negative in expressiveness. As per the recommendation of the scale developer, I separately explored the positive and negative subscales. I tabulated mean scores since each subscale is comprised of a different number of items (Dr. A. Halberstadt, personal communication, December 16, 2009).

Data Analysis

Outcome variables. In this investigation, I explored participants' status on three main dependent variables: (1) emotional expressiveness, (2) perceived role in emotional development, and (3) receptivity to external parent-focused support.

With regard to the first outcome variable (i.e., maternal expressiveness), Dunsmore and Karn (2001) found that parents' emotional expression is distinct from parents' emotion-based beliefs in influencing a child's development. I used binary logistic regression to assess this variable in the current sample (i.e., separately assessing high versus low positive expressiveness and high versus low negative expressiveness; since the scales are not necessarily bipolar, being highly positive may not correlate with low negativity; exploring how factors correlate with each scale separately and the

interrelatedness of the scales is recommended; Dr. A. Halberstadt, personal correspondence, December 2009).

For the second outcome variable (i.e., understanding of one's contributing role), this variable was comprised of two classes: highly aware of their role or not highly aware of their role. Groupings were contingent on whether responses were in support of what the existing literature conveys as being very helpful or very unhelpful for parents to do (with regard to a child's emotional competence). I utilized binomial logistic regression to assess factors that may affect one's standing on this categorical variable.

The third outcome variable (i.e., receptivity to receiving professional, parent-focused support) consisted of two classes: highly receptive or not highly receptive. I assessed this dichotomous outcome variable using binomial logistic regression.

Explanatory variables. Although there are no experimentally manipulated independent variables in the current analysis, I assessed several factors to ascertain the odds ratio of separately predicting each of the three dependent variables. These factors included whether the preschool child had a diagnosed delay, if any child in family received specialized services, type and frequency of child behavior, anticipated improvement with age or only with adult support, parenting stress, mothers' extent of behavior-related community outreach, whether mothers sought behavior advice from professional contacts, helpfulness of support, and Head Start staff-initiated outreach.

Descriptive statistics. I first looked at the mean, standard deviation and range of the demographic and contextual information to understand the nature of my existing sample. In terms of covariates (see p. 93), I allowed for a menu of potential post-hoc analyses based on the resultant nature of the pool of subjects (Dr. D. H. Cooper, personal

correspondence, January 19, 2009) and only included significant factors ($p < 0.05$) as covariates in subsequent analyses.

Binomial logistic regression analyses. Given that each outcome variable was dichotomous in nature, this warranted use of one of the generalized linear models known as logistic regression. This test requires testing one dependent variable at a time. The four logistic analyses are intended to create models to classify individuals and depict predicted probabilities of this sample of mothers being (1) high in negative expressiveness, (2) low in positive expressiveness, (3) not highly aware of their role in development based on all Perceived Role items and (4) not highly receptive to professional, mother-focused support. These analyses will help generate the most parsimonious models to explain whether the array of explanatory variables “do a greater-than-chance job of accounting for the status of people” on each of the outcome variables (Huck, 2008, p. 437). I will discuss findings in terms of the odds and probability, both of which are non-linear functions of the predictors (Pedhazur, 1997).

In order to increase the interpretability of effects, I did not use a nominal scheme. Rather, for categorical variables with more than two levels, I used a general coding scheme. The potential explanatory variables for each outcome variable included: child’s delay status (0 = no delay; 1 = diagnosed delay) (x_1), specialized supports for any child in family (0 = no; 1 = yes) (x_2), frequency of behavior (0 = monthly; 1 = weekly) (x_3), type of behavior (x_4, x_5, x_6), anticipated improvement of current behaviors (0 = needs adult guidance to improve; 1 = behaviors will improve with age) (x_7), perceived stress level (0=low parenting stress; 1=high parenting stress) (x_8), professional versus non-professional outreach (0 = no professionals sought; 1 = at least one professional contact

sought) (x_9)*, quantity of outreach sought (0 = less than median; 1 = more than median) (x_{10})*, perceived helpfulness of outreach (0 = no ‘very helpful’ supports; 1 = at least one community member deemed ‘very helpful’) (x_{11}), and Head Start staff-initiated behavior outreach to parents (0 = no; 1 = yes) (x_{12}). [Note: *These two variables were included during data analysis, replacing whether mothers have sought parent-focused behavior support in the past 12-months; this initial variable had insufficient sample variance.]

The type of prolonged behavior reportedly exhibited by participants’ preschool child in the preceding two months was comprised of 4 classes: none, internalizing, externalizing, and a mix of both internalizing and externalizing behaviors. In the data analysis, I compared each of the first three categories to the arguably most concerning behavior category (i.e., mothers of preschoolers with both internalizing and externalizing behaviors was the referent group).

Since testing too many predictors in logistic regression analyses is discouraged, covariates were only included in each model if statistically significant. As explained by Huck (2008, p. 430), “such variables are included in a logistic regression so the researcher can assess the ‘pure’ relationship between the remaining independent variable(s) and the dependent variable”. These may possibly include: mother’s age (x_{13}), mother’s education level (high school as referent group, compared to post-high-school degree and pre-high-school) (x_{14} , x_{15}), number of parents at home (0=single-parent home; 1=two-parent home) (x_{16}), mother’s race (African American as referent group compared to Caucasian and Other) (x_{17} , x_{18}), being a foster parent (x_{19}), child’s gender (0=male; 1=female) (x_{20}), child’s age (3 as referent group compared to ages 4 and 5)

(x_{21}, x_{22}) , number of children in the family (x_{23}), or behavior supports for non-Head Start children in family (x_{24}).

Chapter Four: Results

As noted in the preceding chapters, I investigated factors that may influence maternal needs and perceptions regarding the development of preschoolers' adaptive behavior and emotional competence. In this chapter, I use maternal self-report data ($n = 114$) to offer a within-group comparison of emotion-related behaviors, beliefs, and needs. I also ascertain whether significant covariates and pre-selected explanatory variables result in a greater than chance prediction of participants' status on maternal emotional expressiveness, perceived role in emotional development, and receptivity to external mother-focused support. I present results from this investigation in three sections. In the first section, I report descriptive findings on potential covariates and explanatory variables. In the second section, I explore mothers' emotion-related behaviors, beliefs and needs to answer research question one. In the third section, I identify which covariates significantly correlate with the outcome variables and include results from logistic regression analyses to answer research questions two-four.

Section I

In this section, I present descriptive data on potential covariates and suspected explanatory variables to understand the nature of the current sample.

Descriptive information on potential covariates. As presented in Table 1, I collected maternal self-report data on mother- and child-related demographic variables as possible covariates (only included in logistic regression analyses if linked to outcome variables; see Assessing Mean Differences in the third section).

Table 1
Descriptive Statistics on Possible Covariates

Variable	Category: Frequency	%
Mother's age	<u>19-25 years</u> : 38	33.33
	<u>26-30 years</u> : 37	32.46
	<u>31-35 years</u> : 25	21.93
	<u>36-40 years</u> : 9	7.89
	<u>Over 40</u> : 5	4.39
Mother's education level	<u>Post-High School</u> : 13	11.40
	<u>High School</u> : 72**	63.16
	<u>Pre-High School</u> : 29	25.44
Number of parents in home	<u>Single-Parent</u> : 43	37.72
	<u>Two-Parent</u> : 71	62.28
Mother's race	<u>African American</u> : 76**	66.67
	<u>Caucasian</u> : 30	26.32
	<u>Other</u> : 8	7.02
Foster child status	<u>Yes</u> : 6	5.26
	<u>No</u> : 108	94.74
Child's gender	<u>Boys</u> : 61	53.51
	<u>Girls</u> : 53	46.49
Child's age	<u>Age 3</u> : 64**	56.14
	<u>Age 4</u> : 47	41.23
	<u>Age 5</u> : 3	2.63
Number of children	<u>Only Child</u> : 31	27.19
	<u>2-4 Children</u> : 74	64.91
	<u>5+ Children</u> : 9	7.89
Behavior support for siblings	<u>Yes</u> : 52***	45.61
	<u>No</u> : 62	54.39

Note.

* Categories combined during data analysis;

** Referent group during data analysis;

*** Refers to mothers contacting at least one community member in the past 12 months to obtain behavior support for siblings of the Head Start child; I did not, however, obtain data on outreach efforts or type of support pertaining to non-Head Start children in this study.

Participants ranged in age (ages 19-49; $M = 29$ years; $SD = 5.95$), with 75 participants (65.79%) age 30 or younger and 39 participants (34.31%) age 31 or older. The decision to compare younger and older mothers was supported by previous research (e.g., Javo, Ronning, Heyerdahl, & Rudmin, 2004; Kelley, Power, & Wimbush, 1992). [I also compared mean differences using cut-offs for the midpoint (age 34), mean (age 29), and for more extreme age groups of 40 and 25.] In terms of education level, I compared high school graduates to both the 25.44% who dropped out of high school between grades 7-11 and the 11.40% who obtained an associates, college, or master's degree. The 'other' race category included 7.02% of participants who were either American Indian, Asian or biracial. Six mothers who identified themselves as foster parents acknowledged receiving additional parent education and support. In addition, this sample of mothers was predominately raising Head Start children in the three- or four-year-old age range, with only three children who turned five in the days or weeks prior to data collection. The number of children per family ranged from 1-10 ($M = 2.51$; $SD = 1.53$), with Table 1 indicating that most of participants' Head Start children had older and/or younger siblings. [Note that this data was solely based on maternal self-report; there was no post-hoc verification of whether the large percentage of two-parent homes, for example, was representative of the population in the Head Start site.]

Descriptive information on potential explanatory variables. The following data encompass descriptive information on pre-selected child, mother, and community variables (whose ability to predict status on the outcome variables I assess in Section III).

Table 2
Descriptive Statistics on Possible Explanatory Variables

Variable	Category: Frequency	%
Child delay status – Head Start child	<u>Diagnosed delay</u> : 20	17.54
	<u>No diagnosed delay</u> : 94	82.46
Child delay status – Any child in family	<u>Specialized supports</u> : 44	38.60
	<u>No services needed</u> : 70	61.40
Child Behavior – Frequency	<u>Everyday</u> : 23	20.18
	<u>4-6 Times/Wk</u> : 18	15.79
	<u>1-3 Times/Wk</u> : 34	29.82
	<u>Few Times/Mth</u> : 22	19.30
	<u>Once/Mth</u> : 9	7.89
	<u>Never</u> : 8	7.02
Child Behavior – Type (‘Very much like child’)	<u>Solely internalizing</u> : 27	23.68
	<u>Solely externalizing</u> : 11	9.65
	<u>Mixed (Int. + Ext.)</u> : 53**	46.49
	<u>None</u> : 23	20.18
Maternal – Anticipated Improvement	<u>Better with age</u> : 54***	47.37
	<u>Needs adult support</u> : 60	52.63
Maternal – Parenting Stress	<u>High stress</u> : 56	49.12
	<u>Low stress</u> : 58	50.88
Community – Mother-initiated outreach for behavior support	a) <u>Yes</u> : 110	96.49
	<u>No</u> : 4	3.51
	b) <u>Specific people</u> : 12	10.53
	<u>Indirect sources</u> : 5	4.39
	<u>Combination</u> : 93	81.58
	<u>None</u> : 4	3.51
	c) <u>Combination</u> : 60	52.63
	<u>Only professional</u> : 8	7.02
	<u>Only personal</u> : 37	32.46
	<u>None</u> : 9	7.89
d) <u>0-4 avenues</u> : 58	50.88	
	<u>5+ avenues</u> : 56	49.12
Community – Helpfulness	<u>1+ ‘very helpful’</u> : 77	67.54
	<u>None ‘very helpful’</u> : 37	32.46
Community – Head Start staff-initiated outreach to offer advice	<u>Yes</u> : 33	28.95
	<u>No</u> : 81	71.05

Note. For Mother-Initiated Outreach, a, b, & d are based on 15 (direct and indirect) choices whereas frequencies for c are based on 7 (direct) choices.

* Categories combined during data analysis;

** Referent group during data analysis

***Better with Age category includes those saying behavior will likely improve with age for all or certain behaviors and two mothers answering, ‘Don’t know’.

As highlighted in Table 2, I tabulated delay status of both the Head Start child and of any child in the family (suspecting that either might influence standing on the outcome variables). For the Head Start children, only 17.54% had a diagnosed delay and another 6.10% either had a suspected delay or were currently undergoing evaluation. A larger percentage of mothers (38.60%) had at least one child in the family receiving specialized services in the past year (i.e., not necessarily the Head Start child).

To quantify behavior-related information pertaining to the Head Start child, I obtained maternal report on the frequency with which inappropriate or frustrating behavior(s) occurred and type of behavior exhibited in the past two months. As shown in Table 2, a high percentage of mothers (65.79%) rated their preschooler as behaving in an inappropriate or frustrating manner on a daily or weekly basis, compared to 34.21% who reported no or relatively infrequent concerns. Of the list of behaviors presented to parents (see ECBPSS in Appendix D3), 46.49% of the sample identified a combination of internalizing and externalizing behaviors as ‘very much like my child’; a smaller percentage (22.68%) solely identified strong internalizing concerns, with an additional 9.65% solely reporting strong externalizing concerns. For all categories, parents might have identified behaviors as ‘somewhat like my child’; however, to target heightened concerns, I only tabulated ‘very much like my child’ responses in this analysis.

I also asked mothers to contemplate adults’ role in helping minimize preschoolers’ behavior concerns over time. Table 2 highlights how this sample is somewhat divided in whether mothers see their child’s behavior as likely improving with age (47.37%) or only getting better if adults provide the child with direct guidance (52.63%). Variability within this sample was also evident in terms of perceived

parenting stress levels. Participants' scores on the PSS (see *PSS Scoring*, Chapter 3) ranged from 21-63 ($M = 38.25$; $SD = 8.28$). Using a median split, I grouped participants into one of two categories: High Stress Group (score of 38 or more; 49.12%) and Low Stress Group (score of 37 or less; 50.88%).

With regard to community outreach, an overwhelming majority (96.49%) attempted to obtain behavior-related support or advice from at least one person or indirect source in their meso-system in the past 12 months. This could have included a member of religious or community-based organization, neighbor or friend, family, Health Care professionals, Head Start staff, non-Head Start teachers or therapists, television, parenting books, parenting magazines, bible, internet, parent workshop, parent support group, or other sources (see Tables 4 & 5 in Section II for a detailed breakdown of outreach efforts). Given that the lack of variance precluded assessing this variable as planned, I coded subsets of relevant data to determine if variability existed in outreach efforts. When I sorted avenues of support into direct person contact (e.g., directly asking doctors, family, etc.) and indirect contact (e.g., obtaining advice from books, television, internet, etc.), I again found low within-group variability; a rather high percentage ($n = 93$; 81.58%) initiated seeking behavior-related information from a combination of direct and indirect sources (compared to 10.53% solely seeking direct support from people and 4.39% solely perusing indirect sources). I was, however, able to sort direct contact with people into mothers initiating contact with professionals (i.e., health care professionals, Head Start staff, non-Head Start teachers or therapists) in the past 12 months and mothers not initiating contact with professionals (including those not initiating any support as well as those solely approaching personal contacts). As noted in the above table, 68 mothers

(59.65%) initiated sole or partial contact with established professionals in the community. In contrast, 46 mothers (40.35%) did not initiate contact with professionals to obtain behavior-related support or advice. In addition, participants ranged in seeking support from 0-11 avenues of support ($M = 4.58$, $SD = 2.49$, $Median = 4.00$); using a median split, 51% of the sample had initiated obtaining support or advice from 0-4 avenues (including direct and/or indirect sources) compared to 49% of the sample seeking 5 or more avenues of support. I assess the latter two community-related areas of within-group variance (c & d in Table 2) in the logistic regression analyses.

In addition to these other potential explanatory variables, I also quantified perceived helpfulness of community members (including professional and personal contacts but excluding indirect sources of support). As reported in Table 2, 37 mothers (32.46%) did not perceive any community member as very helpful in meeting their needs (with this number including those who did not initiate outreach). In contrast, more than half of participants (77; 67.54%) felt at least one person was very helpful (a rating of '1') in meeting their behavior-related needs when approached in the past year. More specifically, 58.77% of mothers reported one or two members as being very helpful in offering emotional and/or strategy-specific support, with only 8.77% of the sample acknowledging very helpful input from three or more community members. With regard to direct behavior-related outreach from others, 29% of participants acknowledged receiving advice from at least one Head Start staff member (either in verbal or written form) in the past 12 months on specific strategies or approaches to try with the child in the home (compared to 71% of the sample who recalled no such suggestions from staff).

[Note: These 10 child, maternal and community variables were assessed as potential predictors, or risk factors, in the logistic regression analyses in section III of this chapter.]

Section II

In this section, I present participants' self-report associated with their child's emotional development to address research question #1: What are emotion-related behaviors, beliefs, and needs among low-income Head Start mothers? The findings highlight a mix of uniformity (i.e., at least 80% agreement) and variability in participants' emotion-related behaviors and beliefs as well as variability in emotion-related needs.

Within-group comparison of emotion-related behaviors.

Uniform behaviors. This sample of Head Start mothers expressed consistency in a few outreach-related behaviors pertaining to their child's emotional development. To acquire behavior-related support or advice, most of this sample (96.49%) tried approaching at least one direct or indirect source in their mesosystem in the past 12 months. Further, the majority of mothers (81.58%) sought guidance from a combination of direct and indirect sources. The data suggest that, as a whole, this Head Start sample is mostly reaching out to family (75%) and friends (54%), followed by health care professionals (37%), Head Start staff (32%), members of a religious or community-based organization (14%), non-Head-Start teachers/therapists (14%), and other individuals (including strangers on the bus and work colleagues; 3.5%). Although my sample is predominately raising Head Start children without diagnosed delays ($n = 94$), I also split data based on delay status to determine if there was a distinct difference in outreach between these two groups. When splitting data based on delay status, Table 3 shows that mothers of preschoolers with delays consistently have a higher percentage of outreach

efforts for each direct avenue category. Nonetheless, Table 3 highlights that both groups of mothers approach different community avenues in the same order (i.e., first approaching family, followed by friends, and then doctors and Head Start staff). Aside from the discrepancy in percentages, the only difference in order is that more mothers of children with delays have received behavior support from non-Head Start teachers or therapists (compared to those not raising a child with diagnosed delays).

Table 3.
Comparing Behavior-Related Outreach among Head Start Mothers of Preschoolers with and without Diagnosed Delays

Mothers of Preschoolers with a Diagnosed Delay (n = 20)		Mothers of Preschoolers without a Delay (n = 94)	
%	Community Members Sought	%	Community Members Sought
80%	Family	73%	Family
60%	Neighbor or Friend	53%	Neighbor or Friend
55%	Health Care Professionals	33%	Health Care Professionals
55%	Head Start Staff	27%	Head Start Staff
30%	Non-Head Start Staff	12%	Religious Member
25%	Religious Member	11%	Non-Head Start Staff
5%	Other	3%	Other

Table 4 (see below) provides a more in-depth look at which individuals in the mesosystem are sought, the helpfulness of each community member, and the type of support received (i.e., emotional, strategy-specific, or both).

Table 4.

Direct Avenues of Support Sought by Mothers Regarding Preschool Child

Community Member Sought in Past Year	n(%)	%D	%N.D	nV.H.	n S.H.	nS.U.	nV.U.	^a
Health Care Professionals:								
• No	72(63.16)							
• Yes	42(36.84)	55%	33%	<u>16</u>	20	4	1	
○ Emotional Support	4(9.52)			2				
○ Strategy-Specific Advice	21(50.00)			8				
○ Combination	17(40.48)			6				
Member of Religious/Community Org.:								
• No	98(85.96)							
• Yes	16(14.04)	25%	12%	<u>11</u>	5	–	–	
○ Emotional Support	5(31.25)			4				
○ Strategy-Specific Advice	2(12.50)			1				
○ Combination	9(56.25)			6				
Neighbor or Friend:								
• No	52(45.61)							
• Yes	62(54.39)	60%	53%	<u>21</u>	35	4	2	
○ Emotional Support	19(30.65)			8				
○ Strategy-Specific Advice	15(24.19)			2				
○ Combination	28(45.16)			11				
Family Member:								
• No	29(25.44)							
• Yes	85(74.56)	80%	73%	<u>49</u>	28	5	2	
○ Emotional Support	15(17.65)			9				
○ Strategy-Specific Advice	17(20.00)			6				
○ Combination	53(62.35)			34				
Head Start Staff:								
• No	78(68.42)							
• Yes	36(31.58)	55%	27%	<u>25</u>	8	2	1	
○ Emotional Support	1(2.78)			0				
○ Strategy-Specific Advice	16(44.44)			10				
○ Combination	19(52.78)			15				
Non-Head-Start Staff:								
• No	98(85.96)							
• Yes	16(14.04)	30%	11%	<u>12</u>	3	1	–	
○ Emotional Support	0(0)			0				
○ Strategy-Specific Advice	9(56.25)			5				
○ Combination	7(43.75)			7				
Other People:								
• No	110(96.49)							
• Yes	4(3.51)	5%	3%	–	–	–	–	

Note: This outreach to community members was in reference to the specific Head Start child; 52 (46%) participants recalled having sought behavior support or advice from any of these community members for non-Head Start children in the past, but I did not obtain the same information related to preschoolers' siblings.

^a D = Raising Head Start Child with Diagnosed Delays (n = 20); N.D. = Raising Head Start Child without delays (n = 94); V.H. = Very Helpful; S.H. = Somewhat Helpful; S.U. = Somewhat Unhelpful; V.U. = Very Unhelpful

When breaking down support across personal and professional contacts, notably low percentages (ranging from 11-49%) were deemed ‘very helpful’ in meeting participants’ needs. I further categorized the very helpful responses by support type; although some parents found utility in receiving solely emotional support (e.g., from family) or solely strategy-specific advice (e.g., especially from doctors), Table 4 highlights how the majority of participants felt individuals offering a combination of both emotional and strategy-specific guidance best fit their needs.

Variability in behaviors. There was variability pertaining to various other behaviors reportedly displayed by this maternal subgroup that may influence their children’s emotional development. These behaviors include certain community outreach efforts and the extent to which mothers display positive and negative behaviors in the home. With regard to outreach efforts to obtain support, there was a discrepancy between those initiating at least partial contact with professionals (59.65%) and those opting not to contact professionals (40.35%). In looking at the extent of outreach, participants differed in whether they have contacted 0-4 avenues of direct or indirect support (51%) or five or more avenues (49%) in the past 12-months. In terms of satisfaction with existing outreach efforts, 67.54% of participants viewed at least one community member as very helpful compared to 32.46% who felt none had been very helpful in addressing their behavior-related concerns or needs.

In addition to collecting data on outreach to aforementioned community members in reference to the preschool-aged child, participants disclosed whether they obtained behavior-related knowledge or insights from indirect sources for any of their children. As presented in Table 5 (below), half of participants gained behavior-related information

from television (51%), followed by parenting magazines (47%), internet (42%), and the bible (30%). Less than 30% of the sample read parenting books (26%), or received information from either a workshop (19%) or parent support group (12%).

Table 5.

<i>Indirect Avenues Sought for Behavior-Related Information</i>		
Type of Indirect Source	n	%
Television	58	50.88
Parenting Books	30	26.32
Bible	34	29.82
Internet	48	42.12
Magazines	54	47.37
Information from Workshops	22	19.30
Information from Parent Support Group	14	12.28
Other	5	4.39

Note. Responses based on accessing indirect supports for any child in the family.

In addition, in terms of how parents express themselves and behave in the home (i.e., the anticipated behavior-related outcome variable in Section III), participants had a wide range of scores on the positive and negative subscales in the maternal expressiveness measure. For mean scores (sum/17) on the negative subscale of the Self-Expressiveness in the Family Questionnaire (SEFQ), scores ranged from 2.18-7.18 ($M = 4.63$; $SD = 1.14525$) with a median of 4.71. I used a median split to generate a high negative group ($n = 56$; 49.12%) and a low negative group ($n = 58$; 50.88%). For mean

scores (sum/23) on the positive subscale of the SEFQ, scores ranged from 3.57-8.78 ($M = 7.05$; $SD = 0.99617$) with a median of 7.1950. Using a median split resulted in a low positive group ($n = 57$; 50.00%) and a high positive group ($n = 57$; 50.00%). Based on self-report, this subgroup is exposing children to varying levels of negative and positive expressiveness in the home. This variance will permit analysis of factors that may predict unfavorable maternal expressiveness (i.e., being high in negative expressiveness or low in positive expressiveness) in section III of this chapter.

Within-group comparisons of emotion-related beliefs.

Uniform beliefs. There were a few topics for which participants were mostly uniform in their perceptions related to emotional development, including the perceived role of mothers when compared to teachers and at least 80% within-group agreement on several items in the Perceived Role Scale. With regard to the parent-teacher role in early development, results indicated that nearly all participants ($n = 107$; 93.86%) perceived themselves as having the same if not greater responsibility compared to teachers in supporting preschool children's behavior and emotional development. More specifically, 49 (42.98%) felt mothers play a larger role, 5 (4.39%) viewed teachers as playing a larger role, 58 (50.88%) perceived both mothers and teachers as sharing equal responsibility, and 2 (1.75%) viewed neither party as contributing to a child's emotional development. Further, I detected four items reflecting group uniformity on the Perceived Role Scale (see Table 7 below). There was markedly low percent-agreement with existing literature regarding the unhelpfulness of spanking (only 18.42% agreeing with the literature) and the unhelpfulness of mothers trying to hide their feelings when a preschool child suspects something is wrong (only 19.30% agreeing with the literature)

(i.e., items 6 and 10 on the Perceived Role Scale respectively; see Appendix D1 for exact wording). Also, a high number of mothers (88.60%) were strongly supportive of the literature in the unhelpfulness of ignoring a child's crying when preparing to leave for work (item #2) and the helpfulness of asking children how they feel about daily occurrences (92.98%; item #11; although it was unclear whether parents probe into preschoolers' actual feelings).

Variability in beliefs. Overall, however, the majority of findings suggest this subgroup of mothers showed variability in their emotion-related beliefs. There is variability with regard to the anticipated improvement of preschoolers' maladaptive behavior, strong concern about possible consequences if behavior concerns persist, willingness to alter parenting behavior and parenting views, and the extent to which they strongly support the purported role of mothers in the extant literature.

In terms of anticipated behavior improvement, for example, there was a fairly even division in whether they saw their child's behavior as more likely improving with age (47.37%) or only getting better if adults provide the child with direct guidance (52.63%). In addition, I asked mothers to rate how worried or concerned they would be about four different outcomes if their child's weekly or monthly behavior concerns persisted over time. Results suggest a divide in whether participants expressed strong concern (i.e., a 4 or 5 on the Likert-scale rating) that the following might occur: the *behavior may affect people outside the home* (48; 42%), the *behavior may affect family members in the home* (44; 39%), *it may lead to a referral or special needs label* (43; 38%), or the *behavior may affect the preschooler's long-term learning and development* (44; 39%). Participants varied in which consequence they perceived as most concerning,

with 41 participants (35.96%) not overly concerned about any of these considerations at this time. The notion that the behavior may be embarrassing or stressful when in public seemed to generate slightly more of a reaction from mothers than other concerns.

Moreover, 29 mothers (25%) were somewhat concerned about behaviors affecting people outside the home; 38 mothers (33%) were somewhat concerned about behaviors affecting family in the home; 6 (5%) were somewhat concerned behaviors may lead to a special needs label; 15 (13%) were somewhat concerned behaviors would affect the child's long-term learning.

I also asked participants to consider how willing they would be to alter both their parenting behavior and parenting views if recommended by a parent educator (see exact phrasing of questions and probes in Appendix D1). Ninety-two percent of the sample was somewhat/very willing to modify their behavior and 85% was somewhat/very willing to alter parenting views. However, this percent decreased when looking at high receptivity to changing: 62 mothers (54.39%) were very willing to change behavior and 48 mothers (42.11%) were very willing to change views. Despite some hesitation to change within the sample, it is promising that such low percentages fell in the very unwilling categories (i.e., only 4.39% very unwilling to change parenting behavior and 6.14% were very unwilling to change parenting views).

In addition, with regard to an anticipated belief-related outcome variable (see Section III) this subgroup of mothers varied in the extent to which they strongly agreed with their purported role in emotional development (i.e., highly aware versus not highly aware of their role according to the extant literature). I initially summed 'somewhat helpful/unhelpful' responses with the 'very helpful/unhelpful' responses (as suggested in

the literature); this resulted in 87 participants (76.32%) scoring higher on awareness of one's role (score of 9-12) and 27 participants (23.68%) scoring lower (score of 0-8). However, I suspected that the 'somewhat' helpful/unhelpful rating more likely captured uncertainty or socially desirable responses (allowing for increased variance among participants) rather than strong acknowledgement of one's role. I re-coded data based on 'very' helpful/unhelpful responses supportive of the literature.

Table 6

Number of Perceived Role Scale Responses Among Head

Start Mothers Strongly Supportive of the Literature

Number of Items Strongly Supportive of the Literature	Freq.	%
Supportive of 3 items	1	0.88
Supportive of 4 items	5	4.39
Supportive of 5 items	16	14.04
Supportive of 6 items	15	13.16
Supportive of 7 items	27	23.68
Supportive of 8 items	25	21.93
Supportive of 9 items	12	10.53
Supportive of 10 items	9	7.89
Supportive of 11 items	4	3.51

As indicated in Table 6, participants ranged from strongly agreeing with 3-11 items on my devised 12-item Perceived Role Scale ($M = 7.2281$; $SD = 1.76512$; Median = 7.00). Using a median split resulted in two distinct groups: 50 mothers (43.86%) were highly

aware of their role (i.e., strongly supportive of the literature; strongly agreeing with 8 or more items) and 64 mothers (56.14%) were not highly aware of their role (i.e., views not strongly in support of the literature; strongly agreeing with 7 or fewer items). This variance permits analysis of child, maternal and community factors that may help predict group membership in perceived role in section III. Further, as illustrated in Table 7, the overall percentage of strong agreement with any one of the 12 items in the Perceived Role Scale ranged from 18.42% to 92.98%. Note that only 68 (59.65%) participants viewed moms as generally playing a *large* role in their child's behavior and emotional development (as opposed to somewhat of a role or no role at all). There was a fairly even split in whether mothers strongly agree with offering words that may coincide with a child's actual feelings (see note in Table 7). There was detectable (albeit smaller) group variability in strongly agreeing with the unhelpfulness of appeasing a child during tantrums (item #4), having a preschooler handle negative stimuli on his own (item #8), and yelling at a child every day (item #12). Some variability was also found in strongly agreeing with the helpfulness of exploring feelings in a book (item #5), using emotion pictures (item #7), and expecting a preschooler to start controlling emotions (item #9; see exact wording in Appendix D1).

Table 7 <i>Percent in Support of the Literature (Helpfulness) for Items in Perceived Role Scale</i>	<u>Somewhat/Very</u>	<u>Very</u>
	<u>Supportive</u> (%)	Freq. <u>Supportive</u> Freq. (%)
#2: Addressing crying when parent is leaving	112 (98.25)	101 (88.60)*
#3: Offering words to reflect child's feelings ^a	95 (83.33)	55 (48.25)
#4: Not giving in during tantrums	97 (85.09)	80 (70.18)
#5: Exploring child's feelings in a book	110 (96.49)	80 (70.18)
#6: Not spanking	35 (30.70)	21 (18.42)*
#7: Using emotion pictures	104 (91.23)	75 (65.79)
#8: Child not handling negative stimuli alone	100 (87.72)	78 (68.42)
#9: Expectation to start controlling emotions	94 (82.46)	71 (62.28)
#10: Mothers not hiding feelings from child	53 (46.49)	22 (19.30)*
#11: Asking child's feelings on daily events ^b	113 (99.12)	106 (92.98)*
#12: Not yelling at preschool child everyday	93 (81.58)	67 (58.77)
#13: Mother has large role in emotional dev't	68 (59.65)	

Note. See questionnaire in Appendix D1 for exact wording. Only 12 items comprise this scale but numbering reflects question order during the interview. *Within-group uniformity

^a Many parents voluntarily expressed strong feelings in response to the probe, 'Are you angry that...?' – articulating that preschoolers do not need to know about being angry.

^b Values may not be accurate. Many parents added that they always ask, "What did you do today, was it fun?"; but I did not get the impression that the child is asked to reflect on specific feelings.

Within-group comparison of emotion-related needs.

Variability in needs. In all respects, mothers in this sample varied in their needs associated with children's emotional development. Areas in need of improvement for at least a percentage of this sample pertained to behavior insights from Head Start staff, the type of proposed outreach that mothers would consider and most prefer, and the overall extent of receptivity to parent-focused support. The first area of variability pertains to

existing mother-teacher exchanges. In Table 8 (below), I present frequencies associated with mothers' reported interactions with teachers and therapists over the last 12 months. There was a mix in participant response in whether they received adequate behavior-related information from Head Start staff: only 55% of mothers acknowledged that teachers disclose a general sense of whether their child is doing well or acting inappropriately, and only 46% reported knowing how classroom staff members respond to inappropriate behavior. [Note, however, that 42 (79%) of those aware of classroom management techniques reported having learned of teacher responses solely by observing or volunteering rather than from teacher-initiated information.] Although mixed in their responses, the majority of mothers (71%) have not received specific written or verbal advice from Head Start staff on how to handle or react to preschoolers' behavior in the home (compared to 29% receiving such information). Voluntary remarks revealed some mothers felt teachers should do more, while others felt mothers and teachers share responsibility in improving exchanges.

Table 8.

Mother-Teacher Exchanges in Past 12 Months

Teacher-related questions in PRRSS	n (out of 114)	%
Behavior outreach from non-Head Start professionals?		
• Yes	29	25.44
• No	85	74.56
Behavior updates (good or concerning) from Head Start Staff?		
• Yes	63	55.26
• No	51	44.74
Staff suggestions for ways to address emotions/behavior in home?		
<i>a</i>		
• Yes	33	28.95
• No	81	71.05
Knowing how staff responds to inappropriate behavior in school?		
• Yes	53	46.49
• No	61	53.51

Note: See Appendix D1 for exact wording.

^a Also assessed as a possible explanatory variable in Section III.

In addition, I detected variability with regard to emotion or behavior-related avenues of support this maternal subgroup would consider and most prefer. I tabulated the number of avenues for which respondents expressed interest as part of the Receptivity to Support score (see Methodology; Chapter 3); in Table 9, I present frequencies and percentages on this information. Note that an overwhelming majority of participants (91;

80%) reported willingness (saying ‘yes’) to attend a small parent group with 5-10 other parents; this avenue of support was also most preferred among all participants (38%). Perhaps not surprisingly, respondents were least receptive to attending a lecture or workshop as part of a larger audience (34% saying they would consider attending and only 5% most preferring this option). Table 9 shows a distinction among those preferring support in a one-on-one context (41; 36%), group context (49; 43%), and in a less personal context (23; 20%). Regardless of the type or frequency of child behavior, it is noteworthy that all but one mother identified a preferred avenue by which to obtain information on how to enhance children’s emotional development.

Table 9

Proposed Avenues of Support Mothers Would Consider Receiving and Most Prefer

Types of Proposed Support	# (%) Willing to Consider Attending	#(%) Most Preferred
One on One in Home	57(50.00)	25(21.93)
One on One via Phone	64(56.14)	16(14.04)
Small Parent Group	91(79.82)	43(37.72)
Lecture/Workshop – audience	39(34.21)	6(5.26)
Written Information Sent Home	95(83.33)	17(14.91)
Video Sent Home	88(77.19)	6(5.26)
None	1(0.98)	1(0.98)

Also, in terms of proposed, parent-focused support (i.e., the anticipated need-related outcome variable assessed further in section III), this subgroup displayed mixed levels of receptiveness. When asked if interested right now in professional, parent-focused support to address their young child’s behavior and emotional development, 39 mothers reported being definitely interested and 60 mothers selected ‘somewhat interested: need more information to decide’. Some mothers who selected ‘somewhat

interested' requested a little more clarification before signing up: "Depends especially on location – that makes a difference (in whether I'd be interested). If it's not far, I will go and give it 100%"; "[I] lean more towards definitely [interested]' – all that interests me, even if I'm not concerned about his behavior right now. I like to help, learn what I can". Other mothers who chose the 'somewhat interested' option made statements that suggest they would not actually be interested right now: "My mom did that – got other people involved and you felt your privacy was being invaded"; "I hate to feel like I'm being taught how to raise her". Rather than combining all 'somewhat interested' mothers with the 15 mothers who were 'definitely not interested' (to be combined into a not highly interested category), I thought this outcome variable may be more accurately assessed using a compiled receptivity score (i.e., comprised of responses to avenues of support, willingness to change behavior and parenting views, and the direct receptiveness question, see p. 84; psychometric information must be assessed). Figure 1 highlights participants' scores. Receptivity scores ranged from 0-12 ($M = 7.77$; $SD = 2.30$; Median = 8). I used a median split to group participants into two categories: mothers who are highly receptive to behavior support ($n = 68$; 59.65%) and mothers who are not highly receptive right now ($n = 46$; 40.35%). This variance permits assessment in section III of child, maternal and community risk factors that help predict varied receptivity to support.

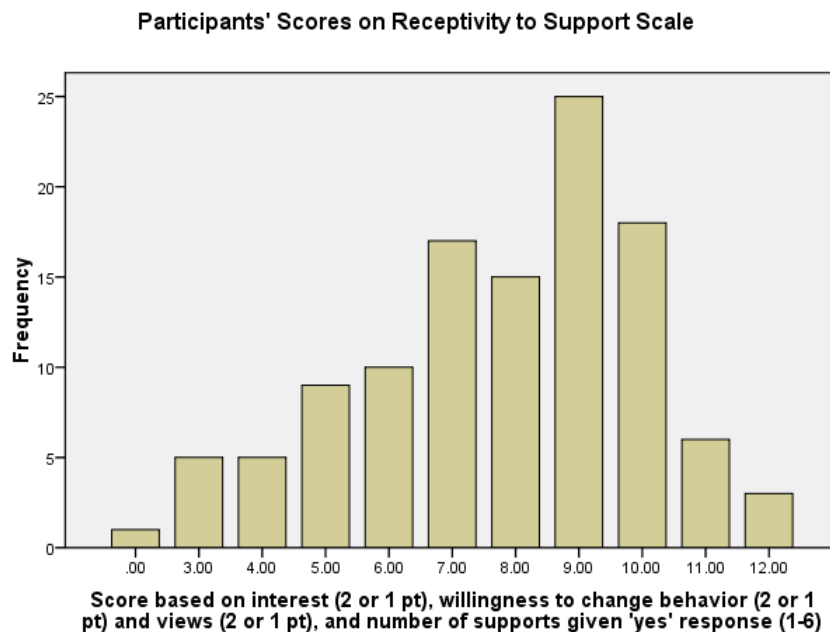


Figure 1. *Participants' scores on receptivity to support scale.*

Note. *Higher scores equated with being more receptive to proposed parent-focused behavior support; reliability and validity estimates of devised scale need to be assessed.

Summary of within-group comparisons. Results support some homogeneous, but predominately variable responses associated with children's emotional development among this sample of Head Start urban English-speaking mothers. In a few respects, this group was homogeneous in behaviors and beliefs. Although mixed in how large a role they perceive themselves as playing in emotional development, 93.86% felt they had equal or greater responsibility in promoting emotional development compared to teachers. An overwhelming majority of participants approached at least one avenue for support in the past year, and they tended to seek support from a combination of direct and indirect sources. Unfortunately, despite these parent-initiated efforts, they perceived notably low percentages of support from community members as very helpful in meeting families' behavior-related needs. Further, over 70% of the sample had not received

staff-outreach in the past 12 months on ways to address preschoolers' behavior in the home (although over 50% of participants had a preschooler who just started preschool in the preceding 1-3 months). It was also noteworthy that over 80% of the sample deviated from the extant literature (e.g., Chang et al., 2003; Garner, 2005) by feeling it is at least somewhat helpful to spank and hide feelings from preschool children. In addition, although I detected variability in concerns, the majority of mothers did not express strong concerns about possible long-term consequences of persistent behaviors (e.g., special needs referral or impact on school outcomes).

The within-group comparisons mainly revealed variability across maternal behaviors, beliefs, and needs pertaining to children's emotional development. There was division among participants, for example, in both the extent of outreach efforts and whether they sought behavior advice from professionals. There was also some group variability in perceived role in a child's emotional development (e.g., whether mothers should discuss angry feelings with preschoolers, whether preschoolers are old enough to start controlling their emotions, whether it would be very unhelpful to expose children to yelling on a daily basis; Table 6). In addition to variability in how mothers view their role in emotional development, I found wide ranges in scores on negative and positive expressiveness and receptivity to parent-focused professional support (including acceptability of varying avenues of support and willingness to modify parenting approaches and views). Given this sample variance, I now turn to logistic regression analyses to identify factors that may help predict mothers' standing on a behavior (expressiveness in the home), belief (perceived role in development), and need

(receptivity to support); these pre-selected outcome variables pertain to children's emotional development and warrant closer investigation.

Section III

To answer research questions 2, 3, and 4, I used logistic regression analyses to devise models that depict which of the child, maternal, and community variables (see Tables 1 & 2) may help predict probabilities of Head Start mothers being (1) high in negative expressiveness, (2) low in positive expressiveness, (3) not highly aware of their role in emotional development, and (4) not highly receptive to proposed parent-focused behavior support.

Assessing multicollinearity. A major concern in any analysis is high inter-relatedness among predictors in the models. Multicollinearity could distort standard error values and make it difficult to accurately assess the relative importance of each predictor (Pedhazur, 1997). Fortunately, the collinearity statistics (see Appendix F1) indicate no tolerance value less than 0.30 and no Variance Inflation Factor (VIF) greater than 2.50 for the pre-selected variables as a whole or within any of the four models; therefore, evidence indicates that there is no highly concerning multicollinearity or statistically significant inter-relatedness among the predictors.

Analysis of mean differences. To determine which child or mother demographic factors from Table 1 need to be controlled for (i.e., held constant) in the logistic regression analyses, I conducted independent *t*-tests. Using a criterion of $p \leq 0.05$, several variables may warrant inclusion as covariates when assessing status on certain outcome variables (with significant covariates later referred to as meaningful predictors or risk factors if warranting inclusion in the subsequent final fitted models in this

section). Pre-high school (i.e., those dropping out compared to high school graduates; $t_{112} = -2.065, p = 0.041$) was a covariate when assessing the initial full negative expressiveness model. The number of children in each family (i.e., those with one child versus two or more children; $t_{112} = 3.276, p = 0.001$), whether participants had received behavioral support for a non-Head Start child in the past ($t_{112} = 3.112, p = 0.002$), and pre-high-school (compared to those graduating high school; $t_{112} = -1.951, p = 0.054$) were held constant in the initial full positive expressiveness model. Number of children in the family (i.e., mothers with one child versus two or more children; $t_{112} = 3.276, p = 0.001$) necessitated inclusion as a covariate in the initial full perceived role in emotional development model. Post-high school (i.e., those with at least an associate's degree compared to high school graduates; $t_{112} = 1.965, p = 0.052$) was controlled for when examining factors that influence the initial full receptivity to additional support model. The other factors in Table 1 (i.e., child's gender, child's age, mother's age, mother's race, foster-parent status, or single-parent status) did not have significant mean differences in status on any of the outcome variables and therefore were not included in any of the initial full logistic regression models. [Note: An unintended check of the fourth model revealed two variables that were statistically significant parameters improving model fit although initially discounted as non-significant in the independent t -tests. I therefore returned to earlier analyses to verify whether adding any of the initially non-significant covariates (according to independent t -tests) would actually be significant in a regression analysis. Such findings, although less common, can occur; as shown in Appendix F3-F6, I checked for statistical significance of initially

non-significant covariates in follow-up analyses before interpreting the final models (Dr. J. Harring, Personal Correspondence, January 25, 2010).]

Research question 2a: Predicting high negative maternal expressiveness. I conducted two analyses to answer research question #2: Holding all else constant, which child, maternal, and/or community-based variables may help predict whether low-income mothers are high in negative expressiveness (2a) or low in positive expressiveness (2b)?

I first ran a binomial logistic regression analysis with high negative maternal expressiveness in the home regressed on the aforementioned predictors (including Pre-High School as a covariate and all explanatory variables in Table 2, see Section I). To assess the statistical significance of each predictor, I examined results of Wald tests (see hypotheses and decision rule in Appendix F2) in the SPSS output. Based on this sample ($n = 114$), when all other predictors in the model were held constant, the Wald tests (see Appendix F2) indicated that the mean difference between those with and without a preschool child with a diagnosed delay ($\hat{\beta}_1 = -2.012$, Wald's $\chi^2 = 6.279$, $p < 0.05$), the dummy variable representing the mean difference between mothers of those with no behavior concerns and those with a combination of internalizing and externalizing behaviors ($\hat{\beta}_6 = -1.657$, Wald's $\chi^2 = 5.056$, $p < 0.05$), and the mean difference between high and low parenting stress groups ($\hat{\beta}_8 = 1.129$, Wald's $\chi^2 = 5.107$, $p < 0.05$) each have a statistically significant effect on being a mother who is negatively expressive. The other pre-selected variables, however, are not statistically significant predictors in the population.

Likelihood ratio test. To compare the fit of two models (i.e., the full model with all the pre-selected predictors and the reduced model with only significant predictors), I

performed a likelihood-ratio test by hand (see hypotheses and decision rule in Appendix F2). I computed the likelihood ratio test using the full model ($-2\ln L = 129.881$) and the reduced model ($-2\ln L = 137.687$). Results indicated that the p -value ($p = 0.65$) was not less than the nominal alpha value; I therefore failed to reject the null hypothesis. This indicated that the reduced model, with the initially statistically significant predictors, was actually a better fit than the full model. In other words, considering special needs among any children in the family, frequency of behavior, the group mean difference between ‘behavior_internalizing’ and the referent group, the group mean difference between ‘behavior_externalizing’ and the referent group, whether the behavior is anticipated to improve with age or only with direct support, and the variables assessing contact with the community did not significantly improve the fit of the model ($-2 \log L = 129.881$, $\chi^2 = 7.806$, $p = 0.65$). Note that the reduced model’s minus 2 times the log of the likelihood value was 137.687. The ‘badness of fit indicator’ did reduce by 7.806 to a value of 129.881 once the non-significant variables were added, but this was not statistically significant in the population. The final fitted model capturing the predicted probability of being a mother with high negative expressivity in the population should therefore only include the predictors in the reduced model.

Since *delay_status* was no longer significant in this reduced model, I conducted a second Likelihood Ratio test by hand (which is the recommended test to assess the usefulness of including a specific predictor within a small sample <http://faculty.chass.ncsu.edu/garson/PA765/logistic.htm#sigtests>). Results indicated that this variable did not significantly improve model fit and should be excluded from the final model (see Appendix F3). Also, additional analyses showed that although assessing

the mean difference between those with a post-high school degree and those only graduating high school was non-significant when conducting an independent t -test ($t_{112} = -1.543, p = 0.126$), including this variable did significantly improve the fit of the model ($-2 \log L = 135.445, \chi_1^2 = 4.795, p = 0.03$) (see Appendix F3).

Final negative expressiveness model. To answer research question 2a, the significant predictors included in the final fitted model are as follows: the dummy variable comparing mean group differences between subjects who have children with no inappropriate or frustrating (maladaptive) behaviors and children with a combination of internalizing and externalizing behaviors (with a negative correlation between no behavior concerns and being high in negative expressiveness) (x_1), maternal parenting stress level (with a positive correlation between high stress and high negative expressiveness) (x_2), and obtaining a higher degree versus solely graduating from high school (with a positive correlation between post-high school attainment and high negative expressiveness) (x_3). The final fitted model (based on the above Variables in the Equation table) is:

$$\text{logit}[\hat{\pi}(\text{behavior_none})_1 + (\text{stress})_2 + (\text{post_high_school})_3] = \hat{\beta}_0 + \hat{\beta}_1 + \hat{\beta}_2 + \hat{\beta}_3 = -0.648 - 1.264 + 1.354 + 1.448$$

As noted above, the group mean difference between those with and without both types of behavior ($\hat{\beta}_1 = -1.264$, Wald's $\chi_1^2 = 4.486, p < 0.05$), the mean difference between mothers who score high and low on parenting stress ($\hat{\beta}_2 = 1.354$, Wald's $\chi_1^2 = 9.959, p < 0.05$), and the mean difference between mothers who do and do not obtain an advanced degree ($\hat{\beta}_3 = 1.448$, Wald's $\chi_1^2 = 4.342, p < 0.05$) were statistically significant

predictors of high negative expressiveness in the population when holding all else constant in the fitted model. A check of the residuals indicated that no cases unduly affected this final model (Appendix F8). In terms of effect size (i.e., practical significance), none of the odds ratios hovered near or at a value of 1 (which would have meant that the chance of occurrence was just as likely to happen in either grouping of the predictor variable). Further, none of the Confidence Interval ranges around each of the odds ratios contained the value of 1.00 (although education level approaches this value); this indicates that changes in the value of the explanatory variable relates to changes in the odds of the outcome variable (<http://faculty.chass.ncsu.edu/garson/PA765/logistic.htm#sigtests>) and the statistically significant variables are in fact useful predictors.

Several indicators suggest this final fitted model is acceptable. The iteration history table (see Appendix F3) indicated that since only four iterations were needed the final model was not difficult to fit; I would not be concerned about misspecification or error with the model. The Hosmer and Lemeshow Goodness-of-Fit test, with a p -value of 0.859, revealed that the final logistic model is a good fit. In other words, I could fail to reject this tests' null hypothesis that there is no difference between the observed and predicted values of high negative expressivity among mothers and conclude that the final model's estimates fit the data at an acceptable level (<http://faculty.chass.ncsu.edu/garson/PA765/logispss.htm>).

The Classification Table for the fitted model (see Appendix F3) includes columns of the two predicted values of expressivity among mothers (low in negative expressiveness = 0 and high in negative expressiveness = 1), and rows of the two actually observed values of expressivity in the current sample ($n = 114$). In terms of predicting

group membership, this model misclassified 33 mothers, with an overall percent correct of 71.1% (compared to a baseline ‘badness of fit’ index of 50.9%). Given my interest in predicting the likelihood of high negative expressiveness, the model only correctly identified 41 mothers as high in negative expressiveness out of a possible 56 mothers who actually scored high on this variable (73.2% correct in classifying high negative expressivity).

Since the classification table uses an arbitrary cut-off value at 0.05, I examined the ROC curve, which averages across all potential cut-off values (see Appendix F3). This likely more accurate indication of model fit reported a higher total classification of 74%. Both the classification table and ROC curve suggest that an even better model may exist that could include predictor variables that I did not incorporate into the current analysis.

Interpreting the negative expressivity model in terms of the odds. To aid comprehension, I now discuss the logit model in terms of odds, which is a non-linear function of the predictors (Pedhazur, 1997).

Table 10. *Logistic Regression Predicting Mothers with High Negative Expressiveness*

Variable	β	SE	Odds Ratio	p
Behavior_None	-1.26	0.60	0.28	0.034
Stress_Level	1.35	0.43	3.88	0.002
Educ_Post_HS	1.45	0.70	4.25	0.037
Constant	-0.65	0.34	0.52	0.057

Based on the above Exp (B) values in Table 10, one can interpret the odds of '1' (i.e., being a mother with high negative expressivity) with regard to each of the three predictors in the model:

1. When statistically controlling for other predictors in the model, mothers of children with no perceived behavior concerns in the last two months have an estimated odds ratio of being negatively expressive that is $e^{-1.26}$ or 0.283 times less than the odds of high negative expressiveness among mothers whose preschooler exhibits a combination of internalizing and externalizing behaviors. In other words, when holding all else constant, mothers of young children without parent-reported maladaptive behaviors have a significantly reduced likelihood (a 71.7% decrease in the odds) of being negative in expressiveness (compared to mothers of children presenting with both types of behaviors). Mothers raising a preschooler with internalizing and externalizing behaviors have a 353% increase in the odds of being high in negative expressiveness.
2. When holding at fixed levels the other predictors in the model, the estimated odds of being a mother who is mostly negative in expressiveness for those with high parenting stress levels is $e^{1.354}$ or 3.875 times the odds of being highly negative in expressiveness for those with low parenting stress levels. In other words, the predicted probability of negative expressiveness is greater (388% increase in the odds) for those with high parenting stress levels when holding all else constant.
3. When holding all else constant, the estimated odds of being high in negative expressiveness among mothers graduating with an associates or college degree is $e^{1.448}$ or 4.254 times the odds of expressing high negativity in the home for those

graduating from high school. In other words, Head Start mothers in this sample have a 425% increase in the odds of being negatively expressive in the home if they earned an associate's, bachelor's or a master's degree (compared to those not earning an advanced degree).

Interpreting the negative expressivity model in terms of probabilities. The predicted probability equation is a non-linear function of the predictors that allows us to talk in terms of probabilities. Using a predicted probability equation (see Appendix F7), when a mother has a child with a mix of internalizing and externalizing behaviors, is low in parenting stress, and for the mean of mothers in the 'other' education category (i.e., highest education being high school), a mother would have a 34.3% likelihood of acting mostly negative around her family. In the situation where a mother has a child with both internalizing and externalizing behavior concerns, there is high parenting stress, and the mother does not obtain an advanced degree, a mother would have a 67% likelihood of being highly negative in expressiveness. The percentage of mothers with negative expressivity increases to 90% when mothers of children with internalizing and externalizing behaviors and those with high perceived parenting stress also have obtained an associates or college degree.

Research question 2b – Predicting low positive expressiveness. To answer the second part of research question #2, I assessed which child, maternal and community factors might predict the probability of low positive maternal expressiveness in the population. I ran a binomial logistic regression analysis with low positive expressiveness regressed on the aforementioned predictors [including number of children in each family (i.e., those with one child versus two or more children), whether participants had received

behavioral support for a non-Head Start child in the past, and pre-high-school as covariates as well as the explanatory variables in Table 2 in the initial full model; see Section I].

To assess the statistical significance of each predictor, I examined results of the Wald tests (see Appendix F2 for hypotheses and decision rule). Based on this sample ($n = 114$), when all other predictors in the model are held constant, the Wald tests (see Appendix F4) indicated that the mean difference between those with and without a preschool child with a diagnosed delay ($\hat{\beta}_1 = 1.966$, Wald's $\chi_1^2 = 5.405$, $p < 0.05$), the mean difference between those with and without any child in the family receiving specialized services in the past year ($\hat{\beta}_2 = -1.571$, Wald's $\chi_1^2 = 4.366$, $p < 0.05$), the mean difference between those who have and have not received teacher-initiated verbal or written advice on addressing preschoolers' behavior in the home ($\hat{\beta}_{12} = -1.752$, Wald's $\chi_1^2 = 8.494$, $p < 0.05$), the dummy variable representing the mean difference between mothers who dropped out of high school and those who graduated high school ($\hat{\beta}_{13} = 2.125$, Wald's $\chi_1^2 = 9.408$, $p < 0.05$), and the mean difference between those with only one child and those with two or more children ($\hat{\beta}_{14} = -1.885$, Wald's $\chi_1^2 = 6.342$, $p < 0.05$), each have a statistically significant effect on being a mother who is low in positive expressiveness. The other pre-selected variables, however, are not statistically significant predictors of low positive maternal expressiveness in the population.

Likelihood ratio tests. To compare the fit of two models (i.e., the full model with all the pre-selected predictors and the reduced model with only significant predictors), I performed a likelihood-ratio test by hand (see hypothesis and decision rule in Appendix

F2; see output in Appendix F4). I computed the likelihood ratio test using the full model ($-2\ln L = 112.257$) and the reduced model ($-2\ln L = 120.152$). Results indicate that the p -value ($p = 0.64$) was not less than the nominal alpha value; I therefore failed to reject the null hypothesis. This indicated that the reduced model, with only statistically significant predictors, was a better fit than the full model. In other words, the inclusion of the non-significant variables did not significantly improve the fit of the model ($-2 \log L = 112.257$, $\chi_1^2 = 7.895$, $p = 0.64$). Note that the reduced model's minus 2 times the log of the likelihood value was 120.152. The 'badness of fit indicator' did reduce by 7.895 to a value of 112.257 once I added the non-significant variables, but this was not statistically significant in the population. The final fitted model capturing the predicted probability of a mother having low positive expressivity in the population should only include the predictors in the reduced model.

Before proceeding, I ran a stepwise exploratory analysis to confirm the non-significance of covariates initially tested using independent t -tests (see explanation, p. 117). Although none of the initially non-significant covariates warranted inclusion in this final model, the delay status variable changed to non-significant in one of the exploratory analyses. I conducted a Likelihood Ratio Test to compare the reduced model's 5-predictor model with a 4-predictor model that excludes delay status (see Appendix F4). Results confirmed that having a Head Start child with a diagnosed delay was a variable that significantly improved the fit of the model ($-2 \log L = 120.152$, $\chi_1^2 = 5.985$, $p = 0.01$), so it remained in the final model.

Final positive expressiveness model. In answering research question 2b, findings indicate that the significant predictors in the final fitted model should be as follows: the

mean difference between those with and without a preschool child with a diagnosed delay (with a positive correlation among diagnosed delay and low maternal positive expressiveness) (x_1), the mean difference between those with and without any child in the family receiving specialized services in the past year (with a negative correlation between any child in family receiving specialized supports and low positive expressiveness) (x_2), the mean difference between those who have and have not received teacher-initiated verbal or written advice on addressing preschoolers' behavior in the home (with a negative correlation between receipt of staff behavior advice and low positive expressiveness) (x_3), the mean difference between those with only one child and those with two or more children (with a negative association between mothers with two or more children and being low in positive expressiveness) (x_4), and the dummy variable for the mean difference between mothers dropping out of and those graduating high school (with a positive link between dropping out of high school and being lower in positive expressiveness) (x_5).

The final fitted model (based on the Variables in the Equation table; see Appendix F4) is:

$$\log it[\hat{\pi}(\text{delay_status})_1 + (\text{services_any_child})_2 + (\text{staff_initiated_advice})_3 + (\text{number_children})_4 + (\text{education_pre_highschool})_5] = \hat{\beta}_0 + \hat{\beta}_1 + \hat{\beta}_2 + \hat{\beta}_3 + \hat{\beta}_4 + \hat{\beta}_5 = 1.669 + 1.799 - 1.635 - 1.762 - 1.741 + 1.646$$

The mean difference between those with and without a preschool child with a diagnosed delay ($\hat{\beta}_1 = 1.799$, Wald's $\chi^2 = 5.429$, $p < 0.05$), the mean difference between those with and without any child in the family receiving specialized services in the past year ($\hat{\beta}_2 = -1.635$, Wald's $\chi^2 = 6.143$, $p < 0.05$), the mean difference between those who have and have not received teacher-initiated verbal or written advice on addressing

preschoolers' behavior in the home ($\hat{\beta}_3 = -1.762$, Wald's $\chi_1^2 = 10.660$, $p < 0.05$), the mean difference between those with only one child and those with two or more children ($\hat{\beta}_4 = -1.741$, Wald's $\chi_1^2 = 8.653$, $p < 0.05$), and the dummy variable representing the mean difference between mothers who dropped out of high school and those who graduated ($\hat{\beta}_5 = 1.646$, Wald's $\chi_1^2 = 7.984$, $p < 0.05$) remained statistically significant predictors of low positive expressiveness among Head Start mothers in the population when holding all else constant in this fitted model (see Appendix F4). When checking residuals, I found no cases unduly affected this final model (Appendix F8). In terms of effect size (i.e., practical significance), none of the odds ratios hovered near or at a value of 1 (which would have meant that the chance of occurrence was just as likely to happen in either grouping of the predictor variable). Further, the Confidence Interval ranges around each of the odds ratios did not contain the value of 1.00; this indicates that changes in the value of each explanatory variable relates to changes in the odds of the outcome variable ([http://faculty.chass.ncsu.edu/garson/PA765/logistic .htm#sigtests](http://faculty.chass.ncsu.edu/garson/PA765/logistic.htm#sigtests)) and the statistically significant variables are useful predictors.

Several indicators bolster support for the acceptability of this final fitted model. The iteration history table (see Appendix F4) indicated that since there was a need for only five iterations, the final model was not difficult to fit; I am therefore not concerned about misspecification or error with the model. The Hosmer and Lemeshow Goodness-of-Fit test, with a p -value of 0.682, indicated that the final logistic model is a good fit. In other words, I can fail to reject this tests' null hypothesis that there is no difference between the observed and predicted values of low positive expressivity among mothers and conclude that the final model's estimates fit the data at an acceptable level

(<http://faculty.chass.ncsu.edu/garson/PA765/logispss.htm>). Further, the Classification Table for the fitted model (see Appendix F4) includes columns of the two predicted values of expressivity among mothers (high positive expressiveness = 0 and low positive expressiveness = 1), and rows of the two actually observed values of expressivity in the current sample (n = 114). In terms of predicting group membership, it appears that this model misclassified 30 mothers, with an overall percent correct of 73.7% (compared to a baseline badness of fit of 50%). Given my interest in predicting the likelihood of low positive expressiveness, it is concerning that this model only correctly identified 33 mothers as low in positive expressiveness out of a possible 57 mothers who actually scored high on this outcome variable (only 57.89% correct in classifying low positive expressivity).

Since this table uses an arbitrary cut-off value at 0.05, I also examined the ROC curve, which averages across all potential cut-off values (see Appendix F4). This likely more accurate indication of model fit reported a higher total classification of 80.2%. Nonetheless, both the classification table and ROC curve suggest that an even better model may exist that could include predictor variables that were not examined in the current analysis.

Interpreting the positive expressiveness model in terms of the odds. To facilitate comprehension, I now discuss the logit model in terms of the odds. Based on the below Exp (B) values in Table 11, one can interpret the odds of being a mother with low positive expressivity with regard to each of the five predictors in the model.

Table 11. *Logistic Regression Predicting Mothers with Low Positive Expressiveness*

Variable	β	SE	Odds Ratio	p
Delay_Status	1.80	0.77	6.04	0.020
Services_Any_Child	-1.64	0.66	0.20	0.013
Staff_Initiated_Advice	-1.76	0.54	0.17	0.001
Number_of_Children	-1.74	0.59	0.18	0.003
Pre_High_School	1.65	0.58	5.19	0.005
Constant	1.67	0.53	5.31	0.002

1. Holding all else constant, the estimated odds of being a mother with low positive expressivity in the home for those who have a preschool child with a diagnosed delay is $e^{1.799}$ or 6.043 times more than the odds of being low in positive expressiveness for those without a preschooler with a diagnosed delay. In other words, given that the odds are more than 1 based on the current sample, this indicates that mothers of preschool children with diagnosed delays have a significantly higher likelihood (a 604% increase in the odds) of being low in positive expressivity compared to mothers of preschool children without special needs.
2. When statistically controlling for other predictors in the model, mothers with at least one child receiving specialized supports for a diagnosed delay in the past year (including a sibling older or younger than the Head Start child) have an estimated odds ratio of being low in positive expressiveness that is $e^{-1.635}$ or 0.195 times less than the odds of low positive expressiveness among mothers without any child in the family receiving services for a diagnosed delay. In other words, mothers of one or more children with special needs actually receiving services from at least one service

- provider have a significantly reduced likelihood (an 80.5% decrease in the odds) of being low in positive expressiveness (compared to mothers with no child receiving specialized supports); mothers with no child receiving specialized supports have a 513% increase in the odds of being less positively expressive in the home.
3. When holding at fixed levels the other predictors in the model, the estimated odds of being a mother who is low in positive expressiveness for those receiving specific ideas from teaching staff on addressing behavior concerns in the home is $e^{-1.762}$ or 0.172 times less than the odds of being low in positive expressiveness for mothers not receiving this outreach from teaching staff. In other words, the predicted probability of low positive expressiveness is lower (82.8% decrease in the odds) for those receiving specific advice or suggestions from teaching staff at their child's preschool when holding all else constant; mothers not receiving any Head Start staff advice in the past 12 months have a 581% increase in the odds of being lower in positive expressiveness.
 4. Holding all else constant, the estimated odds of being a mother with low positive expressivity for those who have two or more children in the home is $e^{-1.741}$ or 0.175 times less (82.5% decrease in the odds) than the odds of being low in positive expressiveness for mothers with only one child (i.e., solely raising the Head Start preschool child). In other words, given that the odds are less than a value of one based on the current sample, mothers with multiple children are significantly more likely to be high in positive expressivity compared to mothers solely raising the Head Start preschool child; in contrast, mothers raising only one child in the preschool age range have a 571% increase in the odds of being low in positive expressiveness.

When holding other predictors in the model at fixed levels, the estimated odds of having low positive expressiveness for those who dropped out of high school is $e^{1.646}$ or 5.186 times the odds of being low in positive expressiveness for mothers who graduated high school. In other words, when holding all else constant, the predicted probability of low positive expressiveness is higher (519% increase in the odds) for mothers who do not graduate from high school.

Interpreting the positive expressivity model in terms of probabilities. The predicted probability equation (see Appendix F7) is a non-linear function of the predictors that allows us to talk in terms of probabilities. Based on this sample, a mother with a Head Start child recently diagnosed with a delay, who does not have any child in the family receiving specialized supports in the past year, who has not received teacher-initiated suggestions for ways to handle behaviors, who is only raising one child (in the 3-5 age range), and who has dropped out of high school would be predicted of being low in positive expressiveness 99.4% of the time. On the other hand, a mother whose Head Start child has not been diagnosed with a delay, who does have at least one child in the family receiving specialized supports in the past year, who has received teacher-initiated suggestions on ways to handle behavior, who is raising two or more children, and who has graduated from high school would be predicted of being low in positive expressiveness only 3% of the time.

Research question 3 – Predicting mothers’ perceived role in emotional development.

To address my third research question, *Holding all else constant, which child, maternal and/or community-based variables might predict mothers who are not strongly*

supportive of the literature in how they perceive (i.e., not being highly supportive of) their purported role in early emotional development?, I ran a binomial logistic regression analysis with mothers not being highly supportive of their role regressed on the aforementioned predictors (including number of children as a covariate and the explanatory variables in Table 2; see Section I).

I examined results of the Wald tests (see Appendix F5) to assess the statistical significance of individual predictors (see hypotheses and decision rule in Appendix F2). Based on this sample ($n = 114$), when all other predictors in the model are held constant, the Wald tests indicated that the mean difference between mothers who are and are not receiving Head Start staff-initiated verbal/written suggestions on how to address behavior ($\hat{\beta}_{12} = -1.322$, Wald's $\chi_1^2 = 6.774$, $p < 0.05$), and the mean difference between those with two or more children and those with only one child ($\hat{\beta}_{13} = -1.401$, Wald's $\chi_1^2 = 5.893$, $p < 0.05$) each had a statistically significant effect on whether a mother is highly supportive of the purported role of mothers. However, the other pre-selected variables were not statistically significant predictors of not being highly supportive of one's role in the population, when all else is held constant.

Likelihood ratio tests. To compare the fit of two models (i.e., the full model with all the pre-selected predictors and the reduced model with only significant predictors), I performed a likelihood-ratio test by hand (see hypotheses & decision rule, Appendix F2; see SPSS output, Appendix F5). I computed the likelihood ratio test using the full model ($-2\ln L = 136.405$) and the reduced model ($-2\ln L = 141.927$). Results indicated that the p -value ($p = 0.90$) was not less than the nominal alpha value; I therefore failed to reject the null hypothesis. This indicated that the reduced model, with only statistically

significant predictors, was actually a better fit than the full model. In other words, delay status of a mother's preschool-aged child, specialized services for any child, frequency of behavior, 'behavior_internalizing', 'behavior_externalizing', 'behavior_none', whether the behavior is anticipated to improve with age, mean difference in stress levels, seeking help from professionals or non-professionals, and the mean difference between those who are and are not receiving very helpful community support did not significantly improve the fit of the model ($-2 \log L = 136.405$, $\chi_1^2 = 5.522$, $p = 0.90$). The reduced model's minus 2 times the log of the likelihood value was 141.927. The 'badness of fit indicator' did reduce by 5.522 to a value of 136.405 when non-significant variables were added, but this was not statistically significant in the population. The final fitted model capturing the predicted probability in the population of a mother not being highly aware of her role should therefore only include predictors in the reduced model.

Before continuing, I examined the initially non-significant covariates (see Assessing Mean Differences, p. 116) to assess whether they would be significant when controlling for other predictors in the reduced model (see explanation, p. 117). Although 'race_white' was non-significant when assessing mean differences using an independent t -test ($t_{112} = 1.632$, $p = 0.109$), this variable was significant when holding all else constant in an exploratory analysis (see Appendix F5; $\hat{\beta}_j = -1.439$, $x_1^2 = 6.427$, $p = 0.011$). Results of another Likelihood Ratio test, however, showed that 'white_race' does not significantly improve model fit ($-2 \log L = 138.884$, $\chi_1^2 = 3.043$, $p = 0.08$; see Appendix F1), so it would not be needed in the final model.

Final perceived role model. In answering my third research question, I found that the significant predictors incorporated into in the final model include the mean

difference between those receiving and not receiving Head Start staff-initiated advice (with receipt of staff advice negatively correlated with being highly unsupportive of the maternal role in the literature) (x_1) and the mean difference between those with at least two children and those with only one child (with raising two or more children being negatively correlated with being highly unsupportive of the maternal role purported in the literature) (x_2). The final fitted model (based on the Variables in the Equation table) is:

$$\text{logit}[\hat{\pi}(\text{staff_advice})_1 + (\text{number_children})_2] = \hat{\beta}_0 + \hat{\beta}_1 + \hat{\beta}_2 = \\ 1.552 - 1.282 - 1.238$$

As noted above, when holding all else constant in this fitted model, the mean difference between those who have and have not received staff-initiated behavior suggestions (in verbal or written form, at the preschooler's Head Start program) ($\hat{\beta}_1 = -1.282$, Wald's $\chi^2 = 7.973$, $p < 0.05$) and the mean difference between those with one child and those with two or more children ($\hat{\beta}_2 = -1.238$, Wald's $\chi^2 = 6.299$, $p < 0.05$) remained statistically significant predictors of not being highly aware of one's role in the population. A check of the residuals showed that no cases unduly affected this final model (Appendix F8). In terms of effect size (i.e., practical significance), none of the odds ratios hovered near or at a value of 1 (which would have meant that the chance of occurrence was just as likely to happen in either grouping of the predictor variable). Further, the Confidence Interval range around each odds ratio did not contain the value of 1.00; this indicates that changes in the value of each explanatory variable relates to changes in the odds of the outcome variable (<http://faculty.chass.ncsu.edu/garson/PA765/logistic.htm#sigtests>) and the statistically significant variables are indeed useful predictors.

Several indicators suggest this final fitted model is acceptable. The iteration history table (see Appendix F5) indicated that there was a need for only four iterations; this shows the final model was not difficult to fit and I would not be concerned about misspecification or error within the model. In addition, the Hosmer and Lemeshow Goodness-of-Fit test, with a p -value of 0.794, indicated that the final logistic model is a good fit. In other words, I can fail to reject this tests' null hypothesis that there is no difference between the observed and predicted values of mothers not being highly aware of their role in emotional development; the final model's estimates fit the data at an acceptable level.

The Classification Table for the fitted model (see Appendix F5) includes columns of the two predicted values of perceived role awareness (highly aware of mother's role = 0 and not highly aware of mother's role = 1), and rows of the two actually observed values of awareness in the current sample ($n = 114$). In terms of predicting group membership, using this model resulted in 41 mothers being misclassified, with an overall percent correct of only 64% (compared to a baseline badness of fit of 56.1%). Given my interest in predicting the likelihood of mothers not being highly aware of their role (as purported in the literature), note that this model correctly identified 57 mothers as high in negative expressiveness out of a possible 64 mothers who actually scored high on this outcome variable (89% correct in classifying those who are not strongly supportive of the literature in their perceived role in emotional development). Since this table uses an arbitrary cut-off value at 0.05, I examined the ROC curve, which averages across all potential cut-off values (see Appendix F5). This likely more accurate indication of model fit reported a slightly higher total classification of 68%. Both the classification table and

ROC curve suggest that an even better model may likely exist that could include predictor variables not considered in this analysis.

Interpreting perceived role in emotional development model in terms of the odds. To aid comprehension, it is useful to discuss the logit model in terms of odds. Based on the below Exp (B) values in Table 12, one can interpret the odds of ‘1’ (i.e., being a mother who is not strongly supportive of the literature; not highly aware of mothers’ purported role in emotional development) with regard to the two predictors in the model:

Table 12
Logistic Regression Predicting Mothers Not Strongly Supportive of the Literature in Their Perceived Role in Development

Variable	β	SE	Odds Ratio	p
Staff_advice	-1.282	0.454	0.277	0.005
Number_children	-1.238	0.493	0.290	0.012
Constant	1.552	0.473	4.721	0.001

1. Holding all else constant, the estimated odds of mothers disagreeing with the literature (i.e., not being highly aware of their role) for those who have received written or verbal Head Start staff-initiated behavior advice is $e^{-1.282}$ or 0.277 times less (a 72.3% decrease in the odds) than the odds of disagreeing with the literature for those who have not received specific recommendations or strategies from preschool staff. In other words, mothers who receive behavior advice from their preschool child’s school (e.g., from teachers, aides, behavior therapist, family support coordinator or education coordinator) are significantly more likely to be supportive of the purported role of mothers in the emotional competence literature; mothers who

- have not received any Head Start staff behavior advice in the past 12 months have a 361% increase in the odds of being less supportive of the role of mothers in the literature.
2. When statistically controlling for other predictors in the model, mothers who are raising two or more children have an estimated odds ratio of not being highly aware of their role in development that is $e^{-1.238}$ or 0.290 times less (a 71% decrease in the odds) than the odds of not being highly aware for mothers raising one child (i.e., an only child currently attending Head Start). In other words, mothers with multiple children are significantly more likely to be supportive of the emotional competence literature; mothers raising only one child in the preschool age range have a 345% increase in the odds of being less supportive of the purported role of mothers in the literature.

Interpretation in terms of probabilities. The predicted probability equation is a non-linear function of the predictors that enables one to talk in terms of probabilities. Based on a probability equation (see Appendix F7), a low-income mother who is not receiving Head Start staff-initiated specific behavior advice in the past year and who is only raising one child (in the 3-5 age range) would be predicted not to be strongly in support of the literature in how she perceives her role in preschoolers' emotional development (i.e., predicted of not being strongly aware of or in agreement with the emotional competence literature) 82.5% of the time. On the other hand, a mother who has received staff-initiated behavior advice in the past year and is raising two or more children would be predicted of not being strongly supportive of existing research in how

she perceives her role in emotional development (i.e., predicted of not being strongly in agreement with the emotional competence literature) only 27.5% of the time.

Research question 4 – Predicting mothers’ low receptivity to support. Lastly, I addressed research question #4: *Holding all else constant, which child, maternal and/or community-based variables may predict not being highly receptive to professional, mother-focused support?* I ran a binomial logistic regression analysis with non-high receptivity regressed on the aforementioned predictors (including Education Level and Number of Children as covariates and all explanatory variables from Table 2; see Section D). To assess the statistical significance of each predictor, I examined results of the Wald tests from the below SPSS table (see Appendix F2 for hypotheses and decision rule). When all other predictors in the model were held constant, the Wald tests indicated that the dummy variable representing the mean difference between mothers of preschoolers with no maladaptive behavior and those with a combination of internalizing and externalizing behaviors ($\hat{\beta}_6 = 2.392$, Wald’s $\chi^2 = 6.886$, $p < 0.05$), the mean difference between those anticipating the behavior to improve with age and thinking adult guidance is needed to improve behaviors ($\hat{\beta}_7 = 1.935$, Wald’s $\chi^2 = 8.340$, $p < 0.05$), the mean difference between those approaching 5 or more sources of direct or indirect community support and those contacting 4 or fewer sources ($\hat{\beta}_{11} = -2.292$, Wald’s $\chi^2 = 11.366$, $p < 0.05$), the mean difference between those dropping out of high school (between grades 7 and 11) and those graduating high school ($\hat{\beta}_{14} = 1.735$, Wald’s $\chi^2 = 5.168$, $p < 0.05$), and the mean difference between those raising two or more children and those with only one preschool-aged child ($\hat{\beta}_{15} = -2.750$, Wald’s $\chi^2 = 10.946$, $p < 0.05$) each had a

statistically significant effect on being a mother who is negatively expressive. The other pre-selected variables were not statistically significant predictors in the population (see Appendix F6).

Likelihood ratio test. To compare the fit of two models (i.e., the full model with all the pre-selected predictors and the reduced model with only significant predictors), I performed a likelihood-ratio test by hand (see hypotheses & decision rule, Appendix F2; see SPSS output, Appendix F6). I computed the likelihood ratio test using the full model ($-2\ln L = 97.546$) and the reduced model ($-2\ln L = 112.004$). Results indicate that the *p* – value ($p = 0.15$) was not less than the nominal alpha value; I therefore failed to reject the null hypothesis. This indicated that the reduced model, with only statistically significant predictors, was a better fit than the full model. In other words, the inclusion of whether the preschool child has a diagnosed delay, whether any children in the family receive specialized services for special needs, whether the behavior occurs weekly or monthly, the dummy variable representing the mean difference for mothers who have a child with internalizing compared to mixed behavior, the dummy variable reflecting the mean difference between those whose child has solely externalizing behaviors compared to both types, the mean difference between those with high and low parenting stress levels, whether mothers currently seek advice from professionals compared to non-professionals, the perceived helpfulness of existing support, whether the teaching staff currently initiate sharing ideas on ways of addressing the behavior in the home, and the mean difference between mothers obtaining at least an associate’s degree and those graduating from high school did not significantly improve the fit of the model ($-2 \log L = 97.546$, $\chi_1^2 = 14.458$, $p = 0.15$). Note that the reduced model’s minus 2 times the log of

the likelihood value was 112.004. The ‘badness of fit indicator’ did reduce by 14.458 to a value of 97.546 once I added the non-significant variables, but this was not statistically significant in the population. The final fitted model capturing the predicted probability of mothers not being highly receptive to behavior-related support in the population should therefore only include the predictors in the reduced model.

Since number of children and pre-high-school each had no statistically significant mean differences when assessed using independent *t*-tests, I conducted two additional Likelihood Ratio Tests by hand. Results indicated that including number of children did significantly improve the fit of the model ($-2 \log L = 112.004$, $\chi^2_1 = 8.403$, $p = 0.001$) and that including the mean difference between those dropping out and those graduating from high school also significantly improved model fit ($-2 \log L = 112.004$, $\chi^2_1 = 6.965$, $p = 0.01$; see Appendix F1 for both sets of computations).

Final low receptivity model. To answer my fourth research question, the final fitted model capturing the predicted probability of being a mother who is not highly receptive to behavior support in the population should therefore include all five predictors in the original reduced model. The predictors in the final fitted model consist of: the dummy variable comparing mean group differences between subjects who have children with no maladaptive behaviors and children with a combination of internalizing and externalizing behaviors (with a positive correlation between raising a preschooler with no behavior concerns and declining proposed support) (x_1), mothers thinking the behavior will improve on its own (as the child gets older) compared to those believing it will only improve with adult support (with a positive correlation between anticipating behaviors to improve with age and declining proposed support) (x_2), whether more or less avenues of

support have already been sought (with maternal efforts to seek 5 or more avenues of support negatively correlated with declining proposed support) (x_3), the dummy variable comparing mean group differences between those dropping out and those graduating from high school (with a positive association among dropping out of school and declining proposed support) (x_4), and the mean difference between those with an only child and those with two or more children (with mothers raising two or more children being negatively linked to declining support) (x_5). The final fitted model (based on the above Variables in the Equation table) is:

$$\begin{aligned} \logit[\hat{\pi}(\text{behavior_none})_1 + (\text{better_age})_2 + (\text{number_avenues_sought})_3 + (\text{pre_high_school})_4 + (\text{number_children})_5] = \\ \hat{\beta}_0 + \hat{\beta}_1 + \hat{\beta}_2 + \hat{\beta}_3 + \hat{\beta}_4 + \hat{\beta}_5 = \\ 0.304 + 1.755 + 1.214 - 2.002 + 1.536 - 1.635 \end{aligned}$$

As shown in the above table, ‘behavior_none’ ($\hat{\beta}_1 = 1.755$, Wald’s $\chi^2 = 8.236$, $p < 0.05$), ‘better_with_age’ ($\hat{\beta}_2 = 1.214$, Wald’s $\chi^2 = 6.016$, $p < 0.05$), ‘number_avenues_grouped’ ($\hat{\beta}_3 = -2.002$, Wald’s $\chi^2 = 15.345$, $p < 0.001$), ‘pre_high_school’ ($\hat{\beta}_4 = 1.536$, Wald’s $\chi^2 = 6.264$, $p < 0.05$) and ‘number_children_grouped’ ($\hat{\beta}_5 = -1.635$, Wald’s $\chi^2 = 7.554$, $p < 0.05$) remain statistically significant predictors of lower receptivity to parent-focused, behavior-related support in the population when holding all else constant in this fitted model. A check of the residuals showed that no cases unduly affected this final model (Appendix F8). In terms of effect size (i.e., practical significance), none of the odds ratios hovered near or at a value of 1 (which would have meant that the chance of occurrence was just as likely to happen in either grouping of the predictor variable). Further, the Confidence Interval range around each odds ratio did not

contain the value of 1.00, which suggests that changes in the value of each explanatory variable are associated with changes in the odds of the outcome variable ([http://faculty.chass.ncsu.edu/garson/PA765/logistic .htm#sigtests](http://faculty.chass.ncsu.edu/garson/PA765/logistic.htm#sigtests)); therefore, the statistically significant variables are in fact useful predictors.

Several indicators suggest this final fitted model is acceptable. The iteration history table (see Appendix F1) indicated that since only five iterations were needed, the final model was not difficult to fit; I am not concerned about misspecification or error with the model. The Hosmer and Lemeshow Goodness-of-Fit test, with a *p*-value of 0.380, showed that the final logistic model is a good fit. In other words, I could fail to reject this test's null hypothesis that there is no difference between the observed and predicted values of lower receptivity to support among mothers and conclude that the final model's estimates fit the data at an acceptable level.

Further, the Classification Table for the fitted model (see Appendix F6) includes columns of the two predicted values of receptiveness among mothers (high receptivity = 0 and lower receptivity = 1), and rows of the two actually observed values of receptiveness in the current sample ($n = 114$). In terms of predicting group membership, it appears that this model misclassified 28 mothers, with an overall percent correct of 75.4% (compared to a baseline badness of fit classification of 59.6%). Given my interest in predicting the likelihood of not being highly receptive to tailored support, it is concerning that the model only correctly identified 28 mothers as not highly receptive out of a possible 46 mothers who actually scored high on this outcome variable (only 60.9% correct in classifying lower receptivity).

Since the classification table uses an arbitrary cut-off value at 0.05, I also examined the ROC curve, which averages across all potential cut-off values (see Appendix F6). This likely more accurate indication of model fit reported a higher total classification of 82.2%. Nonetheless, both the classification table and ROC curve suggest that an even better model may exist that could include predictor variables that were not assessed in the current analysis.

Interpretation in terms of the odds. To aid comprehension, it is useful to discuss this final logit model in terms of odds. Based on the below Exp (B) values in Table 13, one can interpret the odds of ‘1’ (i.e., being a mother who is not highly receptive to parent-focused, professional support or advice pertaining to preschoolers’ behavior and emotional development) with regard to the five predictors in the model:

Table 13
Logistic Regression Predicting Mothers without High Receptivity to Behavior Support

Variable	β	SE	Odds Ratio	p
Behavior_None	1.755	0.611	5.782	0.004
Better_with_age	1.214	0.495	3.367	0.014
Number_avenues_grouped	-2.002	0.511	0.135	0.002
Educ_pre_high-school	1.536	0.614	4.644	0.012
Number_children_grouped	-1.635	0.595	0.195	0.006
Constant	0.304	0.530	1.355	0.566

1. Holding all else constant, the estimated odds of being a mother with lower receptivity to support for mothers of children without any concerning maladaptive behaviors in the past two months is $e^{1.755}$ or 5.78 times more (a 578% increase in the odds) than the odds of lower receptivity for mothers of children with a combination of

- internalizing and externalizing behaviors. In other words, mothers who perceive their preschool children as behaving appropriately are significantly more likely to decline tailored support if offered at the current time.
2. When statistically controlling for other predictors in the model, mothers anticipating that maladaptive (inappropriate or frustrating) child behaviors should improve with age have an estimated odds ratio of being less interested in support that is $e^{1.214}$ or 3.367 times more (a 337% increase in the odds) than the odds of low receptivity among mothers who anticipate that concerning behaviors will more likely need adult guidance to improve. In other words, mothers thinking that maladaptive behaviors will go away on their own (e.g., reducing or stopping as the child gets older) are significantly more likely to decline tailored behavior support at the present time.
 3. When holding all else constant, the estimated odds of being a mother with lower receptivity to additional support for those who have sought at least five direct or indirect avenues of support in the past year is $e^{-2.002}$ or 0.135 times less (an 86.5% decrease in the odds) than the odds of being less interested in additional support for those who have reached out to four or less avenues of direct or indirect support in the past year. In other words, mothers who have made greater outreach efforts in the past 12 months (i.e., approaching five or more sources for behavior-related information) are considerably more likely to accept additional tailored, professional support; on the other hand, mothers who have made fewer outreach efforts in the past 12-months have a 741% increase in the odds of being less receptive to proposed support.
 4. Holding all else constant, the estimated odds of having lower receptivity to support for mothers who dropped out of high school (following grades 7-11) is $e^{1.536}$ or 4.64

- times more (a 464% increase in the odds) than the odds of lower receptivity for mothers who graduated from high school. In other words, when controlling for all else in the model, mothers who graduate from high school are more likely to accept tailored behavior support (compared to those dropping out before grade 12).
5. When other predictors in the model are held constant, mothers with two or more children have an estimated odds of not being highly interested in behavior support that is $e^{-1.635}$ or 0.195 times less (an 80.5% decrease in the odds) than the odds of not being receptive for those with only one preschool-aged child. In other words, mothers with multiple children are significantly more likely to accept additional support to address children's behavior and emotional development. Conversely, mothers with only one child are more likely (a 513% increase in the odds) to decline tailored behavior support.

Interpretation in terms of probabilities. The predicted probability equation is a non-linear function of the predictors allowing discussion in terms of probabilities. Based on this sample, mothers who are not particularly concerned about or frustrated by their preschool child's behavior, who believe maladaptive behavior will likely improve with age, who have sought less than five sources of behavior advice in the past year, who have dropped out of high school, and who have only one child (age 3-5) have a high probability of declining proposed parent-focused support (with less willingness to agree to outreach efforts or to modify parenting beliefs and parenting behaviors) 99.2% of the time. On the contrary, a mother who reports raising a preschool child with a combination of internalizing and externalizing behaviors in recent months, who believes adult guidance is most likely needed to improve a child's behavior, who has sought at least five

or more sources of behavior advice in the past year, who graduated from high school, and who has two or more children would have an extremely low probability of declining proposed, parent-focused support 3.45% of the time. In other words, the model predicts that mothers with this latter combination of factors would be highly receptive to various outreach efforts and more willing to modify parenting beliefs and behaviors if recommended by a parent educator as a way to improve children's behavior and emotional development.

Chapter Five: Discussion

In this study, I examined mothers' role in promoting preschoolers' emotional competence. The two main goals were to: (1) better understand emotion-related behaviors, beliefs, and needs among low-income Head Start mothers, and (2) explore factors that predict mothers' status on aspects of parenting that may influence children's emerging emotional development (i.e., namely their regulation and expression of emotions). These components of parenting included self-expressiveness in the home, perceived role in emotional development, and receptivity to behavior-related advice. I built on Bronfenbrenner's bioecological framework to consider the predictive ability of a wide range of child, mother, and community-based factors within social-emotional research. Moreover, based in part on Schema Theory and limited literature, I devised scales to quantify how mothers perceive their role and the extent to which they are receptive to behavior-related advice that could inform parenting practices. In this final chapter, I summarize and interpret findings within a guiding theoretical context and in relation to the available literature. I also acknowledge study limitations, and highlight implications for researchers and practitioners in the early childhood field based on results from this sample.

Summary of Results

I interviewed 114 low-income, English-speaking, urban Head Start mothers over a two-month span in the first half of the school year. I administered four measures: *Perceived Role and Receptivity to Support Scale* with an added demographic section (pretested and devised for this study), *Parenting Stress Scale* (Berry & Jones, 1995), *Early Childhood Behavior Problem Screening Scale* (Epstein & Nelson, 2006), and the

Self-Expressiveness in the Family Questionnaire (Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995). As noted in Chapter 2, the literature supports the role of mothers in contributing to children's early emotional development (Caspi et al., 2004; Chang et al., 2003), the need to understand contextual factors that may be associated with mother-child exchanges (Fitzgerald et al., 2006; Nelson et al., 2007), benefits of conducting parent-focused interventions to indirectly promote preschoolers' emotional growth (Havighurst et al., 2004; Mahoney & Perales, 2003), and the utility in tapping into parenting beliefs (Dunsmore & Karn, 2001; Santos & McCollum, 2007). I extended this knowledge by identifying demographic and contextual factors across the micro- and mesosystem that predict Head Start mothers' emotional development-related behaviors, beliefs, and needs.

Recruitment efforts. I obtained a relatively good response rate with a hard-to-reach population, provided participants with show cards to aid recall of response options during data collection (see Appendix D6), and orally read rating scales to be sensitive to non-readers (as done by Kimonis et al., 2006). There was no concern with interviewer variability since I was the sole interviewer in this study. Based on maternal self-report, over 60% of the urban Head Start mothers in this sample were African American, relatively young (i.e., at or below age 30), had a high school education, raised two or more children, and resided in two-parent homes. When comparing this analysis to the six studies in my literature review also investigating low-income groups (i.e., in terms of recruitment efforts), five samples were smaller (Gamble et al., 2007; Garner, 2005; Havighurst et al., 2004; Kidwell & Barnett, 2007; Kimonis et al., 2006) and only one had a larger sample size (Fantuzzo et al., 2004). Of those reporting comparable demographics, four of the preceding studies also collected data from predominately

African American mothers (Fantuzzo et al., 2004; Garner, 2005; Kidwell & Barnett, 2007; Kimonis et al., 2006), with one study solely recruiting Mexican American parents (Gamble et al., 2007). Further, in contrast to my sample, two studies collected data from diverse primary caregivers (Fantuzzo et al., 2004; Gamble et al., 2007), two studies targeted a predominately single-parent sample (Fantuzzo et al., 2004; Kidwell & Barnett, 2007), two studies recruited more mothers who dropped out of high school (Gamble et al., 2007; Kidwell & Barnett, 2007), one study included mothers of children from a wider age range (i.e., 2-5 years; Kimonis et al., 2006), and one study recruited mothers from low and middle-income levels (Havighurst et al., 2004). Dunsmore and Karn (2001), who were closest aligned to my study's objectives, recruited predominately Caucasian mothers from solely middle-high income levels and were interested in maternal beliefs' in relation to children's emotion knowledge (rather than children's emotion expression and regulation).

Child attributes. In terms of unique child attributes, I looked at delay status as well as the type and frequency of behavior. Most mothers did not have a Head Start child with a diagnosed delay and participants ranged in the frequency of behavior concerns. In terms of behavior type, results support the notion that behaviors often co-occur (Bayer et al., 2008) and are both increasingly common as the length of time in poverty increases (McLoyd, 1998); in my sample, nearly half of participants' Head Start children exhibited both internalizing and externalizing behaviors. It is somewhat surprising, though, that there were more reports of solely internalizing behaviors compared to reports of solely externalizing behaviors, especially given that socio-economic status (SES) is often viewed as having more of an effect on externalizing behaviors (McLoyd, 1998). Perhaps

the increased self-report of internalizing behaviors in my analysis is due to asking parents to select from among a standardized set of internalizing and externalizing issues that may be very much like their child (using the ECBPSS); other measures which do not offer categorical ratings of both behavior types (e.g., as used by Harwood et al., 2009) may limit mothers' reporting of seemingly less disruptive behavior concerns.

Participants' community outreach. Head Start mothers in my sample acknowledged approaching various avenues in the community to obtain behavior support for their preschool child in the past 12 months. Participants were more likely to obtain direct behavior support by reaching out to family and friends rather than health care professionals, Head Start staff and non-Head-Start teachers or therapists. With regard to indirect sources, parents acknowledged gaining the most behavior advice from television, followed by parenting magazines, the internet, the bible, and less likely from parenting books. These findings build on the work by Santos and McCollum (2007), who found that Filipino mothers of children without disabilities more likely approach friends and media while mothers of children with disabilities more likely seek support from professionals and family. In contrast, I found that participants sought behavior support from more family and friends rather than professionals regardless of raising a child with or without a delay. It is noteworthy, however, that those raising a Head Start child with a delay invested a larger percentage of time reaching out for support across community members. My breakdown of community outreach addresses a lack in the literature as to which specific professionals and media sources low-income families feel comfortable contacting. In addition, unlike previous authors who concluded that mothers receive "considerable support" from family (Kenny & McGilloway, 2007; NEILS, 1998-present),

I asked participants to identify whether they receive emotional support, strategy-specific advice or a combination from each community member. In conjecturing as to why mothers might go to certain people more than others, perhaps they base decisions on which type(s) of guidance a community member is anticipated to offer (e.g., based on previous approachability, displays of empathy and warmth, previous attempts to connect with mother on a more personal level). Findings from Table 7, for example, indicated that mothers were more likely to receive a useful combination of emotional support and strategy-specific advice from family (69.39% out of those finding family to be very helpful) compared to when approaching doctors or nurses (37.50% out of those finding health care workers to be very helpful). It may be that mothers more likely seek guidance from personal contacts because they anticipate professionals to be less likely to offer emotional support with more straightforward strategies. Nonetheless, it is concerning that mothers found low percentages (ranging from 11-49%) of all community members' support as very helpful. This mirrors emerging findings that existing outreach efforts are generally insufficient in meeting mothers' needs (Kenny & McGilloway, 2007).

Research question 1 – Within-group comparisons. Gilliom et al. (2002) suggest that it is important to understand the extent to which within-group discrepancies exist among low-income samples. For example, mothers who are more positively expressive may buffer their young children from the negative impact of poverty (Raver & Spagnola, 2003). In this sample, there was a mix of variability and uniformity. With regard to subgroup uniformity, most participants initiated approaching at least one avenue in the mesosystem to obtain behavior-related advice and most reached out to a combination of direct (person-to-person contact) and indirect (e.g., media-based) sources

for support. Although participants disagreed on how big a role mothers play in emotional development, the majority agreed that they play an equal if not greater role compared to teachers. There were converging views on condoning spanking and trying to hide negative feelings from preschoolers, as well as addressing children's crying during a routine separation and asking young children to share feelings on daily events.

Overall, the range in scores and variability in frequencies based on self-report suggest more instances of subgroup variability than uniformity. Participants expressed clear differences of opinion regarding a number of parenting views. In addition to numerous discrepancies in how this maternal subgroup perceives mothers' role in emotional development (see Table 6), there was variability in whether they expected behavior to improve with age, concern about possible consequences if behaviors persist, and willingness to modify behavior and views if advised by a parent educator. Such results contradict previous authors' suspicion that a maternal subgroup may share a common set of expectations that inform perceptions regarding their children's emotional development (Dunsmore & Karn, 2001). With regard to maternal behaviors, this subgroup varied in the extent of outreach efforts, satisfaction with existing outreach, willingness to approach professionals, as well as the level of positive expressiveness and negative expressiveness to which they expose their preschoolers. I also found within-group variability in what participants need in order to address behavior and emotion-related issues. This subgroup was variable in whether mothers have received relevant information from Head Start staff, whether they most prefer to receive information in a one-on-one, group, or less personal context, as well as their overall receptivity to tailored, parent-focused support.

Logistic regression analyses. In terms of risk factors, my logistic regression analyses successfully pinpointed child, mother, and community variables that help predict mothers' standing on how they think about their role, behave in their homes and on whether they are receptive to external recommendations that may inform their parenting practices. In this section, I highlight non-significant variables and summarize key considerations from the final fitted models. First, I found that maternal age, foster parent status, child's gender, and child's age did not warrant inclusion as covariates in any of the analyses. In comparison, Dunsmore and Karn (2001) also found no gender differences in how mothers of sons or daughters responded to emotion-related questions or in their positive or negative expressiveness; however, they did control for children's age when significant since they found children to display more emotion knowledge with age. Despite initial suspicions, I found that frequency of behavior concerns (weekly versus monthly), mean difference between professional versus non-professional contacts, and whether mothers had at least one very helpful outreach attempt were not significant explanatory predictors in any of the models.

Five of the nine pre-selected covariates (i.e., maternal education level, single-parent status, mother's race, raising singletons versus two or more children, and receiving behavior-related support for non-Head Start children) needed to be controlled for in at least early stages of certain analyses (see Section III). Further, 7 of the 10 suspected explanatory variables (i.e., Head Start child's delay status, specialized supports received by any child in family, no behavior concerns compared to a combination of concerns, anticipating behaviors to improve with age, parenting stress level, number of community supports sought, and Head Start staff offering behavior advice in the past year) had

statistically significant mean differences across at least one of the four parenting models in varying stages of analysis.

When interpreting findings (e.g., within the Perceived Role Scale), bear in mind that 67% of the sample was African American. Readers may recall from Chapter 1 that parenting styles among African American and Caucasian mothers may not be associated with comparable child outcomes. An authoritarian parenting style or use of physical discipline, for example, has been linked to adverse child behaviors among Caucasian but not African American samples (Baumrind, 1972; McLeod, Kruttschnitt, & Dornfield, 1994). In contrast, authors of a more recent study offered cross-cultural validation for an authoritative parenting style among African American female caregivers to be most predictive of having a preschool child with decreased behavior concerns (Querido, Warner, & Eyberg, 2002).

Research question 2a – Factors predicting high negative expressiveness.

Previous literature suggests that high levels of negative expressiveness among mothers may hinder children's emotion understanding (Raver & Spagnola, 2003) and emotion regulation (Ramsden & Hubbard, 2002). My results indicated that one child variable (i.e., children presenting with a combination of internalizing and externalizing behavior) and two maternal variables (i.e., high stress level, obtaining an advanced degree) predicted high maternal negative expressiveness. Bear in mind, however, that only 20% of the sample had a child with no pressing behavior concerns and only 11% attained a level of education beyond high school; a restricted sample size within these categories limits interpretation (e.g., small cell sizes can inflate odds ratio values).

Research question 2b – Factors predicting low positive expressiveness. Further, two child-related variables (i.e., having a Head Start child with a diagnosed delay, having no children in the family receiving specialized services for a delay in the past year), two maternal variables (i.e., having only one child, dropping out of high school) and one community-based variable (i.e., not receiving specific behavior suggestions from Head Start staff) predicted less maternal positive expressiveness. In terms of interpretation, note that only 18% of the sample had a preschooler with a parent-reported diagnosed delay, only 27% of the sample was raising one child (in the preschool age range), and 25% of the sample dropped out of high school; again, findings may be skewed due to a smaller number of participants in these categories. Further, although age was not statistically significant in any of the initial analyses, the finding that those receiving behavior advice from Head Start were less likely to be lower in positive expressiveness may be misleading since over 50% of participants had a three-year-old start starting Head Start in the preceding 1-2 months (i.e., with arguably insufficient time for teachers and parents to share concerns or advice with one another).

Research question 3 – Factors predicting perceived role in emotional development. In earlier sections, I noted that the literature acknowledges various ways for mothers to promote children's emotional competence (e.g., see Appendix B3). I therefore assessed if certain factors resulted in significant within-group variability in whether this sample of mothers strongly supported researchers' findings (i.e., the probability of mothers not strongly agreeing with the purported role of mothers in the existing literature). Results indicated that one maternal variable (i.e., raising only the Head Start child) and one community-based variable (i.e., not receiving specific behavior

suggestions from Head Start staff) helped predict those mothers in the sample who were not strongly supportive of the empirical literature on the role of mothers in children's emotional development. The final fitted model for this analysis had the lowest classification rate (68%) among the four analyses. Further, the aforementioned concerns regarding small sample sizes among those with only one child (27%) and those receiving staff advice (29%) as well as over 50% of the sample raising a three-year-old attending Head Start for the first time (without potentially having had a chance to connect with staff) may distort these findings.

Research question 4 – Factors predicting low receptivity to support. In addition, I suspected that child, maternal and community-based variables would account for variation in mothers' interest in avenues of proposed support and willingness to change behavior and attitudes if recommended by a parent educator (i.e., receptivity to parent-focused support). Results suggest one child variable (i.e., not having a child with any perceived maladaptive behavior in the past two months), three maternal variables (i.e., believing the child's behavior will most likely improve with age, dropping out of high school, and raising only the one Head Start child), and one community-related variable (i.e., mothers seeking less than five avenues of direct or indirect behavior support in the community) predict less receptivity to proposed parent-focused behavior support. As stated earlier, consider how only 20% of the sample reported no behavior concerns, only 27% was raising a singleton, and 25% dropped out of high school (with relatively small subsamples within these categories possibly skewing results).

Consideration of Key Findings

The four models that I tested suggest that there are child, maternal, and community-specific variables that significantly predict low-income mothers' standing in emotion-related beliefs, behaviors, and/or needs.

Child variables. Mothers of preschoolers with a combination of internalizing and externalizing behaviors tend to be more negatively expressive than mothers of children with no behavior concerns. This supports previous findings related to reciprocity in mother-child exchanges (e.g., with previous researchers acknowledging that maternal expressiveness can predict behaviors; Ramsden & Hubbard, 2002; Rosham & Schelstraete, 2007). In addition, mothers of children without concerning maladaptive behaviors are less receptive to tailored support [which coincides with Harwood et al.'s (2009) recent findings]. Although some parents in this category were highly interested in proactively learning strategies (to be better prepared should later situations arise), the majority of mothers were unsurprisingly less eager to desire varied supports or to modify their parenting behavior when there was no perceived pressing reason to do so.

Raising children with special needs was associated with whether mothers were low in positive expressiveness. To the best of my knowledge, previous authors have not empirically explored this particular correlation. There appears to be a contradiction in the finding that mothers of Head Start children with diagnosed delays were lower in positive expressiveness, while mothers who have had any child in the past year receiving specialized supports were higher in positive expressiveness. One possible explanation is that mothers of Head Start children with delays may be contending with a new diagnosis without necessarily beginning services (or with a possible interruption in services as

reported by several participants). At the same time, mothers of children who have actually received services in the past year (including children outside of Head Start) may have had opportunities to learn of recommended strategies and parenting practices from service providers, and may feel more optimistic about improvements they see based on child-focused supports.

Maternal variables. It is noteworthy that parenting experience played a considerable role in multiple models. Although insufficiently explored in the literature, one author reported that low-income urban mothers raising multiple children was associated with higher perceived role strain (Morris, 2005). I considered other connections in my study and detected rather promising outcomes for such families. Holding all other predictors in the models constant, mothers raising two or more children (as opposed to mothers solely raising the one Head Start child) were more likely to display positive expressiveness, had a significantly increased likelihood of agreeing with the purported role of mothers in the literature, and were more receptive to additional parent-focused support. It may be that larger families reduce feelings of isolation, which may in turn promote positive expressiveness. Or, perhaps more positive women make the decision to have additional children (Dr. David Cooper, Personal Correspondence, April 2010) More experienced mothers may be more willing to reexamine parenting practices (perhaps seeing mothers as playing a larger role and more receptive to incorporating outside suggestions) after seeing what has transpired for older children. For example, one mother said, “I (give into tantrums) – but it’s not helpful... just spoiling them and that’s not good; my older kid is very out of control”. Maternal education level also contributed to standing across several maternal outcome variables. Compared to

high school graduates, mothers dropping out of high school (after grades 7-11) were lower in positive expressivity and less likely to want parent-focused behavior support when holding all else constant (suggesting that it may be harder to offer outreach to these mothers). These findings add to a growing understanding of how mothers of preschoolers with less than a high school education are less supportive during family interactions (Stright & Bales, 2003) and less likely to engage in home-school conferencing (McWayne, Campos, & Owsianik, 2008). Surprisingly, findings suggest that those with advanced degrees are *more* likely to display negative expressiveness in the home. Although the literature is scant, this contrasts with a previous finding (from a predominately Caucasian sample) that college-educated mothers tend to be more supportive during family interactions with their co-parent and preschooler (Stright & Bales, 2003). Since only 13 mothers fit into this college-educated category in my study, replication of findings with a much larger subject pool is advised.

Another maternal variable worthy of consideration is whether mothers anticipate behavior will improve as the child matures or only get better with adult guidance. Expecting preschoolers' behavior to improve with age was associated with lower receptiveness to proposed support. To the best of my knowledge, researchers have not previously assessed this connection. Understandably, parents may conceivably feel there is little incentive to receive parent education and modify existing practices if the behavior will ultimately cease to be problematic. However, this line of thinking may serve as a roadblock to considering developmentally appropriate practices that may alter a child's trajectory.

In terms of parenting stress, research indicates that mothers who experience high levels of parenting stress may have significantly lower positive perceptions and higher negative perceptions of their children (Renk et al., 2007). Further, Webster-Stratton (1990) noted that parenting stressors could result in more punitive, critical parenting with an increased likelihood of establishing negative mother-child interactions and the development of conduct problems. Recently, an author also found that mothers experiencing higher levels of parenting stress engage in less positive interactions with their preschool child (Marin, 2008). Similarly, my findings suggest high parenting stress is a risk factor that helps predict higher levels of negative maternal expressiveness. This supports the notion that attitudes and behaviors influence one another and reinforces the importance of devising initiatives that reduce perceived parenting stress.

Community variables. Notwithstanding the positive outcomes from the parent-focused interventions discussed in Chapter 2, there is a dearth of quantitative data in the emotional competence literature pertaining to varying aspects of mothers' community outreach efforts (e.g., Harwood et al., 2009). In my study, it was difficult to identify an aspect of community outreach that reflected within-group variability. Most of the Head Start mothers did in fact seek help from at least one avenue in their mesosystem and most sought support from a combination of direct and indirect sources. The variability in whether or not parents sought support from professionals was not a significant predictor in the analyses; however, the extent of outreach did play a contributing role. Mothers who sought fewer direct and/or indirect avenues of support in the past 12 months were significantly less receptive to proposed tailored support, when holding all else constant. Conversely, those who actively sought numerous avenues for behavior-related ideas were

more receptive to additional support. It is understandable that those not looking for much support in the past would not be so inclined to receive outreach in the future. However, determining the best way(s) to connect with these families may be more challenging since they do not widely convey their needs. Particularly for these mothers, I suspect that if their few outreach attempts have not been helpful, they may surmise that getting additional people involved would similarly not be worthwhile. In addition, it is somewhat concerning that those pursuing multiple (i.e., five or more) avenues are still highly interested in receiving additional guidance. This suggests they are not satisfied with existing efforts.

In terms of community-based contributions, advice from Head Start staff warranted inclusion as a significant predictor in two of the maternal outcome variables. A recent qualitative investigation shed light on preschool educators' understanding of emotional development and ways they can help convey this information to parents (Boyer, 2009). In the current study, mothers receiving staff-initiated behavior advice or suggestions were more positively expressive in the home and more likely to be supportive of the literature in understanding their role in emotional development (compared to mothers not receiving specific advice or suggestions from staff). Perhaps providing mothers with concrete ideas empowers them to try effective strategies, more clearly see their role in development, and perhaps generate more positive mother-child exchanges. Alternatively, it could be that teachers feel more comfortable sharing specific behavior advice with mothers who are positively expressive or with mothers who already view themselves as playing a large role in emotional development.

Limitations

There were a number of limitations in this study including generalizability, interpreting correlational data, accuracy of maternal responses, trustworthiness of select measures, and interpreting dichotomized data.

Generalizability is affected by the narrow subject pool and use of non-random (i.e., convenience) sampling. Based on the roughly 240 families attending the study site at the time of the study, the response rate was only 48%; replication with larger samples will help ascertain if findings can be generalized to the entire population. [Note: the number of total families (~240) is an approximation; I was unable to verify which of these mothers would have been excluded from the study for not having a mother raising a child in the home and which of these families were not English speaking.] Findings may also not generalize to low-income mothers who do not have a child in Head Start (Garner, 2005), those attending Head Start in a rural or suburban region, or to mothers with limited proficiency in English. Moreover, this Head Start site was unique in that there was recent grant approval for a full-time behavior specialist to offer prolonged individual and small group supports. At orientation, this behavior specialist introduced herself to new families; in terms of history, she began offering weekly behavior management small groups in the final days of data collection. The type of early childhood program is important to consider since such environments may vary in quality and differentially influence development (Farran, Ramey, & Campbell, 1977; Mallory & Goldsmith, 1991). Generalizability is further limited since over 60% of the sample had a three-year-old attending Head Start for the first time, with data collection occurring in the first few months of the school year; there may have been insufficient time for teachers and parents

to establish a rapport and broach behavior-related concerns with one another. Making inferences based on this study is restricted since participants' self-report was not further assessed at the middle and end of the school year (i.e., to detect possible changes in outreach efforts or overall perceptions).

It is also important to note the non-causal nature of my findings. I assessed the predictive, non-causal influence of explanatory variables; this does not preclude the possibility that reciprocal relationships exist or that other variables not considered in this analysis might account for some of the reported associations.

Another limitation is that the data collection I used may have affected mothers' ratings. I based results on mothers' responses to a series of interviewer-administered measures at one time point. Mothers may have given socially desirable responses. I sought to minimize concerns by explaining that there were no wrong answers, having Perceived Role items ask about mothers in general, giving permission for less socially appropriate practices, explaining that mothers may vary in whether they desire support from community members, and emphasizing the confidential nature of responses. The techniques seemed effective in generating increased variance across sensitive topics that might otherwise be highly susceptible to social desirability (e.g., 74 participants acknowledged that spanking is at least somewhat helpful for children after reading the permissive statement associated with that item). In addition, some of parents' self-report pertaining to objective information may not have been accurate; for example, despite having offered a standard probe with regard to whether they signed a document to begin services at an Individualized Education Plan (IEP) meeting, participants may not have accurately reported whether their child had a diagnosed delay.

There are also some limitations related to the measures used. Unlike Nelson et al. (2007), I did not counterbalance the presentation of measures. This decision helped create a standardized format for all participants, and allowed them to establish a level of comfort during the interview before answering potentially emotionally-charged items. Also, given the multiple measures used in this analysis, I did not account for a Bonferroni correction; overlooking this adjustment may have led to an inflated Type I error (erroneously viewing non-significant findings as significant). At the same time, there appears to be controversy as to the utility of using such a correction (e.g., potentially being too conservative, missing real differences and leading to publication bias; http://www.hms.harvard.edu/orsp/coms/Statistics/Multiple_significance_tests_and_the_Bonferroni_correction.htm; <http://beheco.oxfordjournals.org/cgi/content/full/15/6/1044>). Additionally, there is a lack of psychometric data for the newly devised measure: the PRRSS. Reliability estimates (e.g., test-retest reliability) and other validity estimates (e.g., predictive validity, construct validity) will need to be assessed in subsequent validation studies to facilitate more trustworthiness in interpreting results. In addition, I grouped much of the data (including variables assessing Perceived Role, Stress, and Receptivity to Support) using median splits; although I intended for this grouping to enhance interpretation, there are understandable concerns (e.g., loss of power, a restricted range that can underestimate the effect size; <http://psych.colorado.edu/~mcclella/MedianSplit/>). My decision was supported by the notion that even an ordinal scale (e.g., with Likert-scaled responses) is not truly continuous (i.e., it does not contain an intrinsic interval scale); further, breaking down responses into two classes may hold more utility in classifying subgroups that I detected

in this study (Dr. J. R. Harring, personal communication, November 25, 2008).

Nonetheless, assessing all of the continuous, non-dichotomized data in the Perceived Role variable, for example, may have provided more variability and additional insights in this exploratory study.

Moreover, some may argue that I overlooked worthwhile lines of inquiry when devising my measure. For example, although the highest percentage of indirect outreach among participants was by means of television (51%), I did not assess the type of television programming typically used to obtain behavior-related information. Exploring the potential variation within this and other such responses may have revealed informative insights. Further, there may have been differences in perceptions among step- or biological mothers had I asked participants to disclose this information; similarly, some may argue that I should re-run analyses with the six self-identified foster mothers excluded from each of the models.

Also, with regard to the Perceived Role variable, there may be inherent concern with the conceptual notion of this predominately African American sample of Head Start mothers being ‘aligned with or supportive of’ literature in which they are underrepresented. It was my intention, however, to forge a better understanding of diverse views and work towards common ground, without intending for the literature in its current form to reflect an absolute, irrefutable way of parenting.

Implications for Future Research

Based on this analysis, there are numerous research implications that may enhance understanding of how best to empower parents and indirectly promote early emotional development. These implications pertain to (1) being guided by the theoretical

frameworks, (2) using and validating select measures, (3) substantiating empirically based claims that we would like to impart on families, (4) replicating novel findings, (5) conducting this methodology with a broader subject pool, (6) assessing factors that may improve model fit, and (7) conducting qualitative research to further explore within-group variability.

Future researchers are encouraged to consider the immense utility of Bronfenbrenner's bioecological model and Markus's Schema Theory in guiding similar research. Especially given a dearth of pertinent data in the literature, these theoretical orientations served as integral guides as I assessed the ecological complexity surrounding parents' emotion-related beliefs and behaviors. Paying closer attention to maternal self-report provided a glimpse into attitudes and parenting practices which may persist over time based on preliminary expectations and assumptions. Researchers may want to consider how factors within the micro- and meso-systems can play unique and/or combined roles in predicting maternal perceptions, behaviors, and current needs surrounding their children's emotional development.

Researchers may incorporate the use of select measures into their emotional competence research in the future. I had not previously considered how someone could be high in negative expressiveness while also scoring high in positive expressiveness (i.e., erroneously assuming someone who scores 'high negative' would also score 'low positive' in expressiveness). As suggested by previous authors (Boyum, 1995; Halberstadt, Fox & Jones, 1993), low positive expressiveness and high negative expressiveness may be distinct constructs. Researchers are encouraged to explore this complexity, assess the unique association of risk factors with each of these constructs,

and account for both types of expressiveness (and the varying combinations of high/low negative and high/low positive expressiveness) in future analyses. Further, in terms of the Perceived Role Scale, researchers should examine long-term outcomes of engaging parents in a dialogue that may raise the level of consciousness about whether what they are doing is actually helping or not helping their child. Also, although my devised Perceived Role and Receptivity to Support Measure underwent pretesting, validation studies are needed to provide reliability and validity estimates.

Moreover, in terms of the Perceived Role Scale, I assessed whether participants did not highly agree with researchers (i.e., whether they were not strongly supportive of the literature) with regard to their role in early emotional development. Before assuming that researcher-parent dissonance in views could play a negative role in children's development, it is important to verify the importance of each claim in future research. We should confirm that the empirical evidence we would like to impress on parents in outreach efforts (e.g., long-term adverse affects of spanking or yelling, typical persistence of behavior overtime, helpfulness of discussing positive and negative emotions with children) is accurate and valid across multiple samples. Further, it may be worthwhile to assess whether the aforementioned ecological variables predict status on each of the 12 Perceived Role scale items individually or in a manner that may reflect subgroups (e.g., views on harsh discipline, views on reacting to children's emotions).

My preliminary findings should be replicated in future research. I examined numerous factors that, to the best of my knowledge, have not been explored in a quantitative context. Four such statistically significant variables (in at least one of the above analyses) included whether any child in the family received specialized services in

the past year, the mean difference between seeking more or less avenues of support, anticipating maladaptive behavior to improve with age or only with adult support, and Head Start staff-initiated outreach to share advice on ways to address emotions and behavior at home. Moreover, Head Start mothers obtaining an advanced degree (i.e., only 11% of my sample) were found to be more negatively expressive in their homes. Replication of findings in similar samples (with larger representations of people in each respective category) would bolster support for inclusion of these less commonly considered variables in subsequent emotional competence research and intervention planning.

In terms of generalizing findings, I deliberately sampled from among a narrow group of participants (i.e., urban, low-income Head Start mothers) to assess within-group variability among parents often erroneously perceived as uniform in their views, behaviors and needs (Gilliom et al., 2002). At the same time, replication studies are needed to determine whether there would be comparable findings in low-income samples outside of Head Start as well as in other Head Start samples (across geographical regions; including mothers raising more of an equal representation of children with and without delays in the 3-5 age ranges). Further, it may be informative to assess current data in relation to maternal self-report from middle- and high-income strata. My within-group analysis, for example, does not permit me to repudiate or support claims that mothers living in poverty have more adverse life experiences (McLoyd, 1998) and poorer parenting skills (The Carnegie Corporation, 1994) than higher income individuals, nor can I draw comparisons with regard to self-expressiveness, perceived role in emotional development, or current needs. Also, it would be informative to compare perceptions and

needs of a wider range of primary caregivers across different homes (e.g., mothers, fathers, grandparents). Additional studies may broaden understanding of how potential cross-cultural differences in childrearing may influence how children learn to regulate their emotions (Gilliom et al., 2002). Moreover, since my study only captures maternal perceptions at one time point, future researchers may wish to examine the consistency in emotion-related perceptions and needs over an extended period. Perhaps self-report (regarding expectations, mother-child exchanges) would change over time as the child ages (e.g., perceived maturity or socialization readiness level; Dunsmore & Karn, 2001).

In addition, an important implication for research pertains to improving model fit. For all four models in my analysis, the classification tables and ROC curves suggested that better models may exist that could include predictor variables not assessed in the current analysis. Future research could identify additional explanatory factors that could result in lower misclassification within each model (i.e., to better predict status on the outcome variables). This study did not take into account various factors that may have aided model fit, such as the unique temperament among children (or among participants themselves). As explained by Buss (1981, p. 2), “dispositions that emerge early in life and are relatively enduring across time... [such as a child’s activity level] ...should affect parental behavior more than attributes that are transient or easily altered by [the environment]”. I also did not control for children’s receptive and expressive language ability, child or maternal IQ, maternal depression (i.e., a significant risk factor when assessed by Nelson et al., 2007; linked to lower maternal sensitivity according to Tania et al., 2008), or non-parenting stress levels. Mothers’ perceived financial stress, for example, was one of the risk factors associated with children’s mental health in a low-

income, urban, African-American sample (Kidwell & Barnett, 2007). Stressors may actually range in type and severity (potentially including child-rearing stress, drug abuse, family violence or homelessness in some families) and can differentially impact each family unit (Swick & Williams, 2006). Further, the way in which I collapsed cells (i.e., grouped data) across potential covariates and explanatory variables (see Tables 1 and 2) may have distorted findings; for example, beyond looking at how those with one child compared to those with two or more children, nuances from the sibling literature may have warranted dividing the data to compare those with two children versus three or more children (e.g., Edgar, 1982). In addition, collecting data from larger subsamples within each of the categories may have altered levels of significance. Researchers could move our understanding forward by exploring the unique and combined contribution of these and other predictors not assessed in this investigation.

Lastly, although a survey format permitted quantifying data in a standardized manner across a large sample size, it precluded a more in-depth understanding of responses. Qualitative data would provide richer information about how mothers attempt to reach out or convey their needs. Further, it would be informative to learn the actual content of community members' messages, the appropriateness/helpfulness of the advice given the preschool child's age and situation, and the extent to which mothers follow through or comply with *very helpful* advice. Additionally, more systematically capturing why mothers do not seek certain community members may aid understanding of how parents preemptively anticipate who, if anyone, would be most appropriate to meet their behavior-related needs.

Implications for Practice

Results from this study have implications for practice, which include: (1) reexamining and bolstering the quality of community outreach efforts, (2) offering a range of small initiatives rather than focusing on a one-size-fits-all approach, and (3) relying more on screening tools to customize parent interventions.

Members of a family's mesosystem, including personal contacts (e.g., friends, family, members of a religious or community organization) and professionals (e.g., health care workers, teachers, therapists), can help mothers to proactively address maladaptive behaviors before negative perceptions of and lowered expectations for the child are established. Both personal and professional contacts may be uninformed about recommended practices and could benefit from open forums to discuss their contributing role in raising a child (e.g., by offering emotional support and strategy-specific advice). It is conceivable to infuse relevant information into existing pre- and in-service training for teachers and therapists as well as within lectures that provide medical staff with Continuing Medical Education credit; however, it may be challenging to encourage non-professionals to attend what may not seem applicable to their lives. Perhaps communities could incorporate such information into existing programs (e.g., church-related activities). Further, since mothers in this sample also sought indirect avenues of support, we should verify that parenting books, television shows, and magazine articles reinforce the role of mothers in promoting emotional competence, with lucid ways of responding to and redirecting behavior and anticipated outcomes of such efforts. Educators and therapists would benefit from exploring apparent hesitation in sharing behavior advice with parents; they need instruction on the importance of reaching out to parents in a

respectful manner and strategies for successful parent-teacher exchanges. This would support the recommendation that early childhood programs build partnerships with parents to develop equally beneficial learning environments for young children at home and at school (National Research Council, 2001). Moreover, it would be useful for professionals to check with colleagues on best strategies to recommend to unique family units. Weighing responses with other professionals would promote a thoughtful exchange that considers parents' goals and recommended strategies (e.g., conducting functional behavior assessments before determining a course of action; Nungesser & Watkins, 2005). Improving the quality of community supports may augment the likelihood of empowering mothers to nurture children's development and perpetuate mothers' willingness to reach out for support when subsequent concerns arise.

The second practical implication pertains to incorporating mothers' preferences into intervention planning. Perhaps during large-group orientation meetings or individual intake sessions, early childhood programs could ask parents to disclose preferred avenues by which they might like to acquire information on their role in promoting emotional competence (e.g., using items from the Receptivity to Support Scale). Parents may appreciate this relatively quick and simple gesture of having their child's daycare or school accommodate what works best for individual mothers (via private, group, or one-on-one methods), instead of expecting them to conform to a one-size-fits-all approach. In brainstorming ways of sharing information with diverse families, perhaps practitioners can infuse my sample's high receptivity in connecting with other parents and significantly more positive outcomes among parents with multiple children to form one such parenting initiative. There may be great utility in learning from life lessons of more

experienced parents in a non-threatening context, while professionals can serve as a guide for all parents in the group. Incorporating insights from experienced parents speaks to an apparent learning curve that exists in seeing the role they play in children's lives and being willing to change practices that are not working. Offering ongoing small group workshops is a step in the right direction; low parent attendance, however, might have more to do with service delivery than with parents' genuine interest in obtaining support if alternative avenues existed. Respecting individual preferences may forge trusting partnerships with community members, ensure a broader reach of ideas, and enhance mothers' willingness to incorporate suggestions into their parenting practices that can ultimately benefit our children.

Once professionals account for the preferred mode(s) of service delivery, a third practical implication of my research is to utilize screening tools to identify mothers with pressing needs and ascertain which topics to address. In other words, gathering updated information on parents' beliefs surrounding emotional development (e.g., asking items in the Perceived Role Scale) can serve an important referral function and an essential role in understanding which assumptions may be incongruent with the literature. Further, less than half of participants worried about long-term consequences if behaviors were to persist overtime (e.g., the behavior may affect people outside the home, affect family members in the home, lead to a referral or special needs label, or affect long-term learning and development). The notion of being less concerned about maladaptive behaviors leading to a label echoes findings among another sample of mothers (Harwood et al., 2009). Exploring these and other possible adverse outcomes with parents may enhance willingness in the short-term to discuss options and take more accountability in

proactively promoting adaptive behavior. At the same time, facilitating a forum for self-reflection is not enough; initiatives need to include an open dialogue about and opportunities to incorporate practices recommended in the literature. For example, asking parents not to spank is insufficient; practitioners need to engage parents in a non-threatening discussion about why this practice is discouraged and, most importantly, offer practical alternatives that families feel they can readily use in lieu of less favorable reactions to maladaptive behavior.

Moreover, nearly half of participants believed the child's behavior would likely get better with age (i.e., improve as the child matures); this belief was a significant predictor of not being highly receptive to parent-focused support. However, researchers increasingly acknowledge the persistence of behavior problems overtime (Kimonis et al., 2006) and the notion that early adult guidance can alter trajectories (Smith, Calkins, Keane, Anastopoulos, & Shelton, 2004). Despite our initial hope that maladaptive behaviors will simply cease in the near future, this may not likely happen. It is worthwhile, therefore, to convey this and other relevant information to mothers and empower them in their role as prominent contributors in their children's emerging emotional competencies.

Concluding Remarks

Respectfully exploring parental fallacies and reassessing research assumptions based on parents' perspectives can pave the way for an in-depth, non-judgmental professional-parent discourse and move us toward establishing common ground on how best to promote emotional competence. The timing seems ripe for communities to openly explore and work towards approaching consensus on behavior-related issues. Receptivity

from 114 mothers to meet for an average of 45-minutes, answer all questions, and voluntarily elaborate on ratings suggest Head Start urban mothers are willing to talk about behavior-related topics. A number of participants displayed strong emotions (e.g., crying, hugging me) and many thanked me for the helpfulness of this interview in being able to reflect on their actions and parenting decisions. My Perceived Role Scale, for example, did not just ask parents to report if they yell, spank, and so on. Rather, the scale assesses perceptions on whether such actions would be helpful to a same-age child in another family; talking about families in general may generate less defensive, more reflective responses. I recommend exploring the understandable but limiting hesitation among mothers to modify behavior and parenting views. We need to openly explore roadblocks to change, revisit assumptions on all sides, improve outreach efforts, and offer a community-wide climate of support to meet people where they are in every facet of their lives (e.g., considering significant risk factors identified in my logistic regression models). Based on this sample, we should not disregard the discernible variability in behaviors, beliefs and needs among low-income, urban mothers from the same community. As previously advised (e.g., Gagnon, Nagle, & Nickerson, 2007; Harwood et al., 2009; Nelson, Stage, Duppong-Hurley, Synhorst, & Epstein, 2007), I identified risk factors within a maternal subgroup to inform much-needed screening and parenting intervention initiatives; such an undertaking may enhance young children's emotional development and have far-reaching implications for children, families and communities.

Appendix A1
Definition of Terms

Contextual and demographic factors. Throughout this paper, I refer to both demographic and contextual factors. Inquiring about variables such as gender, age, number of children, education level, or geographical region will likely elicit direct and non-subjective responses; I cluster these variables under the umbrella of demographic factors. At the same time, other variables are less clearly defined (e.g., perceived stress level, type of behavior exhibited by the child in a given setting, a child's delay status, exposure to and satisfaction with parent- and child-based supports, existing outreach efforts). These variables may differ depending on when questions are posed (e.g., at a certain developmental level or time in the school year) and may be influenced by one or more levels within Bronfenbrenner's framework. I will therefore refer to these latter variables as contextual factors. I examine both demographic and contextual factors in the literature review and my current study.

Delay. The Kennedy Krieger Institute in Maryland outlined what is meant by developmental delay, as defined by the Developmental Disabilities Assistance and Bill of Rights Act of 2000, Public Law 106-402:

Developmental delay is defined as failure to meet expected developmental milestones in one or more of the following areas: physical, social, emotional, intellectual, speech and language and/or adaptive development (sometimes called self-help skills, which include dressing, toileting, feeding, etc). It is diagnosed when a child performs approximately 25 to 30% below age norms in one or more of these areas (with adjustment for prematurity in affected children). Progress occurs at

a slower than expected rate following the anticipated sequence. Various medical and environmental causes exist... The verification of delay is obtained through an evaluation process which includes at least three of the following: informed clinical opinion to include observational assessment, standardized development test(s), developmental inventory, behavioral checklist, adaptive behavior measure, and parent interview.

Developmental delay can occur temporarily or it can be long-term and never fully resolve.

Emotional competence. For the purpose of this review, emotional competence refers to an ability to effectively “manage and change if, when, and how one experiences emotions... and how emotions are expressed behaviorally”, with the goal of using socially appropriate means of expressing or controlling emotions, particularly during times of distress (Eisenberg, Sadovsky & Spinrad, 2005, p. 109; Fitzgerald et al., 2006). The three main components of emotional competence (i.e., emotional expression, emotion knowledge, emotion regulation) are associated with parallel and long-term gains in social competence (Denham et al., 2003). [Note: researchers in this review used varying terminology closely tied to the construct of interest, including self-regulation, emotional development, and emotional competence; many authors opted to specifically focus on emotion regulation, which Denham et al. (2003) hypothesized as being strongly influenced by the other two components (i.e., expressing and understanding emotions).]

Magnitude of effects. Across the studies in chapter two, the following heuristic labels indicate the extent to which correlations or coefficients of determination (R^2) are

statistically significant: $0 < 0.20$ = weak; $0.21 < 0.40$ = moderately weak; $0.41 < 0.60$ = moderate; $0.61 < 0.80$ = moderately strong; $0.81 - 1.00$ = strong.

Appendix A2
Summary of Reviewed Literature from Chapter 2: Section I (Parent-Child)

Citation	Sample	IV	DV	Measures	Analysis	Findings
Chang et al., 2003	n=325; 3-6 yrs (M=4.6 yrs); 45% female; China, children, mothers, fathers, teachers & TAs; only child & middle SES	Harsh parenting & Child's gender (possible interacting with harsh parenting)	Child's emotion regulation and school aggression	<i>Parental Acceptance Rejection Questionnaire; Emotion regulation Checklist (Shields & Cicchetti, 1999)-mothers only;</i> Externalizing behavior checklist-(by teacher staff; 6-mths later	SEM	Harsh parenting → directly affects aggression and indirectly affects aggression via ER; Difference in moms vs. dads' parenting impact and sons vs. daughters' behavior
Chaplin et al., 2005	T1:4yrs; T2: 6yrs n=60; 85% White 36 boys;24 girls; Mom, Dad, Child; 'hard to manage' children without PDD or MR ('beyond study's interests'); Urban (via newspaper announcements & flyers)	Mothers vs. Fathers' attention to child's emotions; Boys vs. Girls emotion expression	Gender role-consistent child emotions (submissive vs. disharmonious); externalizing & internalizing behavior	Coding: emotions during play & parents' reaction (stacking blocks w/out falling); only Mother-report of CBCL; child-report of externalizing behavior and depressive symptom	1-tailed significant values; log-transformed scores; ANOVA; t-tests, & hierarchical regressions	*Girls=more submissive than boys ; girls stable in this across time – boys showed a non-signif. decline *Disharmonious emotion predicts externalizing behavior.; *Parents → differential responding based on gender (esp. w/ fathers)
Caspi et al., 2004	T1:5yrs; T2: 7yrs n=565; MZ (same-sex, identical) twins, and their mothers; *Probability sample, including 'high risk' teen mothers; England and Wales (from Environmental Risk Long Twin Study- 1994- 1995 birth cohort)	Maternal emotion expression (negativity vs. warmth)	Antisocial behavior problems at ages 5 and 7	*Teacher-report of behavior; *Mother-report of behavior (CBCL) *5-minute Speech Sample (coded for pos & neg. comments, negativity & warmth	Correlations; Regression analyses	Within MZ pairs, twins receiving more maternal negativity & less warmth → more antisocial behavior problems; Maternal emotional attitudes may play <i>causal</i> role; Qualitative themes from subset of mothers
Garner, 2005	Head Start; n=70; 3-5 yrs;100% African American; range SES; (equated on maternal education/ prop. of single/2-parent households across SES)	"Parenting Variables"	'prosocial behavior' & 'emotion regulation'	Home & school observation (e.g., peer episodes at free play)	Correlations Component factor analysis, MR; (Dummy coded income; Used a Bonferroni correction)	*Prosocial & emotional variables = distinct parenting dimensions *SES is unrelated to behavior; parenting predicts behavior

Appendix A2
Continued Summary from Chapter 2: Section I (Parent-Child)

Citation	Sample	IV	DV	Measures	Analysis	Findings
Garner et al., 2008	Upper-middle SES mothers (n=85) & preschoolers; 90% Caucasian mostly 2-parent	Maternal emotion-related discourse; children's emotion knowledge	Child relational and physical aggression; prosocial behavior	Home= picture book task Preschool=play task & 10 vignettes	Descriptive statistics, correlations, MRA	Covariates= gender & age; IVS in bidirectional relation with DVs
Spinrad et al., 2007	n=256(T1) M:18 mths n=230(T2) M=30mths 81% White 5% African American (NO low SES)	Parental support	"effortful control"	Self-Report (mothers, some fathers) & Direct Observation in a lab	correlations; SEM; Chi Square; MLE Method; Principal components factor analysis; equivalent constructs across time pts	Inc. sensitivity= Dec. behavior problems= Inc. social competence
Kimonis et al., 2006	Head Start; n=49 mothers of 'high risk' 2-5 yrs, male and female; low SES; 76% African American (Recruited at Head Start registration)	Behavioral inhibition, 'Callous-Unemotional' features, Attitudes toward various types of parenting (e.g., views in favor of corporal punishment)	Reactive and proactive aggression; fearlessness	Mother .& teacher rating scales; <i>Antisocial Process Screening Device</i> ; <i>Behavioral Inhibition Scale</i> ; <i>Adolescent-Adult Parenting Inventory</i> <i>Aggressive Behavior Rating Scale- teacher</i>	Correlation, Hierarchical linear regression	IVs predict aggression; Parents favoring harsh parenting= linked to Proactive aggression
Kidwell & Barnett, 2007	T1:n=69M=4.5yrs T2:n=56M=6.4yrs Urban, low SES, African American Boys/girls, moms, teachers -8 classes (Moms: 21-43 yrs; Mean educ. level= 11.85 years; 75% welfare (AFDC); 77% single-parent)	*Vagal Tone (Vna) *Secure vs. insecure parent-child attachment	*Adaptive emotion regulation and dysregulation * Internalizing and externalizing behavior problems	Vna → child's heart rate at rest Attachment → <i>Strange Situation</i> ER → <i>Emotions Interview</i> with child, teacher & mother: <i>CBCL</i> , <i>ER checklist</i> , financial stress survey; <i>PPVT</i> (receptive lang. as possible covariate), <i>Child desirability defensiveness</i>	2 (attachment: secure vs. insecure) X 2 (Vna: low vs. high) ANCOVAs (controlling for gender and age if significant); [comb. subgroups of insecure attachment given 'small cell sizes']	2 IVs- not related; Few main effects; *Signif. interaction btwn IVs on ER (Insecure + high = inc. ER problems; Secure + high = better reg. ability) NO ER gender diff.; ER @ age 4 predicts Int/Ext. beh. @ 6 yrs

Appendix A3

Summary of Reviewed Literature from Chapter 2: Section II (Contextual Factors)

Citation	Sample	IV	DV	Measures	Analysis	Findings
Rodriguez et al., 2005	T1: 18mths (n=211)- (during intake interviews in an EC program) T2: 4-5 yrs. (n=109) 84% White, middle-high SES, 2- parent home; (Guided by Bowlby's behavioral system analysis-contextual); (drawn from larger study – unclear if random)	Maternal unresponsive during high & low stress situations & child 'negative affect'	Ability to delay gratification 4 years later	3 observed 'episodes' and delay of gratification procedure (asked to wait 15- minutes for the researcher's return before eating candy); (an "unresponsivity index" to assess 7 maternal dimensions); rated 'negative affect' by noting if sad, angry 'frustrated, cranky)	Hierarchical multiple regression (covariates= age & gender)	Stable in unresponsive across episodes; Child's neg. affect & disengaged moms (R^2 =.22) during high stress → unable to delay gratification
Fantuzzo et al., 2004	n=144, 8 H.S. classes, M=58.9 mths urban, low SES, 96% African American; 71% 1- parent, 73% moms, 8% fathers; 9% grandparents; 10% other relatives or foster parents (Guided by Bronfenbrenner's theory)	Home-based, & school-based family involvement & home- school conferences	Behavioral & learning competence; Motivation; Persistence; Conduct problems; Receptive vocab.	Fall → Spring (6 months): Family involvement survey; Preschool learning behaviors scale, , PPVT; Connors' Teacher Rating Scale- 28,	Canonical variance analysis; MR; 2-way MANOVAs; Caregiver education and employment status were not used as covariates (not related to family involvement dimensions)	Home-based family involvement is strongest predictor of child outcomes
Fitzgerald et al., 2006	From EHS Father Involvement with Toddlers Study; n=47 out of 561; Child: 40 mths.; urban biological and social fathers (living in family home, romantically involved with mom) Fathers: N = 29 yrs; 45.8% Caucasian, 15.9% African Amer.; 22.8% Latin American	Neighborhood Violence & Fathers' antisocial behavior	Emotion regulation and cognition	Child cognitive, emotion-behavior regulation, & parent measures → Self-report, <i>Mental dev.' index, puzzle task, PPVT, CBCL (Achenbach), EC HOME observation, Discipline severity index; Parenting Stress index</i>	MANOVA with <i>sidak adjusted pairwise comparisons (to avoid inflating Type I error)</i> ; controlled for age, education level, & ethnicity	If high levels of community violence and antisocial paternal behavior → poor on indicators of emotion reg.; More likely spanked if either IV is high

Appendix A3
Continued Summary from Chapter 2: Section II (Contextual Factors)

Citation	Sample	IV	DV	Measures	Analysis	Findings
Nelson et al., 2007	K (n=78) & 1 st (n=79) @ risk for E/BD from 7 urban schools in the Midwest; 72% boys, mostly White; unknown SES	Risk Factors of E/BD – 11 domains based on previous literature (<i>t</i> -score at or above 60 on CBCL- reported by a commonly used measure in schools)	Emotional and Behavior Problems (i.e., E/BD)	CBCL (teacher and parent ratings) Structured Developmental Face to Face interview-not previously assessed); Parenting stress index; Beck depression inventory; <i>counterbalanced presentation of measures (to control for order effects)</i>	Logistic regression analysis (using <i>four different algorithms for entering results: each with comparable results</i>); Chi square	Most predictive: external, internal behavior, maladjustment, family functioning, maternal depression.... Most robust → maternal depression, destroys toys, “difficult child” (interaction between parent management & temperament)
Herring et al., 2006	In Australia; n=123, 20-51 months-old (T 1) and 1-year post-diagnosis (T 2) with PDD & developmental delay (<i>unknown SES, race, educ. level, geography, etc.</i>); mothers (n = 117) & fathers (n = 106)	→ Child’s emotional and behavioral problems	← Parent mental health problems; Parent stress; Family functioning	Mother & father self-report → Beh. Checklist, Health questionnaire, Family assessment; * <i>Parenting Stress Measure</i> (no citation- ‘stress thermometer visual analogue scale-p.876) & Standardized measures to assess child’s language, cognition, adaptive functioning and behavior (unable to assess many subjects on ‘general intellectual ability’)	Independent and paired sample <i>t</i> -test; Chi-square; Pearson’s <i>r</i> , Longitudinal regression	*PDD & non-PDD groups = at baseline (re: age, gender, lang., behaviors, parent variables) *IVs correlated with DV’s over yr: *E/BD is more highly linked w/ parent factors than diagnosis, delay or gender; *Fathers = less parenting stress than mothers.

Appendix A4

Summary of Reviewed Literature from Chapter 2: Section III (Interventions)

Citation	Sample	IV	DV	Measures	Analysis	Findings
Izard et al., 2004	Teachers in H.S.; random assign. Treatment: n=7 Control: n=9; Low SES, rural; 44% Euro.Amer.; 31% African American, 10% Latino, 11% biracial; M = 3.10 yrs	“Emotions Course” 22 lessons; puppet vignettes; interactive experiences for children; 2-hr. seminar; 2 consulting visits; a ‘theoretically coherent’ program (p. 417)	Emotion knowledge; Ability to inhibit/modulate negative emotion expression; Social/academic competence	Pre & post → Emotion labeling; Emotion recognition; <i>Version of Kusché Emotion Inventory</i> ; Teacher-rated competence & frequency of neg. emotion; PPVT – post-only (‘control measure’)	Series of regression analyses (controlling for age, sex, verbal ability)	Treatment group → larger increase in emotion knowledge & less growth in negative emotion expression than control group (low R ² values?)
Domitrovich et al., 2007	n=246; M=51.4 mth in H.S., urban varied educ, 47% African Amer.; ‘mixed block design’ w/ 10 intervention & 10 control; (excluded <i>kids who are ESL & w/ disabilities</i>)	Preschool PATHS- 30 large group weekly lessons, thematic units, supplemental activities over 9-months; coordinator to support/monitor	Emotion knowledge (2 <i>measures were only post-tested</i>) inhibitory control, attention, problem solving, behaviors	Teacher/parent report; <i>Kusché Emotional Inventory</i> ; attention measure, <i>PPVT</i> , etc.	ANCOVA (covariates → ethnicity, age, special needs status, and verbal ability); t-tests, chi-square; (Few differences detected in 18% attrition rate)	Higher emotional knowledge; more socially competent, less withdrawn.
Lovering et al., 2006	UK; n=340; 82% boys; aged 3-7; 3% African American; (meeting criteria); many 1- parent & children with special needs; (<i>position in family, mother’s age, SES,</i>)	<i>Scallywags Scheme</i> – 6-mth; parent groups, home & school visits; individual goals	Disruptive behavior problems & parenting stress	<i>Eyberg Child Behavior Inventory</i> ; <i>Parenting Stress Index</i> (Pre & Post)	Post-hoc, paired t-tests; McNemar’s test of symmetry for paired samples	Dec. parenting stress Dec. disruptive behavior at home/ school; Home training <i>as effective as parent groups</i>
Zubrick et al., 2005	Australia; 3-4 year olds Treatment, n=804 Comparison, n=806 Low SES, Urban; Mainly w/ mothers; 2- year longitudinal design (mass advertising)	101 behavioral family intervention (BFI) groups; 2-hr workshops once a week for 4 wks; 15- minute phone calls once a wk for 4-wks; workbook exercises/videos	Dysfunctional parenting; behavior problems; depression/anxiety/ stress, conflict re: child rearing; marital dissatisfaction	<i>Standardized demographic questionnaire</i> ; <i>Eyberg Behavior inventory</i> ; <i>Scale of discipline style</i> ; <i>parent conflict</i> ; <i>depression, anxiety</i> ; <i>stress scale</i> .	Chi Square to assess initial differences in group (child’s age, family type, SES, and level of education were covariates) demographics; Hierarchical linear models	Decreased dysfunctional parenting; Dec. behavior problems; Increased parent mental health & marital adjustment

Appendix A4
Continued Summary from Chapter 2: Section III (Interventions)

Citation	Sample	IV	DV	Measures	Analysis	Findings
Havighurst et al., 2004	Australia; 47 parents (mostly mothers and 8% fathers) & teachers of 4-5 yr-olds with (36%) and without (64%) behavior problems; 92% mothers; low and middle SES; urban, (NO control group) (info. on educ. level, employment, marital status)	Pilot; 6-session parenting program in preschools re: emotion awareness, acceptance & coaching (examples, role playing, diary discussion; picture cues, emotion talk	Parenting skills, child functioning, & Emotional competence	Pre, Post & 3-mth follow up → <i>Coping neg. emot. scale; Childrearing survey; sense of competence scale; Emot. Reg. Cklist, Eyberg Child Beh. Inventory; Strengths/difficulties survey</i> * Interrupted time-series design → 1 group did 1 pre-intervention measure, 3 groups did 2 pre-measures, 8 wks later	MANOVA; no need to control for gender or SES (no significant diff. between groups based on these variables)	Parents: more encouraging of Emot. Expression; Inc. use of emotion-focused approaches, Less critical/dismissive of emot. Expression; Children: less emot. Negativity; Signif. Dec. in difficult behavior for those w/ initially higher levels of behavior problems.
Mahoney and Perales, 2003	n=20; 60% boys; 3-5 yrs with Autism or PDD and mothers (referred by service coordinators, doctors, parents) 95% Caucasian; 100% married; Well-educated; 20% Low, & 60% middle-upper-middle SES	'Relationship-focused intervention' with 'Responsive Teaching' curriculum (motivation, cognition, comm., social-emot.) 8-14 mths; 1x/wk, ~30 individual sessions (center or home) w/ EI specialist; Family Action Plan (home activities)	Amount of mothers' responsive interactions with child; Child's social interaction; Child's social-emotional functioning	Pre → video-taped 5-10-min. Play-assessment; Pre- and Post → <i>Temperament & Atypical Behavior Scale</i> (p. 80)- phone <i>Infant/Toddler S.E. Assessment</i> (p. 81) Parent-child observation with behavior scales (p82) (Self & phone-admin)	Repeated measures MANOVA (to analyze pre-post changes) ANOV As- to identify significant scale items or subscales; Regression Analysis of 2 nd research question (p. 84)	80% of mothers increased in their responsiveness level; Responsiveness linked with child-related DVs (accounted for 25% variance in social-emotional growth
Singh et al., 2006	n=3; mothers of children with Autism; (age 4-6) (Moms: 2-4 yrs college; 1-3 children, homemakers involved in past trainings)	12-wk "mindful parenting" course in home setting	Satisfaction w/ parenting skills & parent-child relations & child's aggression, non-compliance & self-injury	Event recording procedure: on PDA; Father = reliability observer; measure of satisfaction & mindfulness	Single-Subject → Multiple Baseline Across Subjects (parent-child dyads)	Dec. self-injury, aggression, and noncompliance & Inc. mothers' satisfaction w/ skills and interactions

Appendix A5
Summary of Reviewed Literature from Chapter 2: Section IV (Parent Beliefs)

Citation	Sample	IV	DV	Measures	Analysis	Findings
Dunsmore & Karn, 2001	Moms (n=1115) of ages 4-6; M = 59.23 months; 59 girls; 56 boys; middle-upper-middle SES; well-educated; mainly Caucasian (105 mothers); Recruited	*Mothers' beliefs re: socializing emotion lang. & child's readiness to control/discuss emotions	*Mothers' emotional expressiveness *Children's emotion understanding (i.e., awareness of emotion labels; and emotion scripts) (assessed on 60 children-31 girls)	Parent's Beliefs about Feelings Questionnaire; Self-Expressiveness in the Family Questionnaire; Child's Emotion Understanding w/ puppet vignettes (home)	Max. Likelihood Factor Analysis; Hierar. ANOVAs (see moderation); Median Split & ANOVAs for high vs. low groups; Means; t-tests; (moms of sons/daughters); Correlation (IVs) (child's age & gender = covariate when significant)	*If viewing child as too young to discuss emotions → pos. link to mom's neg. emot. express.; *Strong belief in socializing emotion lang. → pos. link to child's emotion knowledge (etc.); *HIGH pos. express linked to understanding emotion scripts, but only if believing a child was <u>not</u> ready for emot. socializ.
Gamble et al., 2007	n=57 2-parent home; H.S.; Mexican-American 92% moms/90% dads 88% married; (42% moms & 43.4% dads w/out h.s. degree); Children: 54% male, M=57.5 mths data from long. study	*parenting style; *meta-emotion belief *behavior strategies in responses; *support/responsiveness	*Parental similarity-dissimilarity; across parenting dimensions	*Parenting Practices Questionnaire *Emol. Styles Questionnaire *Coping with child's neg. emotion scale; *videotaped interaction task (Spanish-translations of questionnaires)	Compared mean levels; Similarity across mom/dad dyads reflected by non-signif. paired t-tests combined with high Pearson's correlations & an intraclass correlation of 1 revealing 'perfect' similarity.	Not interdependent *Similar in obs. behavior; but moms engaged in behavior more freq. *Similar in minimized coping reactions *Similar authoritative parenting w/in dyads (more w/ moms)
Roskam & Schelstraete, 2007	n=31 mothers; French-speaking in Belgium; 3-6 yrs; M=56.09 mths (10 girls/21 boys) with 'MR' (n=22); Multiple (n=11); Hearing loss (n=7); 10 girls; 21 boys; EI team	Self-report on 'coercive-inductive' dimension of parenting (along 8 categories)	Child's disability (mental, hearing, multiple); child's personality & behavior	Self-report from a structured hour-long interview (on childrearing responses in diff. educational situations	Qualitative: content analysis; coding manual; frequencies Quantitative Mean, ANOVA, Newman-Keuls post-hoc, RAs, Chi Square	Mom's beh. → both coercive & inductive; Diff. per disability, personality, & behavior; Coercive – neg. correlation. w/ emotional stability (Figure, p. 137)

Appendix A5
Continued Summary from Chapter 2: Section IV (Parent Beliefs)

Citation	Sample	IV	DV	Measures	Analysis	Findings
Santos & McCollum, 2007	Urban Filipino moms in SE Asia (n=28; most married & college; with infants/ toddlers (10-26 mths; M = 19mths) w/out (n=14) or with (n=14) disabilities (Autism, n=2; CP, n=1; Down syndrome, n=6, Speech delay (n=4); Devt delay (n=1) *Info. on mothers' employment, birth order, # siblings	*Having kids with or without disabilities; *Influence of early intervention services;	*How moms describe their routines/daily parent-child interactions; *How they describe contexts of those interactions; *How they describe sources of info. that influence what they do	1-hour structured open-ended interviews with probes – at home, school, or workplace; In mothers' native language; tape recorded; interview protocol)	Qualitative Analysis of transcripts from interviews; themes/ subthemes/ categories; *Chi Square (to initially compare groups of mothers)	<u>Group without disabilities</u> : moms had a higher level of education; 4x more likely to engage as <i>play partners</i> ; less likely to refer to a 'director/ teacher' role. *Group with disabilities: more of a ' <u>directive role</u> '; more likely to get support from 'professionals'; * <u>imp. of culture</u>
Kenny & McGilloway, 2007	n=32; 75% moms; range in SES (attend support groups) Ireland 2-17 yr-olds; M: 11 yrs; LD; 19 male; 44% with concurrent physical disabilities; 7 'mild'; 19 'moderate'; 4 'severe'; 2 'not yet diagnosed'	Parents' attitudes toward childrearing; coping; managing social/behavior	Extent/nature of any 'difficult behaviors' (e.g., mood swings, poor concentration, restlessness); concerns w/ 'social functioning' use & availability of support services	Hour-long interviews → ' <i>Caregiver strain questionnaire</i> '; adapted: <i>Carers Questionnaire</i>	Qualitative -thematic analysis Quantitative –mean on each subscale; correlations;	*High strain; * <i>inadequate</i> support; (many w/ adaptive coping); *Neg. internalized feelings= strain
Harwood et al., 2009	n=110; moms of 3-6-yr.-olds- 70% boys; range SES; 69% Caucasian; 3 doctor's offices	Maternal self-reported attitudes and practices	Seeking mental health services regarding preschoolers' behavior	Eyberg Child Behavior Inventory; Devised survey; Demog. Quest.	Quantitative : t-tests; Mean/ S.D. for whole sample & range in beh. scores	Infrequent use of, but desiring more direct or indirect beh. support

Appendix B1

Empirically Sound Procedures Used/Reported Across Studies*(Alphabetized)*✚ **Assumptions:**

- **Checking for multicollinearity** (Nelson et al., 2007)
- **Remedying non-normality** (Chaplin et al., 2005; Kidwell & Barnett, 2007)
- **Verifying the normality assumption** (Kimonis et al., 2006)

✚ **Attrition rates, and how those who were ‘lost’ compared to those who remained** (Domitrovich et al., 2007; Fitzgerald et al., 2006; Havighurst et al., 2004; Kidwell & Barnett, 2007; Spinrad et al., 2007; Zubrick et al., 2005)✚ **Bonferroni correction (holding alpha at 0.01 so as not to inflate Type I error)** (Garner, 2005; Harwood et al., 2009)✚ **Building on existing literature** (Dunsmore & Karn, 2001; Gamble et al., 2007; Garner et al., 2008; Kenny & McGilloway, 2007; Mahoney & Perales, 2003; Nelson et al., 2007; Roskam & Schelstaete, 2007)✚ **Coders blind to hypotheses** (Chaplin et al., 2005)✚ **Cohen’s kappa (to account for chance agreement on ratings)** (Chaplin et al., 2005; Garner, 2005; Kidwell & Barnett, 2007)✚ **Countering threats to internal validity:**

- **Counterbalancing the coding of rating scales from pre and post intervention** (Mahoney & Perales, 2003)
- **Counterbalancing the presentation of measures (to control for order effects)** (Nelson et al., 2007)
- **Using an interrupted time-series design** (Havighurst et al., 2004)

✚ **Detailed description of analysis** (Gamble et al., 2007; Garner et al., 2008; Roskam & Schelstaete, 2007; Santos & McCollum, 2007)✚ **Detailed description of measures** (Fantuzzo et al., 2004; Fitzgerald et al., 2006; Kenny & McGilloway, 2007; Kimonis et al., 2006; Spinrad et al., 2007)✚ **Detailed description of procedures** (Garner, 2005; Garner et al., 2008; Lovering et al., 2006; Nelson et al., 2007; Rodriguez et al., 2005)

- ✚ **Detailed description of recruitment** (Gamble et al., 2007; Santos & McCollum, 2007)
- ✚ **Effect sizes** (Caspi et al., 2004; Chang et al., 2003; Domitrovich et al., 2007; Garner et al., 2008; Havighurst et al., 2004; Herring et al., 2006; Nelson et al., 2007; Rodriguez et al., 2005; Zubrick et al., 2005)
- ✚ **Equivalence at baseline was assessed** (Domitrovich et al., 2007; Herring et al., 2006; Santos & McCollum, 2007; Zubrick et al., 2005)
- ✚ **Examples of items from each subscale or category** (Kimonis et al., 2006; Roskam & Schelstraete, 2007)
- ✚ **Fidelity of implementation was assessed** (Domitrovich et al., 2007; Zubrick et al., 2005)
- ✚ **Focus groups** (Gamble et al., 2007; Zubrick et al., 2005)
- ✚ **Operationally defined key terms** (Herring et al., 2006; Kenny & McGilloy, 2007; Nelson et al., 2007; Singh et al., 2006)
- ✚ **Outliers:**
 - **Reporting findings with and without outliers** (Chaplin et al., 2005)
 - **Reporting that outliers were not detected** (Nelson et al., 2007)
- ✚ **Power increased by combining subsamples** (Chang et al., 2003; Dunsmore & Karn, 2001)
- ✚ **Randomly assigned classrooms to treatment or control groups** (Izard et al., 2004)
- ✚ **Reliability:**
 - **Cited prior test-retest or ‘internal consistency’ for at least some measures** (Kenny & McGilloy, 2007; Lovering et al., 2006; Nelson et al., 2007)
 - **Within current sample:**
 - **Inter-observer** (Singh et al., 2006)
 - **Inter-rater** (Chaplin et al., 2005; Garner, 2005; Kidwell & Barnett, 2007; Mahoney & Perales, 2003; Rodriguez et al., 2005; Spinrad et al., 2007)

- **‘Internal consistency’** (Chang et al., 2003; Gamble et al., 2007; Izard et al., 2004; Kenny & McGilloyay, 2007; Kimonis et al., 2006; Zubrick et al., 2005)
 - **Test-retest** (Domitrovich et al., 2007; Nelson et al., 2007; Spinrad et al., 2007; Zubrick et al., 2005)
 - **Within-rater stability over time** (Spinrad et al., 2007)
- ✚ **Repeating analyzes with and without covariates** (Izard et al., 2004)
- ✚ **Skew and kurtosis indices** (Dunsmore & Karn, 2001; Kimonis et al., 2006)
- ✚ **Standardized regression coefficients (to make interpretations across distinct units of measurement)** (Chang et al., 2003)
- ✚ **Univariate statistics and Correlation matrix** (Chang et al., 2003; Fantuzzo et al., 2004; Kidwell & Barnett, 2007; Rodriguez et al., 2005)
 - *Fantuzzo et al. (2004) → organized correlation matrix of significant correlations among family involvement and outcome variables (with 13 of them at a $p < 0.01$ level or greater).*
- ✚ **Validity:**
 - **Reporting indices in the sample** (Dunsmore & Karn, 2001; Kimonis et al., 2006)
 - **Reporting previously cited validity for at least some measures** (Fantuzzo et al., 2004; Kenny & McGilloyay, 2007; Lovering et al., 2006)

Appendix B2

Studies in this Review Assessing Parents of Children with Special Needs:

Only with diagnosed special needs = *;

With and without diagnosed special needs = ***;

Only with children suspected of having behavior-related problems = * * *;

*Only with children potentially at environmental risk for delays
(although not necessarily stated in this way)* = * * * *

- ✚ **Roskam & Schelstraete (2007)** * (Hearing Impairment, Intellectual Disability, Multiple Disabilities)
- ✚ **Kenny & McGilloway (2007)** * (mild, moderate, and severe Learning Disabilities; 44% had simultaneous physical disabilities)
- ✚ **Herring et al. (2006)** * (Autism and/or Developmental Delay)
- ✚ **Singh et al. (2006)** * (Autism)
- ✚ **Mahoney & Perales (2003)** * (Autism)

- ✚ **Santos & McCollum (2007)** *** (mothers of typically developing children compared with mothers of children with diagnosed special needs – including Autism/PDD, Cerebral palsy, Down’s syndrome, Developmental delay, Speech/language delays)
- ✚ **Havighurst et al. (2004)** *** (typically developing and those with identified behavior problems)

- ✚ **Nelson et al. (2007)** * * (children at risk for E/BD)
- ✚ **Lovering et al. (2006)** * * (referred; at risk for behavior problems)

- ✚ **Domitrovich et al. (2007)** * * * * (urban, low SES, Head Start [H.S.])
- ✚ **Kidwell et al. (2007)** * * * * (urban, low SES)
- ✚ **Gamble et al. (2007)** * * * * (low SES, H.S.)
- ✚ **Fitzgerald et al. (2006)** * * * * (low SES, Early Head Start, community violence)
- ✚ **Kimonis et al. (2006)** * * * * (‘high risk’- low SES, H.S.)
- ✚ **Zubrick et al. (2005)** * * * * (urban, low SES)
- ✚ **Fantuzzo et al. (2004)** * * * * (low SES, H.S.)

✚ Izard et al. (2004) *** (rural, low SES, H.S.)

Appendix B3
**Studies that Informed Items on my
 Perceived Role and Receptivity to Support Scale**

FINDINGS	AUTHOR(S)	ITEMS INFORMED BY FINDINGS
1. Importance of maternal <u>matching of emotion</u>	Garner (2005)	#5, #7, #8, #13
2. Importance of <u>discussing/validating emotions</u> ; an increase in emotion knowledge skills is linked to higher adult ratings of social and emotional competence; Direct instruction linked to increased emotional and social competence in young children (and being less withdrawn); discussing negative emotions can promote emotion socialization; emotion-based language may reduce internalizing and externalizing behaviors	Domitrovich et al. (2007); Garner (2005); Spinrad et al. (2007) Garner et al. (2008)	#2, #3, #4, #5, #7, #8, #9, #10, #11, #13
3. Distracting attention from an emotionally challenging situation; Importance of modeling/offering <u>ways to cope</u> with negative emotions; delaying gratification linked to emotional competence.	Garner (2005); Rodriguez et al. (2005); Spinrad et al. (2007)	#2, #3, #4, #5, #8, #9, #10, #13
4. Importance of <u>being responsive/comforting/sensitive</u> to child's emotions; maternal negativity and less warmth positively linked with child's behavior problems; effects of maternal disengagement may be more notable during times in which the child faces high stress	Caspi et al. (2004); Garner (2005); Rodriguez et al. (2005); Spinrad et al. (2007)	#2, #3, #5, #6, #7, #8, #9, #11, #12, #13
5. <u>Views in favor of harsh punishment</u> linked to child's proactive and total aggression (directly and indirectly via ER); Negative outcomes linked to use of ineffective discipline strategies; Spanking linked to increased emotion dysregulation	Chang et al. (2003); Fitzgerald et al. (2006); Kimonis et al. (2006); Roskam & Schelstraete (2007); Snyder et al. (2005)	#6, #12, #13
6. Increased <u>parenting stress</u> linked with increased negative perceptions of their child and increased parental depression; A child's behavior or emotional problems can influence parental mental health, parenting stress, and family functioning; Family functioning and parent management correlated with E/BD	Herring et al. (2006); Nelson et al. (2007); Renk et al. (2007)	#4, #9, #12, #13
7. Interaction between temperament and <u>parent management skills</u> and poor parenting practices → risk factors for E/BD	Nelson et al. (2007)	#2, #4, #6, #9, #12, #13

Appendix B3 (continued)

FINDINGS	AUTHOR(S)	ITEMS INFORMED BY FINDINGS
<p>8. RE: <u>PARENTING INTERVENTIONS</u>: Parent support groups with individualized target goals → decreased parenting stress with significant decrease in child's disruptive behavior at home and school; No significant difference between parenting groups and direct home support; Combination of small group workshops, 1 on 1 weekly phone calls, written material and videos → decreased behavior problems and increased parent mental health and marital adjustment; program at school site helped parents be more encouraging of emotional expression – children had less negative emotionality with notably decreased difficult behavior; Weekly 1 on 1 sessions with trainer at center or home improved responsiveness</p>	<p>Havighurst et al. (2004); Lovering et al. (2006); Mahoney & Perales (2003); Singh et al. (2006); Zubrick et al. (2005)</p> <p>* Preschoolers need external support to reach full emotional competencies (Denham et al., 2003).</p>	<p>#13, Items in Section III (especially items #43-45)</p>
<p>9. Maternal <u>emotional attitudes</u> may play a causal role in a child's behavior problems; Viewing child as too young to discuss emotions → link to mom's negative emotional expression; Strong belief in socializing emotion language → link to child's emotion knowledge</p>	<p>Caspi et al. (2004); Dunsmore & Karn (2001);</p>	<p>#2, #3, #7, #8, #9, #10, #11</p>
<p>10. <i>Home-based family involvement (e.g., reading to child) ↔ low conduct problems</i></p>	<p>Fantuzzo et al. (2004); Fitzgerald et al. (2006)</p>	<p>#5, #7, #11, #13</p>
<p>11. Mothers reporting <u>inadequate "support"</u> – not operationally defined; Group of mother-child dyads with disabilities felt more likely to get 'support' from "professionals" – missed opportunity to inform researchers given general grouping of community members; unclear understanding of type of support sought and helpfulness of support</p>	<p>Kenny & McGilloway (2007); Santos & McCollum (2007)</p>	<p>Items in Section II</p>
<p>12. <u>DEMOGRAPHICS</u>: Perceived stress, # children, parent educ., employment/marital → link to child well-being in a low-SES sample</p>	<p>e.g., Kidwell & Barnett (2007)</p>	<p>Items in Section IV</p>

Appendix C1
Content Validity Protocol Questions
*(disseminated to Expert Reviewers to pretest
 Perceived Role and Receptivity to Support Scale)*

Section I –

Items 2-12:

- ✚ Do you agree that it would be deemed [‘HELPFUL/HARMFUL’] for parents to frequently do what is described in the above item #? **[Yes or no?]** _____ → **If not agreeing, please explain** (e.g., Are you concerned with general concept? Is the current wording problematic or insufficient?) _____?

Item 13:

- ✚ Do you agree that a young child’s social-emotional development is “largely affected” by what mothers say and do (as opposed to “somewhat affected or not at all affected”)? **[Yes or no?]** _____ → **If not agreeing, please explain** (e.g., Are you concerned with the general concept? Is the current wording problematic/insufficient?) _____.

Items 2-13:

- ✚ Do the above items adequately capture the range of a parent’s role in promoting or hindering adaptive behaviors or emotional competence? _____
- ✚ Can you think of other items that should be included in this section on parents’ role? _____.

Perceived Stress Items:

- ✚ Do you agree that the above item # will help in assessing parenting stress? **[Yes or no?]** _____ → **If not agreeing, please explain:** _____.
- ✚ Do you agree that the above item # will help in assessing participants’ overall perceived stress? **[Yes or no?]** _____ → **If not agreeing, please explain:** _____.
- ✚ **Do I need to add/omit items in this brief section to more accurately assess perceived stress** (i.e., stress in general and/or specifically regarding their satisfaction in knowing how to address their child’s behaviors and emotions)? _____.
- ✚ **Do you have any concern with my use of these six devised questions to assess stress, rather than having used [an alternate measure]?** _____.

Section II –

- ✚ Items in this section ask about health care professionals, teachers, family, friends, internet resources, and so on. **Can you think of any other potential avenues of behavior-related support in the community** that this section of my questionnaire overlooks? _____.
- ✚ **Will this section provide a sufficient understanding of:**
 - a. ***Whether parents have sought external behavior-related support?*** (Y/N? If no, please explain) _____.
 - b. ***Whether they have been satisfied with such support?*** (Y/N? If no, please explain) _____.
 - c. ***The type of support they may have received?*** (Y/N? If no, please explain) _____.

- i. **Do you think there are additional categories to the type of support parents may receive that I have overlooked** (i.e., in addition to emotional support and strategy-specific support)? (Y/N? If no, please explain) _____

✚ For the above item ##, **do the six choices (a-f) represent a satisfactory array of possible reasons why mothers may opt not to seek outside help** from all/some of the community members? (I thought a forced-choice approach would be more standardized than posing an open-ended question.)

✚ **Will the above four items (#-#) adequately shed light on whether parents feel they are receiving teacher-initiated updates or specific information on children's emotions/behavior?**

Section III –

✚ For item #, would this question make more sense to ask in Section I, under Perceived Role in Development? (Yes/No?) _____

✚ *Rather than asking mothers to remember and select from among four lengthy reasons why they may be concerned about prolonged maladaptive behaviors, the above item # is broken down into individual ratings to assess feelings on underlying reasons that may prompt varying levels of concern. Are there any other plausible reasons that you think should definitely be included here?* _____

✚ Responses to the above item # will be used to assess whether or not parents are receptive to additional support. **Is the wording in this question (and in the preceding introductory statement) sufficient for parents to understand what exactly is being asked? What additional statements/wording might you recommend to make sure that all participants are clear about what is being asked in this item?**

✚ **Any thoughts/concerns regarding the merit of including items #50-55 in this section on receptivity to professional parent-focused support?**

Section IV (Demographics) –

✚ For item #, do you agree that insights on handling behavior would likely come from community members' contact with mothers' ***older children***, and not from contact with siblings who are *younger* than the Head Start child? Or, should I just broadly ask if they had learned behavior-related insights from people who have worked with *any* of their other children? _____

✚ In reviewing items #-#, should any of these items be omitted or modified in some way? _____

Across All Sections –

✚ Does the questionnaire seem to flow in a logical order? _____

- ✚ Do you agree that each item relates to the purpose of the sections within this questionnaire? _____
- ✚ Any item(s) you recommend I omit? _____
- ✚ OVERALL IMPRESSIONS?:

Appendix C2

Survey Methodology Protocol Questions (*disseminated to Expert Reviewers as part of the pretesting of Perceived Role and Receptivity to Support Scale*)

Section I –

Perceived Role in Development (Items #2-14):

1. Do you think the Show Card will be useful in helping participants have a visual for ‘helpful, harmful and no effect’? Would you prefer I use different terminology to make sure parents understand response options? What specifically do you suggest?
2. I am concerned about socially desirable responses (given the use of an in-person mode and the sensitive nature of asking about parenting & children’s behavior).
 - a. How do you feel about asking respondents about ‘mothers in general’ – rather than asking about the effects of their specific actions with their own children? Is this a good technique to use in this case?
 - b. I also make an introductory statement in item #6 to give parents ‘permission’ for why they may spank their children. Is this a good idea?
 - c. Any other suggestions for minimizing effects from asking sensitive questions?
3. In terms of ordering:
 - a. Do you think item #13 in this section should actually be the first question? – Might responses to this item be affected because it comes after all the other examples of how parents may affect their child’s development? (NOTE: My sample size won’t be big enough to ask it multiple ways across respondents.)
 - b. I seem to be alternating between items that are “Harmful” and items that are “Helpful” – should I avoid such a pattern so that parents don’t pick up on the sequence, or is it unlikely that they will?
4. Time Frame: Any concern with asking parents to evaluate each of the items in terms of what may be done “on a frequent basis”? Is this too vague?

Perceived Stress Level (Items #-#):

1. Varied response options:
 - a. Having ‘very satisfied, somewhat satisfied, somewhat unsatisfied, or very unsatisfied’ – could this be simplified or are all four options necessary?
 - b. Is it problematic to have inconsistency in response options across items?
 - c. Instead of directly asking mothers if they have ‘high, medium or low’ stress levels, might it make more sense to have them rate their stress on a scale of 1 to 5, as I do with the final item in this section?

2. Time Frame: I ask parents to evaluate their parenting stress/levels of satisfaction over the last two months – do you agree that this is an appropriate span for their recall?

Section II –

Past/Existing Family-Initiated Outreach for Support (Items #-#):

1. Social Desirability: Do you like the introductory statements? In terms of minimizing social desirability, will this wording encourage participants to answer honestly?
2. Time Frame: Is it appropriate to ask them to consider whether they have contacted any of the following people ‘at anytime in the past year’ – is this clear?

Appendix C2

(Survey Methodology Protocol continued)

3. Am I using skip patterns appropriately in this section? I am anticipating that not every community resource has been sought by these families, so I will be able to skip a lot of items accordingly.
4. Any thoughts on using the SHOW CARDS to aid comprehension in this section – since I use a consistent sequence of questioning about (a) level of satisfaction and (b) the specific type of support? (*I didn't want to overwhelm/distract them, but thought a visual aid may be helpful.*)
5. For the first Show Card, do I need to have a visual for *somewhat satisfied* and *somewhat unsatisfied*? I was wondering if I could use only 3 response options instead of 4; I am also unsure of what the visual for these middle items would look like.
6. Are you concerned with acquiescence bias in items # (i.e., tending to say ‘yes’ regardless of how they may actually feel)? Do you suggest another way to approach these items that will not make the response options too complicated or lengthy?

Professional-Initiated Outreach to Family (Items #-#)

1. For items #, do you like the response options as is (in terms of getting a specific frequency of how often each has occurred), **or should I simply ask yes/no questions** for the factual responses to whether teachers have (a) shared progress updates and (b) offered suggestions at anytime in the past year? Would this be easier for participants?

Section III –

Receptivity to Additional, Professional Support (Items #-#):

1. INSTRUCTIONS: Do you think concerns with social desirability will be decreased by explaining that ‘there are no wrong answers’?
2. I anticipate being the only interviewer asking these questions. Nonetheless, is it inappropriate to ask interviewers to use an earlier response to item # to inform their wording choice for items #-#?
3. For item #, is it unrealistic to expect respondents to keep all four lengthy response options in their head? Should I use a visual cue for this one item, **or**

consider breaking this item down into multiple questions? Or is it okay in its current form?

4. Throughout the questionnaire, I ask respondents to consider ‘emotions and behavior’ at the same time (as seen in item #). Is this automatically double barreled? Or is it okay since I explain earlier that emotions and behavior fall under a bigger area called ‘social-emotional development’?
5. Any concern with the wording in items #-#?
6. Response Options: Is it okay to include only 3 response options for items #-# (without having a ‘somewhat unwilling’ option)?

Section IV – Demographic Information (Items #-#):

1. RECALL: For item #, is it unrealistic to expect mothers to recall who specifically may have given them behavior-related advice in the past? Should I omit this question since it is open-ended and may be too vague?
2. In item #, are the response options inappropriate/too lengthy? _____

Overall impressions? _____

Appendix C3

Questions for Focus Group

(Part of pretesting for my devised Perceived Role and Receptivity to Support Scale)

(Comprised of parent volunteers in a preschool that did not participate in actual study)

1. Would focus group decline participation in ~40 minute interview? What is the preferred time commitment for these parents? Might the incentives influence their decision?
2. Referring to child as “misbehaving” or behavior as “inappropriate, or frustrating in some way...”. Would another term better capture views on the behavior? Do any words trigger heated emotions (e.g., challenging)?
3. Triggers that may cause high/medium stress, aside from perhaps childrearing or money?
4. What comes to mind when asked whether or not you feel people are offering “support” pertaining to your child’s behavior? How do you define “support”? (Emotion-specific, strategy-specific, combination?)
5. Is the notion that something could “help, harm or have no effect on a child’s development” confusing to parents?
6. I ask parents about potential behavior-related support from medical staff, neighbors and friends, family, teaching staff, and member of a religious or community-based organization. Did I forget to include someone else in the community who may offer families support?
7. Is it clear to you what is meant by “parent-focused support” in section III (i.e., should this term be better defined)?

Appendix C4

Examples of Preplanned and Spontaneous Probes During Cognitive Interviews

(As part of the pretesting of my devised Perceived Role and Receptivity to Support Scale)

+ Comprehension Probes

- Does this question seem clear to you?
- Were answer choices clear?
- Is the difference between [term a] and [term b] clear to you?
- What were you thinking about as you arrived at that answer?
- How do you define [term]?
- What comes to mind when you think of...?
- When you think of [term] what does it mean to you?
- What types of events/factors did you include in your answer? Any problem thinking what would be included/not included when thinking about [term]?

+ Paraphrasing Probe

- Can you repeat the question I just asked you?

+ Confidence Probe

- How sure are you of your response?
- As you decided how to answer the last question, any additional thoughts or feelings?

+ Strength of Attitude Probe

- Is this a strongly held belief? Have you given this issue much thought in the past or is this the first time you're really thinking about this?

+ Knowledge Probes

- What makes you say this?
- Is this question easy or difficult to answer, and why?
- What time/reference period came to mind when you were asked this?

+ Debriefing Questions after Each Section:

- How comfortable did you feel answering these items?
- Do you think others may have difficulty answering questions on this topic?

[Reference: Dr. F. Kreuter, Survey Methodology Course, spring 2008]

Appendix D1
Perceived Role and Receptivity to Support Scale
 (Devised by Nicole Megan Edwards; revised version post-pretesting)

RESPONDENT'S ID # _____

QUESTIONNAIRE TOPIC:
Perceived Role and Receptivity to Support Scale

MODE: INTERVIEWER-ADMINISTERED

 **READ THE FOLLOWING INTRODUCTION:**

Hi. My name is Nicole and I am a doctoral student at the University of Maryland. I am doing a study on how *mothers* of three-to-five-year-olds feel about their child's behavior and the kind of support they may or may not want from their community.

I initially received your name from (DIRECTOR), at (NAME OF HEAD START). I have received your consent form and understand that you are willing to answer questions about [NAME OF CHILD] and your relationship with this child.

When we finish the questions, I will give you a packet of information and \$10 in cash. **Is it okay if we continue?**

(1) **NO; NOT A GOOD TIME** → If now is not a good time, could we decide on a specific time that I could ask you some questions? I would need no more than 40-minutes of your time. RECORD DAY/TIME _____

(2) **YES** → Okay, thank you! I will need no more than 40-minutes of your time. Your participation is completely voluntary and you do not have to answer questions that may make you feel uncomfortable. Also, your answers will be kept confidential. That is, they will not be shared with your child's teacher and I will not attach your name or your child's name with the answers you give me.

So that I can ask questions appropriately:

1a. Is your child who is in this (Head Start) a boy or a girl (CIRCLE ONE):

BOY, GIRL

(IF MORE THAN ONE CHILD IN PROGRAM, RECORD THAT INFORMATION HERE: _____)

[NOTE: RECORD CHILD'S NAME ON SEPARATE PAPER, TO USE DURING QUESTIONING – DISCARD NAME IMMEDIATELY AFTER INTERVIEW]

1b. What month and year was this child born? MONTH: _____ YEAR: _____

Okay, let's begin (PROCEED TO SECTION I OF THIS SCALE)

SECTION I –
PARENT’S ROLE IN DEVELOPMENT

READ INSTRUCTIONS:

For this section, think about all children [CHILD’S] age who are also BOYS/GIRLS. After I read each different situation, point to the number to show how helpful for the child it would be if moms did what is described *each day*. [GIVE MOTHERS THE SHOW CARD FOR ITEMS #2-12] See that 1 is *very unhelpful*, 2 is *somewhat unhelpful*, 3 is *neither helpful or unhelpful*, 4 is *somewhat helpful*, and 5 is *very helpful* for the child.

1	2	3	4	5
VERY UNHELPFUL	SOMEWHAT UNHELPFUL	NEITHER	SOMEWHAT HELPFUL	VERY HELPFUL

2. **A child cries each morning because [HE/SHE] sees the mother getting ready to leave for work. If the mother never talks to the child about how [HE/SHE] may be feeling, would this be very unhelpful, somewhat unhelpful, neither helpful or unhelpful, somewhat helpful, or very helpful for the child?:**

1. VERY UNHELPFUL
2. SOMEWHAT UNHELPFUL
3. NEITHER
4. SOMEWHAT HELPFUL
5. VERY HELPFUL
6. – DEPENDS
8. – DON’T KNOW
9. – REFUSED

3. **An older child on the playground takes a child’s toy. HIS/HER mother gives [HIM/HER] simple words to describe how HE/SHE may be feeling, such as “You’re angry that he took your toy”:**

1. VERY UNHELPFUL
2. SOMEWHAT UNHELPFUL
3. NEITHER
4. SOMEWHAT HELPFUL
5. VERY HELPFUL
6. – DEPENDS
8. – DON’T KNOW
9. – REFUSED

12/19/09 note: rephrase into a question next time (“Are you angry...”) since many did not pick up on my questioning intonation.

4. **A mother ‘immediately gives her child whatever [HE/SHE] wants each time [HE/SHE] starts to scream, kick or cry’**
1. VERY UNHELPFUL
 2. SOMEWHAT UNHELPFUL
 3. NEITHER
 4. SOMEWHAT HELPFUL
 5. VERY HELPFUL
 6. – DEPENDS
 8. – DON’T KNOW
 9. – REFUSED
5. **A child [CHILD’S] age is a little sad or worried about starting a new year of school and meeting new teachers and friends. A mother reads a children’s book to her child about this topic:**
1. VERY UNHELPFUL
 2. SOMEWHAT UNHELPFUL
 3. NEITHER
 4. SOMEWHAT HELPFUL
 5. VERY HELPFUL
 6. – DEPENDS
 8. – DON’T KNOW
 9. – REFUSED
6. **Parents try their best to teach their children right from wrong and may use spanking when their child continues to misbehave. If a mom spanks her child [CHILD’s] age when [HE/SHE] misbehaves, how helpful would this be for the child?**
1. VERY UNHELPFUL
 2. SOMEWHAT UNHELPFUL
 3. NEITHER
 4. SOMEWHAT HELPFUL
 5. VERY HELPFUL
 6. – DEPENDS
 8. – DON’T KNOW
 9. – REFUSED
- 12/19/09 note: Successful permissive statement that seemed to increase candid responses*
7. **A mother gives her child pictures or drawings that show different emotions, such as a happy, angry, or sad face to show how the child may be feeling:**
1. VERY UNHELPFUL
 2. SOMEWHAT UNHELPFUL
 3. NEITHER
 4. SOMEWHAT HELPFUL
 5. VERY HELPFUL
 6. – DEPENDS
 8. – DON’T KNOW
 9. – REFUSED

8. **A child looks outside HIS/HER window and gets worried or upset when HE/SHE sees strangers yelling in the street. How helpful would it be for the child if the mother lets the child deal with HIS/HER worried feelings all on HIS/HER own (PROBE: without talking about the child's feelings or moving the child to a different activity)?***

1. VERY UNHELPFUL
2. SOMEWHAT UNHELPFUL
3. NEITHER
4. SOMEWHAT HELPFUL
5. VERY HELPFUL
6. – DEPENDS
8. – DON'T KNOW
9. – REFUSED

9. **A mother 'teaches her child [CHILD'S] age to start controlling the way [HE/SHE] shows emotions' (PROBE: for example, expecting the child to use words instead of hitting when feeling upset):***

1. VERY UNHELPFUL
2. SOMEWHAT UNHELPFUL
3. NEITHER
4. SOMEWHAT HELPFUL
5. VERY HELPFUL
6. – DEPENDS
8. – DON'T KNOW
9. – REFUSED

10. **Mothers often face problems or frustrating situations that may have *nothing* to do with their children. If a preschool child says, "Mommy, what's wrong" when her mom is upset, how helpful would it be if the mom says "Nothing's wrong" while trying to hide her sad, worried, or angry feelings?***

1. VERY UNHELPFUL
2. SOMEWHAT UNHELPFUL
3. NEITHER
4. SOMEWHAT HELPFUL
5. VERY HELPFUL
6. – DEPENDS
8. – DON'T KNOW
9. – REFUSED

11. **A mother asks her child [CHILD'S] age to talk about or explain how [HE/SHE] is feeling about things that happen during the day:***

1. VERY UNHELPFUL
2. SOMEWHAT UNHELPFUL
3. NEITHER
4. SOMEWHAT HELPFUL
5. VERY HELPFUL
6. – DEPENDS
8. – DON'T KNOW
9. – REFUSED

12/19/09 note: many said it's helpful to talk to kids about their day ("How was school; was it fun?"), but not necessarily thinking about emotions and discussing feelings in their response; consider rewording next time.

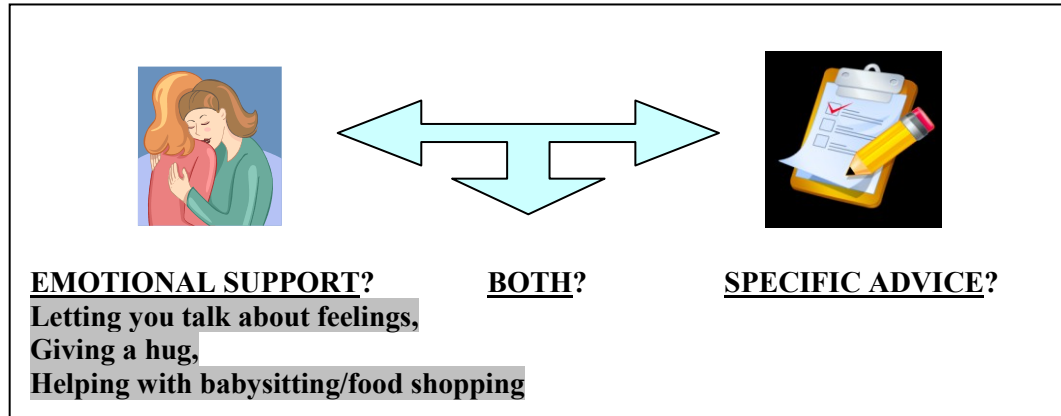
12. **A mother yells at her child everyday, especially when [HE/SHE] misbehaves:**
1. VERY UNHELPFUL
 2. SOMEWHAT UNHELPFUL
 3. NEITHER
 4. SOMEWHAT HELPFUL
 5. VERY HELPFUL
 6. – DEPENDS
 8. – DON'T KNOW
 9. – REFUSED
13. **In your opinion, is the way that a young child shows emotion or behaves largely, somewhat, or not at all because of what mothers do and say?**
1. LARGELY AFFECTED
 2. SOMEWHAT AFFECTED
 3. NOT AT ALL AFFECTED
 8. – DON'T KNOW
 9. – REFUSED
- 12/19/09: needed to be repeated; next time, reword and add an initial sentence (e.g., Now consider if mom's behavior can affect children's behavior...)*
14. **When thinking about how a child [CHILD'S] age acts or behaves, how do mothers and teachers compare in the role they play? In general, do you think mothers play a bigger role, teachers play a bigger role, teachers and mothers both play the same role, or do neither play a role in teaching about emotions and behavior?**
1. MOTHERS: MORE RESPONSIBLE (BIGGER ROLE)
 2. TEACHERS: MORE RESPONSIBLE (BIGGER ROLE)
 3. MOTHERS/TEACHERS EQUALLY RESPONSIBLE (SAME ROLE)
 4. NEITHER IS RESPONSIBLE (NEITHER PLAYS ROLE)
 8. – DON'T KNOW
 9. – REFUSED

SECTION II – PARENT'S EFFORTS IN SEEKING SUPPORT

READ INSTRUCTIONS: Young children's behavior can sometimes seem confusing or frustrating to parents. Some moms may ask others for advice on what to do, while other moms may not want to ask anyone for advice. Over the past 12 months, from [AUGUST 2008] to now, think about the type of behavior-related support or suggestions you might have asked for from others. There are no wrong answers; please answer honestly.

[DISPLAY A COPY OF THE FOLLOWING SHOW CARDS EACH TIME THE RESPONDENT SAYS 'YES' TO HAVING APPROACHED SOMEONE.]

<u>VERY HELPFUL</u>
<u>SOMEWHAT HELPFUL</u>
<u>SOMEWHAT UNHELPFUL</u>
<u>VERY UNHELPFUL</u>



15. At any time in the last year, have you approached or contacted a *doctor, nurse, or other health care professional* to get support and/or advice *specifically* about your child's behavior?

- a) Yes
 b) No (→ **Skip to question #18**)

16. How would you describe how helpful the *doctor, nurse, or other health care professional* had been when you've asked for support and/or advice about [CHILD'S] behavior? (ASK RESPONDENT TO POINT TO CHOICE ON SHOW CARD)

1. VERY HELPFUL
2. SOMEWHAT HELPFUL
3. SOMEWHAT UNHELPFUL
4. VERY UNHELPFUL
8. – DON'T KNOW
9. – REFUSED

17. What kind of support did the *doctor, nurse, or other health care professional* offer you? (ASK RESPONDENT TO POINT TO CHOICE ON SECOND SHOW CARD)

1. EMOTIONAL SUPPORT
2. SPECIFIC ADVICE
3. COMBINATION OF EMOTIONAL AND STRATEGY-SPECIFIC ADVICE
8. – DON'T KNOW
9. – REFUSED

18. At anytime in the last year, have you approached a member of a religious or other community-based organization to get support and/or advice about your child's behavior?

- a) Yes
 b) No (→ **Skip to question #21**)


19. How would you describe how helpful the *member of a religious or other community-based organization* had been when you've asked for support and/or advice about [CHILD'S] behavior? (ASK RESPONDENT TO USE SHOW CARD)

1. VERY HELPFUL
2. SOMEWHAT HELPFUL
3. SOMEWHAT UNHELPFUL
4. VERY UNHELPFUL
8. – DON'T KNOW
9. – REFUSED

20. What kind of support did the *member of a religious or other community-based organization* offer you? (ASK RESPONDENT TO USE SHOW CARD)

1. EMOTIONAL SUPPORT
2. STRATEGY-SPECIFIC SUPPORT
3. COMBINATION: EMOTIONAL & STRATEGY-SPECIFIC
8. – DON'T KNOW
9. – REFUSED

21. At anytime in the last year, have you approached a *neighbor or friend* to get support and/or advice about your child's behavior?

- a) Yes
 b) No (→ Skip to question #24)
- 


22. How would you describe how helpful the *neighbor or friend* had been when you've asked for support and/or advice about [CHILD'S] behavior? (ASK RESPONDENT TO USE SHOW CARD)

1. VERY HELPFUL
2. SOMEWHAT HELPFUL
3. SOMEWHAT UNHELPFUL
4. VERY UNHELPFUL
8. – DON'T KNOW
9. – REFUSED

23. What kind of support did the *neighbor or friend* offer you? (ASK RESPONDENT TO USE SHOW CARD)

1. EMOTIONAL SUPPORT
2. STRATEGY-SPECIFIC SUPPORT
3. COMBINATION OF BOTH
8. – DON'T KNOW
9. – REFUSED

24. At any time in the last year, have you approached *someone in your family* to get support and/or advice about your child's behavior?

- a) Yes
 b) No (→ Skip to question #27)
- 

12/19/09 note: Need to add:
 "Including child's father" –
 since many felt the father
 was not related by blood
 and was not family.

25. How would you describe how helpful the *person in your family* had been when you've asked for support and/or advice about [CHILD'S] behavior? (ASK RESPONDENT TO USE SHOW CARD)

1. VERY HELPFUL
2. SOMEWHAT HELPFUL
3. SOMEWHAT UNHELPFUL
4. VERY UNHELPFUL
8. – DON'T KNOW
9. – REFUSED

26. What kind of support did the *person in your family* offer you? (ASK RESPONDENT TO USE SHOW CARD)

1. EMOTIONAL SUPPORT
2. STRATEGY-SPECIFIC SUPPORT
3. COMBINATION: EMOTIONAL & STRATEGY
8. – DON'T KNOW
9. – REFUSED

27. At anytime in the last year, have you approached someone at Head Start (for example, a *teacher, teacher's aide, director or therapist*) to get support and/or advice about [CHILD'S] behavior?

1. Yes

Which people in the school have you approached (LIST TITLE/POSITION ONLY): _____

2. No (→ **SKIP TO QUESTION #30**)

28. How would you describe how helpful the *member of Head Start* had been when you've asked for support and/or advice about [CHILD'S] behavior? (ASK RESPONDENT TO POINT TO CHOICE ON SHOW CARD)

1. VERY HELPFUL
2. SOMEWHAT HELPFUL
3. SOMEWHAT UNHELPFUL
4. VERY UNHELPFUL
8. – DON'T KNOW
9. – REFUSED

29. What kind of support did the *member of Head Start* offer you? (ASK RESPONDENT TO POINT TO CHOICE ON SHOW CARD)

1. EMOTIONAL SUPPORT
2. STRATEGY-SPECIFIC SUPPORT
3. COMBINATION OF EMOTIONAL AND STRATEGY-SPECIFIC
8. – DON'T KNOW
9. – REFUSED

30. At anytime in the last year, have you approached a teacher or therapist who does *not* work at Head Start (for example, who you may see in your home or at a clinic) to get support and/or advice about [CHILD'S] behavior?

1. Yes

Which teacher or therapist outside of Head Start have you approached? (RECORD POSITION/TITLE) _____

2. No (→ **Skip to question #33**)

31. How would you describe how helpful the *teacher or therapist who does not work at Head Start* had been when you've asked for support and/or advice about [CHILD'S] behavior? (ASK RESPONDENT TO POINT TO CHOICE ON SHOW CARD)

1. VERY HELPFUL
2. SOMEWHAT HELPFUL
3. SOMEWHAT UNHELPFUL
4. VERY UNHELPFUL
8. – DON'T KNOW
9. – REFUSED

32. What kind of support did the *teacher or therapist who does not work at Head Start* offer you? (ASK RESPONDENT TO USE SHOW CARD)

1. EMOTIONAL SUPPORT
2. STRATEGY-SPECIFIC SUPPORT
3. COMBINATION: EMOTIONAL & STRATEGY SPECIFIC
8. – DON'T KNOW
9. – REFUSED

33. Has any other person that I didn't mention given you emotional support and/or strategy-specific advice about [CHILD'S] behavior in the past 12 months? (RECORD RESPONSE IF RESPONDENT SAYS YES)

Person's Title: _____

Type of support: _____

34. Thinking about the last 12 months, since [August 2008], please say yes or no to whether you have looked at any of the following, even 1 or 2 times, to get advice or ideas about any of your children's emotions or behavior (READ EACH OPTION, PAUSE, AND CIRCLE IF PARENT SAYS 'YES'; MULTIPLE CHOICES CAN BE CIRCLED):

*12/19/09 note:
Next time, say
'magazines'
before books
(if still
interested in
this
distinction)*

- | | | |
|--|---|---|
| a. Television shows on child behavior? | Y | N |
| b. Parenting Books? | Y | N |
| c. Bible? | Y | N |
| d. Internet? | Y | N |
| e. Parenting Magazines? | Y | N |
| f. Information from a workshop you attended? | Y | N |
| g. Information from a parent support group? | Y | N |

h. Anything else you look at that I didn't mention? (RECORD RESPONSE IF OFFERED): _____

35. **Of the ones you selected (RESTATE THE NUMBERS THAT WERE CIRCLED), tell me which ones, if any, have been *very helpful in getting advice or ideas about emotions or behavior?* (CIRCLE CHOICES): 1, 2, 3, 4, 5, 6, NONE**

PROFESSIONAL-INITIATED OUTREACH REGARDING BEHAVIOR

READ: The next four questions ask about your experience with teachers or therapists who may have worked directly with you and/or your child in the last year, that is since [August 2008]. As I said earlier, your specific answers will not be shared with anyone.

36. **In the past year, has a trained professional *who does not work for Head Start* (such as a psychologist, behavior therapist or family educator), talked with you at anytime (that is, in your home, at a clinic, or during a workshop), about young children's emotions or behavior?**
1. YES
 2. NO
 8. – DON'T KNOW
 9. – REFUSED
37. **Over the past year, have *teaching staff from Head Start* tried to reach you, either in person, by letter, or over the phone, specifically to *share how your child is showing emotions or acting in school* (Probe: to talk about good or concerning behavior)? (CIRCLE RESPONSE)**
1. YES
 2. NO
 8. – DON'T KNOW
 9. – REFUSED
38. **Over the past year, have teaching staff from Head Start given you *ideas or suggestions on things you could do in the home* to help with your child's emotions or behavior?**
1. YES
 2. NO
 8. – DON'T KNOW
 9. – REFUSED
39. **Do you know what the Head Start teachers do, or how they respond, when children in [CHILD'S] class start to misbehave?**
1. YES
 2. NO
 8. – DON'T KNOW
 9. – REFUSED

SECTION III – RECEPTIVITY TO INDIVIDUALIZED PARENTING INTERVENTION

READ INSTRUCTIONS: This next section asks about whether mothers would like more individual support to help them with specific behaviors. There are no wrong answers, I will not share your specific answers with anyone, and I encourage you to answer honestly.

40. Over the last 2 months, that is since the start of the school year in August, about how often has [CHILD] behaved or acted in a way that you feel (Probe: don't worry about what teachers would say in the classroom, but acting in a way you feel) is inappropriate or frustrating? Would you say:

1. Everyday
2. 4-6 times a week
3. 1-3 times a week
4. A few times a month
5. Once a month; or
6. Never
8. – DON'T KNOW
9. – REFUSED

12/19/09 note: Most participants willingly added the type of behaviors they are seeing. Maybe add a follow-up question: "What behaviors are you seeing?"

[REVIEW RESPONSE TO ABOVE ITEM → IF PARENT SAID [CHILD] 'NEVER' RESPONDED INAPPROPRIATELY (CHOICE #6), READ **SECOND** HALF OF THE WORDING IN PARENTHESES FOR NEXT TWO ITEMS.]

IF CHOICES #1-5 WERE PICKED, READ **FIRST** HALF OF THE WORDING IN PARENTHESES FOR THESE TWO ITEMS.]

41. Which of the following do you think is *more* likely. Do you think that [your child's behavior/the behavior of a young child who is acting inappropriately] will get better by itself (PROBE: improving as the child gets older), or do you think the behavior will *only* get better if the child is taught specific skills?
1. BETTER WITH AGE
 2. ONLY IMPROVE IF ADULTS PROVIDE SUPPORT
 3. – DEPENDS ON THE BEHAVIOR
 8. – DON'T KNOW
 9. – REFUSED

1	2	3	4	5
NO CONCERN AT ALL		SOMEWHAT OF A CONCERN		STRONG CONCERN

42. If [your child's behavior/ the inappropriate behavior of a young child] was not getting better or showing improvement, which of the following reasons may help explain why [you/a mother] would be concerned right now? Please answer on a scale of 1 to 5, where 1 is *no concern at all*, 3 is somewhat of a concern, and 5 is *definitely a strong concern* (CIRCLE RATINGS AFTER EACH ITEM):

- | | | | | | | |
|----|--|---|---|---|---|---|
| 1. | The behavior may concern people in places <i>outside</i> the home | 1 | 2 | 3 | 4 | 5 |
| 2. | The behavior may concern some family members <i>inside</i> the home | 1 | 2 | 3 | 4 | 5 |
| 3. | The behavior may lead to a referral for special services and being labeled as a child with a delay or disability | 1 | 2 | 3 | 4 | 5 |
| 4. | The behavior may influence [CHILD'S] long-term learning and development | 1 | 2 | 3 | 4 | 5 |

43. If a teacher, therapist, or social worker wanted to work with *you* right now, to show you how to help your child understand, talk about, and better control [HIS/HER] emotions and behavior, would you: definitely be interested today in signing up to receive this help, be somewhat interested (PROBE: need more information to decide), or would you definitely *not* be interested in receiving this help?

1. DEFINITELY INTERESTED
2. SOMEWHAT INTERESTED (WOULD NEED MORE INFORMATION TO DECIDE)
3. DEFINITELY UNINTERESTED
8. - DON'T KNOW
9. - REFUSED

12/19/09: I omitted the skip pattern; I asked everyone to select from support options in case there was a medium of support they hadn't before considered – if answering item #43 based on presumed way of receiving support.

44. Please say 'yes or no' as to whether you'd like the following type of support that would focus directly on you instead of on the child: (MULTIPLE CHOICES MAY BE CIRCLED 'YES')

1. **One-on-one in your home?**
YES or NO
2. **One-on-one over the phone?**
YES or NO

3. **Being part of a small parent group with 5-10 other parents?**
YES or NO
4. **In a lecture or workshop as part of a larger audience?**
YES or NO
5. **Having written information on suggestions sent to your home?**
YES or NO
6. **Having a video on specific suggestions/advice sent home?**
YES or NO
8. – DON'T KNOW
9. – REFUSED

45. **(IF RESPONDING YES TO MORE THAN ONE OPTION) Of the ones you liked (RE-STATE THE OPTIONS RECEIVING A 'YES' RESPONSE), which type of parent-focused support would you *most* prefer?**
[CIRCLE ONE RESPONSE:] a, b, c, d, e, f, 8, 9

{USE BELOW SHOWCARD FOR NEXT TWO ITEMS}

1	2	3	4
VERY UNWILLING	SOMEWHAT UNWILLING	SOMEWHAT WILLING	VERY WILLING

46. **To improve [CHILD'S] behavior, what if a parent educator asks you to *change your own behavior*. This educator wants you to help [CHILD] talk more about emotions and would like you to respond to inappropriate behavior in a different way. How willing would you be to change *the way you act* with your child? {GIVE RESPONDENT SHOW CARD} Would you be very unwilling, somewhat unwilling, somewhat willing or very willing to change?**
1. VERY UNWILLING
 2. SOMEWHAT UNWILLING
 3. SOMEWHAT WILLING
 4. VERY WILLING
 8. – DON'T KNOW
 9. – REFUSED

47. To improve [CHILD'S] behavior, what if a parent educator asks you to *change your own views*. This educator wants you to see [CHILD] as old enough to talk about emotions, wants you to expect [CHILD] to calm down and use [HIS/HER] words when upset, and wants you to see yourself as playing a very important role in how [CHILD] shows [HIS/HER] feelings and behaves. How willing would you be to change *your parenting views*? {GIVE RESPONDENT A SHOW CARD}

1. VERY UNWILLING
2. SOMEWHAT UNWILLING
3. SOMEWHAT WILLING
4. VERY WILLING
8. – DON'T KNOW
9. – REFUSED

12/19/09 note: Early on, I omitted "beliefs" because I had to assure the first few respondents that I did not mean 'religious beliefs'.

PARENTING STRESS MEASURE:

***** (ADMINISTER PARENTING STRESS MEASURE)

[AT THIS POINT IN THE INTERVIEW, ASK THE PARENTING STRESS ITEMS FROM PSS MEASURE. THEN PROCEED TO ASKING BEHAVIOR SCREENING ITEMS] *****

TYPE OF BEHAVIORAL CONCERN, IF ANY:

(READ): I would now like to ask you some questions that will help me to understand the type of behaviors [CHILD] may show in different situations. ***** [AT THIS POINT IN THE INTERVIEW, ASK THE 12 BEHAVIOR SCREENING ITEMS FROM ANOTHER MEASURE. THEN PROCEED TO ASKING THE DEMOGRAPHIC QUESTIONS IN SECTION IV BELOW] *****

***** (ADMINISTER BEHAVIOR SCREENING ITEMS)

SECTION IV – DEMOGRAPHIC INFORMATION

READ INSTRUCTIONS: Thank you so much for answering these questions, which will hopefully help a lot of other families. These questions are just to get a better idea of the families who are participating in this study. As I said before, your personal information will be kept confidential and all answers are voluntary.

48. Does [CHILD] currently have a diagnosed delay or disability (PROBE: Where you had to sit down for an Individualized Education Plan or IEP meeting)?

1. YES
2. NO
8. – DON'T KNOW
9. – REFUSED

a. To the best of your knowledge, what is the *specific* diagnosis (PROBE: What type of delay or disability does your child have)?

49. How many children do you have that are older than (CHILD)? And how many children do you have that are younger than (CHILD)?

OLDER = _____ # YOUNGER = _____

9. - REFUSED

[IF NO OTHER CHILDREN, SKIP TO ITEM #53]

50. In the past year, have any of your other children received services for a delay or disability?

1. YES
2. NO
8. - DON'T KNOW
9. - REFUSED

51. For any of your other children, have other people in the past taught you specific things to do when faced with inappropriate or frustrating behavior?

1. Yes
2. No

52. What was your relationship to the adult or adults who had given this specific advice? (RECORD RESPONSE)

_____?

53. What is the highest level of education that you have finished at this time?

RECORD RESPONSE: _____

1. 10th GRADE
2. 11th GRADE
3. HIGH SCHOOL
4. ASSOCIATE'S DEGREE
5. BACHELOR'S DEGREE
6. MASTER'S DEGREE
7. OTHER: _____
8. - DON'T KNOW
9. - REFUSED

54. Does [CHILD] live in a single-parent or a two-parent home? [CIRCLE RESPONSE:]

1. SINGLE-PARENT HOME
2. TWO-PARENT HOME
3. OTHER: _____
4. -DON'T KNOW
5. -REFUSED

55. Has [CHILD] been a foster child at any point while in your home?

1. YES
2. NO
8. – DON'T KNOW
9. – REFUSED

56. I'd like to ask you about both your ethnicity and race:

a) First, are you Spanish, Hispanic, Latino, or none of the above?

RECORD RESPONSE: _____

1. SPANISH
2. HISPANIC
3. LATINO
4. NONE OF THE ABOVE
8. – DON'T KNOW
9. – REFUSED

b) Can you please tell me your race?

RECORD RESPONSE: _____

1. CAUCASIAN OR WHITE
2. AFRICAN AMERICAN OR BLACK
3. AMERICAN INDIAN OR ALASKA NATIVE
4. ASIAN
5. NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER
6. BI/MULTIRACIAL
7. HISPANIC DISSENT
8. – UNKNOWN
9. – REFUSED

57. And, what month and year were you born? MONTH _____ YEAR _____

PLEASE READ AFTER PARTICIPANTS COMPLETE ALL MEASURES: Thank you again for your time. I would now like to give you a packet of information and \$10 in cash to thank you for participating.

Do you have any thoughts or comments on the questions I asked you today?

RECORD RESPONSE: _____

Thank you again for your time.

- END OF SCALE -

NOTE: Items with an '*' = Adapted from Dunsmore and Karn's (2001) Parents' Beliefs about Feelings Questionnaire

=====

Appendix D2
Parenting Stress Scale (PSS; Berry & Jones, 1995)
<http://www.personal.utulsa.edu/~judy-berry/parent2.htm>

Scoring: To compute the parental stress score, items 1, 2, 5, 6, 7, 8, 17, and 18 should be reverse scored as follows: (1=5) (2=4) (3=3) (4=2) (5=1). The item scores are then summed.

The following statements describe feelings and perceptions about the experience of being a parent. Think of each of the items in terms of how your relationship with your child or children typically is. Please indicate (tell me) the degree to which you agree or disagree with the following items... (Give Show Card)

1 = Strongly disagree 2 = Disagree 3 = Undecided 4 = Agree 5 = Strongly agree

- ___ 1. I am happy in my role as a parent.
- ___ 2. There is little or nothing I wouldn't do for my child(ren) if it was necessary.
- ___ 3. Caring for my child(ren) sometimes takes more time and energy than I have to give.
- ___ 4. I sometimes worry whether I am doing enough for my child(ren).
- ___ 5. I feel close to my child(ren).
- ___ 6. I enjoy spending time with my child(ren).
- ___ 7. My child(ren) is an important source of affection for me.
- ___ 8. Having child(ren) gives me a more certain and optimistic view for the future.
- ___ 9. The major source of stress in my life is my child(ren).
- ___ 10. Having child(ren) leaves little time and flexibility in my life.
- ___ 11. Having child(ren) has been a financial burden (*PROBE: or financial stress*).
- ___ 12. It is difficult to balance (*juggle*) different responsibilities because of my child(ren).
- ___ 13. The behavior of my child(ren) is often embarrassing or stressful to me.
- ___ 14. If I had it to do over again, I might decide not to have child(ren).
- ___ 15. I feel overwhelmed by the responsibility of being a parent.
- ___ 16. Having child(ren) has meant having too few choices and too little control over my life.
- ___ 17. I am satisfied as a parent.

___ 18. I find my child(ren) enjoyable.

Appendix D3

The Early Childhood Behavior Problem Screening Scale (ECBPSS; Epstein & Nelson, 2006)*

Item	Subscale
Has difficulty adjusting to changes or new things	Internalizing
Upsets me just to be mean (<i>Probe: pushes buttons; tests limits</i>)	Externalizing
Often cries or fusses over little things	Internalizing
Often does things that irritate or frustrate me	Externalizing
Destroys own toys or things	Externalizing
Often moody or irritable	Internalizing
Has a bad temper	Externalizing
Often does not do what is asked (<i>Probe: not listening first time</i>)	Externalizing
Easily upset or frustrated	Internalizing
Physically abuses others**	Externalizing
Is easily upset	Internalizing
<u>Demands</u> a lot of attention	Internalizing

* According to Griffith et al. (2008), the items have been written below a sixth-grade reading level. Also, ratings are on a scale from 0 (*not at all like the child*) to 3 (*very much like the child*).

Appendix D4

Self-Expressiveness in the Family Questionnaire (SEFQ; Halberstadt et al., 1995)
<http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=1995-27576-001&loginpage=Login.asp&site=ehost-live>

Table 1

*The Self-Expressiveness in the Family Questionnaire:
 Items and Factor Loadings From Study 4*

Item	Factor loading	
	Positive	Negative
1. Showing forgiveness to one who broke a favorite possession. (+)	.40	
2. Thanking family members for something they have done. (+)	.62	
3. Exclaiming over a beautiful day. (+)	.52	
4. Showing contempt for another's actions. (S-)		.61
5. Expressing dissatisfaction with someone else's behavior. (S-)		.51
6. Praising someone for good work. (S+)	.66	
7. Expressing anger at someone else's carelessness. (S-)		.58
8. Sulking over unfair treatment by a family member. (S-)		.63
9. Blaming one another for family troubles. (S-)		.63
10. Crying after an unpleasant disagreement. (-)	.32	.44
11. Putting down other people's interests. (S-)		.50
12. Showing dislike for someone. (S-)		.47
13. Seeking approval for an action. (-)		.44
14. Expressing embarrassment over a stupid mistake. (-)	.32	.34
15. Going to pieces when tension builds up. (S-)		.60
16. Expressing exhilaration after an unexpected triumph. (+)	.50	
17. Expressing excitement over one's future plans. (S+)	.67	
18. Demonstrating admiration. (S+)	.69	
19. Expressing sorrow when a pet dies. (+)	.54	
20. Expressing disappointment over something that didn't work out. (S-)	.39	.46
21. Telling someone how nice they look. (S+)	.75	
22. Expressing sympathy for someone's troubles. (S+)	.74	
23. Expressing deep affection or love for someone. (S+)	.71	
24. Quarreling with a family member. (S-)		.62
25. Crying when a loved one goes away. (+)	.57	
26. Spontaneously hugging a family member. (S+)	.67	
27. Expressing momentary anger over a trivial irritation. (S-)		.65
28. Expressing concern for the success of other family members. (+)	.45	
29. Apologizing for being late. (+)	.41	
30. Offering to do somebody a favor. (+)	.49	
31. Snuggling up to a family member. (S+)	.65	
32. Showing how upset you are after a bad day. (-)		.61
33. Trying to cheer up someone who is sad. (S+)	.72	
34. Telling a family member how hurt you are. (+)	.56	.36
35. Telling family members how happy you are. (S+)	.72	
36. Threatening someone. (S-)		.54
37. Criticizing someone for being late. (-)		.44
38. Expressing gratitude for a favor. (S+)	.65	
39. Surprising someone with a little gift or favor. (S+)	.59	
40. Saying "I'm sorry" when one realizes one was wrong. (+)	.65	
Eigenvalues	8.97	4.34

Note. (+) indicates the item loads on the positive factor; (-) indicates the item loads on the negative factor. (S) indicates the item is suggested for the short scales. Directions, not including examples, were as follows: This is a questionnaire about expressiveness. To answer the questionnaire, try to think of how frequently you express yourself during each of the following situations with family members. Circle a number on the rating scale that indicates how frequently you express yourself in that situation when it occurs. Thus, if you never or rarely express those feelings, circle a 1, 2, or 3. If you express those feelings with some or moderate frequency, circle a 4, 5, or 6. And if you express those feelings very frequently, circle a 7, 8, or 9. Some items may be difficult to judge. However, it is important to answer every item. Try to respond quickly and honestly about yourself. There are no right or wrong answers, and we don't believe that any answer is better than another.

Appendix D5

UNIFORM PROBES for SEFQ measure (to clarify wording):

- **Item 4:** contempt (PROBE: strong dislike)
- **Item 7:** carelessness (PROBE: if they are sloppy, messy, or forget to do something)
- **Item 13:** seeking approval (PROBE: Is this right? What do you think I should do? How should I handle this?)
- **Item 15:** going to pieces when tension builds up (PROBE: reaching a certain point and feeling you need a break)
- **Item 16:** expressing exhilaration after an unexpected triumph (PROBE: something goes your way that you weren't expecting and getting really excited about it)
- **Item 25:** ...when a loved one goes away (PROBE: whatever 'going away' means to you)
- **Item 27:** momentary (PROBE: a little bit of)
- **Item 28:** expressing concern for the success of other family members (PROBE: worried about if they're going to be successful)
- **Item 31:** snuggling (PROBE: cuddling)
- **Item 38:** gratitude (PROBE: thankfulness)

Appendix D6



Show Cards (in order of presentation during in-person interview):

SECTION I (Devised Measure):

1	2	3	4	5
VERY UNHELPFUL	SOMEWHAT UNHELPFUL	NEITHER	SOMEWHAT HELPFUL	VERY HELPFUL

SECTION II (Devised Measure):

<u>VERY HELPFUL</u>
<u>SOMEWHAT HELPFUL</u>
<u>SOMEWHAT UNHELPFUL</u>
<u>VERY UNHELPFUL</u>

		
<u>EMOTIONAL SUPPORT?</u> Letting you talk about feelings; Giving a hug; Helping with babysitting/food shopping	<u>BOTH?</u>	<u>SPECIFIC ADVICE?</u>

SECTION III (Devised Measure):

(For item #42: choices a-d):

1	2	3	4	5
NO CONCERN AT ALL		SOMEWHAT OF A CONCERN		STRONG CONCERN

(For last two items in section III):

1	2	3	4
VERY UNWILLING	SOMEWHAT UNWILLING	SOMEWHAT WILLING	VERY WILLING

Parental Stress Scale:

1	2	3	4	5
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

ECBPSS (Epstein & Nelson, 2006):

0	1	2	3
NOT AT ALL LIKE MY CHILD	(rarely)	(somewhat)	VERY MUCH LIKE MY CHILD

Self-Expressiveness in the Family Questionnaire (SEFQ; Halberstadt et al., 1995):

1	2	3	4	5	6	7	8	9
Never or Rarely Done			Done with Some or Moderate Frequency			Done Very Frequently		

Note: Actual show cards were evenly spaced. Participants held them (posted on index cards) during interviews.

Appendix E1

Orientation Meeting – Introductory Speech

“My name is Nicole Edwards and I taught for several years in NYC, working closely with 2-3 year olds with special needs and their parents in a preschool and in families’ homes. I loved working alongside parents and listening carefully to their individual concerns. Now, I am a doctoral student at the University of Maryland and very excited to be doing a project on early development that may help a lot of preschool children and their families. I’m here today because I would like to interview mothers in this Head Start Program. The questions will focus on young children’s behavior & I would love to talk with each of you about your beliefs and needs. These one-time meetings will take place at your child’s Head Start building, they will take about 40-60 minutes of your time, and your responses will be kept confidential. A useful packet of information & \$10 in cash will be given to mothers who participate as a way of saying thank you. I’ll be sending a letter to families’ homes and recruiting mothers in person or over the phone over the next few months. If you already know you’d like to participate, please come put your name and number on this list before you leave today so I can call you to set up a time to meet. Thank you for your help and best wishes for a great school year!”

Appendix E2

Introductory Letter Sent to Head Start Families

Dear Head Start Mothers,

My name is Nicole Edwards and I am a doctoral student from the University of Maryland and a former Early Intervention Teacher. I enjoyed meeting many of you at the Head Start Orientation Meeting! I would like to ask Head Start mothers for help in answering questions about behavior and early development. Your participation would include meeting with me one time at your child's Head Start program for about 40-60 minutes. Your specific answers will be kept confidential. Mothers who participate will get useful information on child behavior and \$10 in cash.

I may visit the school at dismissal or try to reach mothers by phone over the next several weeks to ask those who are interested to set a time to meet. If you want to reach me, please leave a message on my cell phone. Better understanding your views and needs may help improve supports and services for many other families. Thank you for your help.

Sincerely,

*Nicole M. Edwards
Doctoral Candidate
University of Maryland*

*[Director's name]
Head Start Director
[Name] Head Start*

Appendix E3


INCENTIVE PACKET FOR PARENTS - REVISED**By: Nicole M. Edwards, M. Ed****Doctoral Candidate****University of Maryland – Spring 2009****nedwards@umd.edu***RESOURCES/SUGGESTIONS TO HELP PARENTS
WITH THEIR PRESCHOOL CHILD'S
BEHAVIOR AND EMOTIONAL DEVELOPMENT***I. Questions to ask yourself about your child's behavior:**

-  **How do I feel about my child's behavior?**

I feel... _____

-  **Does my child act this way all the time or only at certain times?**


I know my child acts this way at the following times/with the following people... _____

-  **What is my child trying to tell me by acting this way?**

I think my child is trying to say that... _____

-  **Does my child generally get what he/she wants by behaving in this way?**

In general, I feel that my child [DOES/DOES NOT] get what is wanted by using this behavior because... _____

-  **Can I teach my child any other ways to act/ behave so he/she can get what is wanted in a way that I feel is more appropriate?**

Maybe I could help my child get what he/she wants, without using this specific behavior, by helping him/her do the following... _____

PACKET FOR PARENTS (Continued)
By: Nicole M. Edwards, M.Ed
University of Maryland – Spring 2009
nedwards@umd.edu

II. Reacting/responding when your child acts inappropriately:

- ✚ **Respond in a supportive, warm manner** (e.g., *using a softer tone of voice; getting down to the child's eye level*); research shows that ignoring, teasing, cursing at, yelling at, or hitting young children will *not* help them learn how to better communicate feelings or deal with stressful situations in the future.

- ✚ **Avoid making the behavior something that ‘works’ for your child.**
Remember to show a lot of attention and affection when he/she is calm and acting nicely (e.g., *“Nice sitting! Great using your words instead of hitting”*), so your child can see it is worthwhile to do things that you feel are more appropriate.

- ✚ **Talk about (validate) what your child may be feeling.**

- ✚ **Pay attention to your child’s facial expressions/body language.** If your child is watching a situation that seems to be upsetting him/her, gently encourage the child to focus on a different activity.

- ✚ **Use your words and actions to guide your child to act more appropriately.**

- ✚ **Use NATURAL consequences** that make sense for the specific situation (For example: *Asking the child to help you put all the thrown blocks into a bin; Asking your child to help wipe the juice that she knocked over; Guiding the child to ‘pat nicely’ on the arm of someone he/she has just hit.*)

- ✚ **Act in a consistent, predictable way.** Showing your child that you will react/respond in the SAME WAY each time will help him/her understand what is expected much more quickly; this will shorten the time it takes for your child to “test” your new expectations.

PACKET FOR PARENTS (Continued)

By: Nicole M. Edwards, M.Ed

University of Maryland – Spring 2009

nedwards@umd.edu

III. Useful things to do with your child, at anytime:

- ✚ **Create or look at pictures/drawings of faces** (in picture books or magazines) that show different emotions. Ask questions that help the child learn more about emotions (For example: “*Which one looks sad? Why do you think the boy in this picture is so sad? How can we make him feel better?*”; or “*Which picture looks like how you felt when she took your toy??”).*

- ✚ In the morning, **talk with your child about all the activities that he/she will get to do that day – and the order in which they will take place.** Then, as one activity/task is coming to an end, ask the child if he/she remembers what’s coming next. Having a predictable routine can help young children feel secure, sometimes with less of a need to misbehave.

- ✚ **Pick out children’s books from library that discuss emotions.** Talking about how characters are feeling is a safe and meaningful way to learn about emotions.

- ✚ **Make chores/tasks into a game,** which can make your child excited to do them and less likely to behave inappropriately. (For example: “*Let’s see who can put all these blocks back into the bin the fastest, me or you?; Whoever finishes brushing their teeth first can pick tonight’s bedtime book!*”). Just make sure the ‘games’ you set up are appropriate for your child’s age and level of understanding – so that the child is always able to feel successful! If the game is too hard, your child may become frustrated and act inappropriately.

- ✚ **Catch your child being ‘good’!** Always use positive words/praise when your child tries to do something you feel is appropriate, and tell your child what it is about his/her efforts that you *really* like so your child will know which behaviors to do again in the future. ☺

PACKET FOR PARENTS (Continued)
By: Nicole M. Edwards, M.Ed
University of Maryland – Spring 2009
nedwards@umd.edu

IV. Things to do when you feel yourself getting frustrated or upset in front of your child:

- ✚ **If someone is in immediate danger, first make sure everyone is safe.**

- ✚ After the situation has ended, **briefly walk to another room if you are feeling very angry with the child** (e.g., *to slowly count to 10; write your feelings on a piece of paper; sit in a quiet room for a few minutes; call a trusted friend or family member to share your frustration; etc.*).

- ✚ After the inappropriate behavior has ended, and after you have calmed down, it's important to revisit the issue. Talk about what just happened (see part II). Make sure you use simple words to **let your child know how YOU are feeling about the child's behavior** (For example: *I feel very sad when you hit your brother; I felt angry when you kicked the wall*). Give the child ideas on better, more appropriate ways of acting next time he/she is feeling that way!

- ✚ **If you are feeling negative emotions that have nothing to do with your child, it is healthy and useful to let the child know why you are feeling this way** (using just a few words when the child is younger). (For example, "*Mommy hurt her toe and is feeling sad right now; Daddy is upset because he has to fix something at work; Grandma has a headache, so she isn't feeling well*".) Instead of trying to hide your feelings, it is very helpful for your child to learn how you talk about your emotions and how you react when dealing with a frustrating or stressful situation in your own life (so the child will have more ideas on how to deal with his/her own experiences). ☺

PACKET FOR PARENTS (Continued)**By: Nicole M. Edwards, M.Ed****University of Maryland – Spring 2009****nedwards@umd.edu****V. ONLINE RESOURCES:**

- ✚ <http://www.mdcoalition.org/index.htm>

- ✚ <http://www.nasponline.org/families/index.aspx> (Parent-Teacher Info)

- ✚ <http://www.nmha.org/go/information/get-info/mi-and-the-family/recognizing-warning-signs-and-how-to-cope> (Mental Health America; 2008)

- ✚ http://www.vanderbilt.edu/csefel/parent/family_workbook/positive_solutions_workbook.pdf (Positive Solutions for Families Workbook)

(If interested, contact Nicole Edwards for references)



Appendix F1 – Multicollinearity Tables

Assessing Multicollinearity for all Possible Covariates and Explanatory Factors		
Factors	Collinearity Statistics	
	Tolerance	VIF
Mother_age_grouped	0.648	1.543
Educ_Post_High-School	0.739	1.354
Educ_Pre_High-School	0.626	1.598
Number of parents_home	0.771	1.296
White_Race	0.730	1.370
NonWhite.NonBlack_Race	0.800	1.250
Foster_Parent	0.813	1.230
HeadStartChild_Gender	0.792	1.262
HeadStartChild_Age4(vs. age 3)	0.735	1.360
HeadStartChild_Age5(vs. age 3)	0.698	1.433
One child vs. 2 or more children	0.556	1.798
Behavior Support_Siblings	0.482	2.074
HeadStartChild_Delay_Status	0.464	2.156
Specialized_Services-Any_child	0.426	2.345
Frequency of behavior	0.525	1.904
Internalizing (vs. mixed)	0.618	1.618
Externalizing (vs. mixed)	0.718	1.393
No behavior concerns (vs. mixed)	0.494	2.025
Better with age or with adult support	0.709	1.409
Parenting Stress Level	0.595	1.682
Seeking Professional Support	0.542	1.846
Number of Avenues Sought	0.563	1.775
Very helpful_community-member	0.674	1.484
Head Start staff-initiated outreach	0.649	1.540

Assessing Multicollinearity for Possible Explanatory Factors		
Factors	Collinearity Statistics	
	Tolerance	VIF
HeadStartChild_Delay_Status	0.589	1.698
Specialized_Services-Any_child	0.660	1.515
Frequency of behavior	0.643	1.556
Internalizing (vs. mixed)	0.729	1.371
Externalizing (vs. mixed)	0.821	1.218
No behavior concerns (vs. mixed)	0.595	1.682
Better with age or with adult support	0.819	1.221
Parenting Stress Level	0.780	1.282
Seeking Professional Support	0.602	1.660
Number of Avenues Sought	0.659	1.518
Very helpful_community-member	0.729	1.371
Head Start staff-initiated outreach	0.837	1.194

Appendix F2 – Hypotheses and Decision Rules for tests in Logistic Regression Analyses

Wald test hypotheses and decision rule. To assess the statistical significance of each predictor, I looked at results of Wald tests (which are each based on a chi-square distribution with 1 degree of freedom; EDMS 651, spring 2008):

$$\begin{aligned}
 H_0 : \hat{\beta}_j &= 0 \\
 H_1 : \hat{\beta}_j &\neq 0
 \end{aligned}
 \quad \{\text{where } j \text{ represents an individual predictor, holding all else constant}\}$$

Decision rule: If the chi-square value is significant (p -value is less than the nominal alpha value of 0.05), I will reject the null hypothesis and conclude that an individual predictor is a significant predictor of the outcome variable.

Likelihood ratio test hypotheses and decision rule. To compare the fit of two models (i.e., the full model with all the pre-selected predictors and the reduced model with only significant predictors), I performed a likelihood-ratio test by hand:

$$\begin{aligned}
 H_0 : E(\hat{y}_i) &= \hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_6 x_{6i} + \hat{\beta}_8 x_{8i} \\
 H_1 : E(\hat{y}_i) &= \hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i} + \hat{\beta}_4 x_{4i} + \hat{\beta}_5 x_{5i} + \hat{\beta}_6 x_{6i} + \hat{\beta}_7 x_{7i} + \hat{\beta}_8 x_{8i} + \hat{\beta}_9 x_{9i} + \hat{\beta}_{10} x_{10i} + \hat{\beta}_{11} x_{11i} + \hat{\beta}_{12} x_{12i} + \hat{\beta}_{13} x_{13i}
 \end{aligned}$$

Decision rule: If the p -value associated with the calculated chi-square statistic is less than the nominal alpha value of 0.05, I will reject the null hypothesis.

Appendix F3
Additional Output for Question #2a: Predicting High Negative Maternal Expressiveness

Omnibus Tests of Model Coefficients - Full Model

		Chi-square	df	Sig.
Step 1	Step	28.121	13	.009
	Block	28.121	13	.009
	Model	28.121	13	.009

When simultaneously considered, the child, maternal and community variables predict whether mothers are mostly negatively expressive

($\chi^2 = 28.121, df = 13, n = 114, p = 0.009$). I obtained the below SPSS output that can be used in fitting a logistic regression model. Based on the Variables in the Equation table, an initial equation for the fitted logit function that uses all predictors in the model is as follows:

$$\text{logit}[\hat{\pi}(x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12} + x_{13})] = \ln\left(\frac{\hat{\pi}(x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12} + x_{13})}{1 - \hat{\pi}(x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12} + x_{13})}\right) = \hat{\beta}_0 + \hat{\beta}_1 + \hat{\beta}_2 + \hat{\beta}_3 + \hat{\beta}_4 + \hat{\beta}_5 + \hat{\beta}_6 + \hat{\beta}_7 + \hat{\beta}_8 + \hat{\beta}_9 + \hat{\beta}_{10} + \hat{\beta}_{11} + \hat{\beta}_{12} + \hat{\beta}_{13} =$$

$$-0.080 - 2.012 + 0.865 + 0.123 - 0.528 - 0.361 - 1.657 - 0.571 + 1.129 + 0.324 - 0.172 - 0.129 + 0.144 + 0.440$$

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
Delay_Status	-2.012	.803	6.279	1	.012	.134	.028	.645
Services_any_child	.865	.571	2.289	1	.130	2.374	.775	7.278
Frequency_Behavior	.123	.577	.045	1	.832	1.130	.365	3.502
Behavior_Internalizing	-.528	.566	.872	1	.350	.590	.195	1.787
Behavior_Externalizing	-.361	.796	.205	1	.650	.697	.147	3.317
Behavior_None	-1.657	.737	5.056	1	.025	.191	.045	.808
Better_with_age	-.571	.479	1.420	1	.233	.565	.221	1.445
Stress_Level	1.129	.499	5.107	1	.024	3.092	1.162	8.229
Outreach_Professional	.324	.579	.313	1	.576	1.382	.444	4.300
Very_Helpful_Support	-.172	.550	.097	1	.755	.842	.287	2.476
Number_Avenues_Grouped	-.129	.524	.061	1	.805	.879	.315	2.454
H.S._staff.initiated_advice	.144	.511	.080	1	.778	1.155	.424	3.145
Educ_pre_hs	.440	.571	.595	1	.440	1.553	.508	4.755
Constant	-.080	.784	.010	1	.919	.924		

a. Variable(s) entered on step 1: Delay_Status, Services_any_child, Frequency_Behavior, Behavior_Internalizing, Behavior_Externalizing, Behavior_None, Better_with_age, Stress_Level, Outreach_Professional, Very_Helpful_Support, Number_Avenues_Grouped, H.S._staff.initiated_advice, Educ_pre_hs.

1st likelihood ratio test:

Model Summary - Full Model

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	129.881 ^a	.219	.292

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients - Full Model

	Chi-square	df	Sig.
Step 1	28.121	13	.009
Block	28.121	13	.009
Model	28.121	13	.009

Model Summary - Reduced Model

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	137.687 ^a	.163	.218

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients - Reduced Model

	Chi-square	df	Sig.
Step 1	20.315	3	.000
Block	20.315	3	.000
Model	20.315	3	.000

$$\begin{aligned}
 \chi^2 &= -2[\ln L(R) - \ln L(F)] \sim \chi^2_{(13-3)df} \\
 &= -2\ln(R) + 2\ln(F) \\
 &= (137.687 - 129.881) \\
 &= 7.806
 \end{aligned}$$

Using SPSS, i.e., [1-CDF.CHISQ(7.806, 10)], the p -value is 0.65.

Using only statistically significant predictors led to a reduced model: I fit a reduced

logit model containing only those statistically significant predictors:

$$\begin{aligned}
 \text{logit}[\hat{\pi}(x_1 + x_6 + x_8)] &= \hat{\beta}_0 + \hat{\beta}_1 + \hat{\beta}_6 + \hat{\beta}_8 = \\
 &= -0.080 - 2.012 - 1.657 + 1.129
 \end{aligned}$$

Variables in the Equation							95.0% C.I. for EXP(B)		
	B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper	
Step 1 ^a	Delay_Status	-.867	.551	2.477	1	.116	.420	0.143	1.237
	Behavior_None	-1.307	.581	5.061	1	.024	.271	0.087	0.845
	Stress_Level	1.274	.421	9.157	1	.002	3.575	1.566	8.158
	Constant	-.276	.322	.738	1	.390	.759		

a. Variable(s) entered on step 1: Delay_Status, Behavior_None, Stress_Level.

Excluding delay_status from final model. As noted in the below table, Head Start's child delay_status is no longer significant in this reduced model ($\hat{\beta}_1 = -0.867$, Wald's $\chi^2_1 = 2.477$, $p < 0.116$) when holding 'behavior_none' and 'stress_level' constant. I ran a second Likelihood Ratio test to see whether the model would be a better fit without including this now non-significant variable:

Model Summary - Reduced-3 Variable Model

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	137.687 ^a	.163	.218

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients - Reduced- 3 Variable Model

	Chi-square	df	Sig.
Step 1	20.315	3	.000
Block	20.315	3	.000
Model	20.315	3	.000

Model Summary - Reduced-2 Variable Model

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	140.240 ^a	.144	.192

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients - Reduced-2 Variable Model

	Chi-square	df	Sig.
Step 1	17.762	2	.000
Block	17.762	2	.000
Model	17.762	2	.000

I computed the likelihood ratio test using the reduced-3 variable model ($-2\ln L = 137.687$) and the reduced-2 variable model ($-2\ln L = 140.240$).

$$\begin{aligned}\chi^2 &= -2[\ln L(\text{Reduced} - 2) - \ln L(\text{Reduced} - 3)] \sim \chi_{(3-2)df}^2 \\ &= -2\ln(R - 2) + 2\ln(R - 3) \\ &= (140.240 - 137.687) \\ &= 2.553\end{aligned}$$

Using SPSS, i.e., $[1 - \text{CDF.CHISQ}(2.553, 1)]$, the p -value is 0.11. Results indicate that the p -value is not less than the nominal alpha value, so I will fail to reject the null hypothesis. This indicates that the reduced-2 variable model, with only the statistically significant predictors, is a better fit than the reduced-3 variable model. In other words, having a Head Start child with a diagnosed delay changed from significant to non-significant when reassessing data in the reduced model, and including this variable does not significantly improve the fit of the model ($-2 \log L = 137.687$, $\chi_1^2 = 2.553$, $p = 0.11$). The 'badness of fit indicator' reduced by a value of 2.553 once delay status was included, but this reduction was not statistically significant in the population. This confirms that the fitted model capturing the predicted probability of being a mother with

high negative expressivity in the population should only include the significant predictors in the original reduced model.

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a Behavior_None	-1.198	.571	4.406	1	.036	.302	.099	.924
Stress_Level	1.190	.411	8.404	1	.004	3.288	1.470	7.353
Constant	-.407	.311	1.712	1	.191	.666		

a. Variable(s) entered on step 1: Behavior_None, Stress_Level.

Adding education level to negative expressivity model. I followed a statistician's suggestion to run a stepwise exploratory analysis to verify whether any of the covariates with non-significant mean differences (based on independent *t*-tests, Section I) would significantly contribute to the fitted model (which occurred with two variables in the receptivity to support model).

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a Behavior_None	-1.836	.708	6.735	1	.009	.159	.040	.638
Stress_Level	1.252	.510	6.041	1	.014	3.499	1.289	9.499
C_gender	.831	.511	2.645	1	.104	2.295	.843	6.243
C_age4	.405	.484	.701	1	.402	1.500	.581	3.873
C_age5	-1.497	1.535	.951	1	.329	.224	.011	4.534
foster_child	.505	1.142	.196	1	.658	1.657	.177	15.534
Number_Children_grouping	-.217	.653	.111	1	.740	.805	.224	2.895
beh_help_siblings	.975	.583	2.796	1	.095	2.651	.845	8.312
parents_home	-1.229	.529	5.408	1	.020	.292	.104	.824
M_age	-.081	.076	1.145	1	.285	.922	.795	1.070
M_age_grouping	.521	.889	.344	1	.557	1.684	.295	9.615
educ_post_hs	2.694	.846	10.136	1	.001	14.790	2.816	77.667
educ_pre_hs	.935	.603	2.399	1	.121	2.547	.780	8.311
race_white	.000	.562	.000	1	1.000	1.000	.332	3.010
race_nonwhite_nonblack	.068	.962	.005	1	.943	1.071	.163	7.053
Constant	1.186	1.862	.406	1	.524	3.275		

a. Variable(s) entered on step 1: C_gender, C_age4, C_age5, foster_child, Number_Children_grouping, beh_help_siblings, parents_home, M_age, M_age_grouping, educ_post_hs, educ_pre_hs, race_white, race_nonwhite_nonblack.

Results indicated that, controlling for all else, the mean difference between single parent and two-parent homes ($\hat{\beta}_j = -1.229$, Wald's $\chi_1^2 = 5.408$, $p = 0.020$) and those obtaining at least an associates or college degree compared to those only graduating from high school ($\hat{\beta}_j = 2.694$, Wald's $\chi_1^2 = 10.136$, $p = 0.001$) were significant predictors in the model.

Variables in the Equation

	B	S.E.	Wald	Df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a Behavior_None	-1.403	.612	5.246	1	.022	.246	.074	.817
Stress_Level	1.300	.433	8.999	1	.003	3.668	1.569	8.573
parents_home	-.736	.443	2.756	1	.097	.479	.201	1.142
educ_post_hs	1.556	.699	4.952	1	.026	4.742	1.204	18.675
Constant	-.155	.450	.118	1	.731	.857		

a. Variable(s) entered on step 1: Behavior_None, Stress_Level, parents_home, educ_post_hs.

However, when negative expressiveness was regressed on only these four predictors, parents in the home was again non-significant ($p = 0.097$).

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a Behavior_None	-1.264	.597	4.486	1	.034	.283	.088	.910
Stress_Level	1.354	.429	9.959	1	.002	3.875	1.671	8.986
Educ_post_hs	1.448	.695	4.342	1	.037	4.254	1.090	16.607
Constant	-.648	.340	3.620	1	.057	.523		

a. Variable(s) entered on step 1: Behavior_None, Stress_Level, Educ_post_hs.

To determine whether adding 'education_post_high-school' would significantly contribute to the model, I ran a Likelihood Ratio Test by hand comparing a 3-predictor reduced model with a 2-predictor reduced model (excluding education level).

Model Summary- Reduced, 3 Predictor

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	135.445 ^a	.180	.239

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Model Summary- Reduced, 2-predictor (excluding education level)

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	140.240 ^a	.144	.192

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients- Reduced, 3 Predictor

	Chi-square	df	Sig.
Step 1 Step	22.558	3	.000
Block	22.558	3	.000
Model	22.558	3	.000

Omnibus Tests of Model Coefficients- Reduced, 2-predictor (excluding education level)

	Chi-square	df	Sig.
Step 1 Step	17.762	2	.000
Block	17.762	2	.000
Model	17.762	2	.000

I ran a Likelihood Ratio test to see whether the model would be a better fit without including this initially non-significant variable: I computed the likelihood ratio test using the reduced-3 variable model ($-2\ln L = 135.445$) and the reduced-2 variable model (excluding education level) ($-2\ln L = 140.240$).

$$\begin{aligned}\chi^2 &= -2[\ln L(\text{Reduced} - 2) - \ln L(\text{Reduced} - 3)] \sim \chi_{(3-2)df}^2 \\ &= -2\ln(R - 2) + 2\ln(R - 3) \\ &= (140.240 - 135.445) \\ &= 4.795\end{aligned}$$

Using SPSS, i.e., [1-CDF.CHISQ(4.795, 1)], the p -value is 0.03.

Results indicate that the p -value is less than the nominal alpha value, so I will reject the null hypothesis. This indicates that the reduced-2 variable model excluding education level is not a better fit than the reduced-3 variable model. In other words, although assessing the mean difference between those with a post-high school degree and those only graduating high school was non-significant when conducting an independent t -test ($t_{112} = -1.543, p = 0.126$), including this variable did significantly improve the fit of the model ($-2 \log L = 135.445, \chi_1^2 = 4.795, p = 0.03$). The ‘badness of fit indicator’ reduced

by a statistically significant value of 4.795 once education level was included. Therefore, I will proceed with all three variables in the model.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a Behavior_None	-1.264	.597	4.486	1	.034	.283	.088	.910
Stress_Level	1.354	.429	9.959	1	.002	3.875	1.671	8.986
Educ_post_hs	1.448	.695	4.342	1	.037	4.254	1.090	16.607
Constant	-.648	.340	3.620	1	.057	.523		

a. Variable(s) entered on step 1: Behavior_None, Stress_Level, Educ_post_hs.

Quality of final model in research question 2:

Iteration History^{a,b,c,d}

Iteration		-2 Log likelihood	Coefficients			
			Constant	Behavior_None	Stress_Level	educ_post_hs
Step 1	1	135.918	-.571	-.980	1.216	1.192
	2	135.448	-.643	-1.238	1.347	1.430
	3	135.445	-.648	-1.263	1.354	1.448
	4	135.445	-.648	-1.264	1.354	1.448

a. Method: Enter

b. Constant is included in the model.

c. Initial -2 Log Likelihood: 158.002

d. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

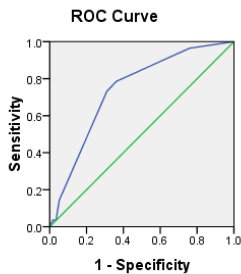
Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.759	3	.859

Classification Table^a

Observed		Predicted		
		Probability of mom being 'mostly high negative' in expressiveness		Percentage Correct
		Low Negative	High Negative	
Step 1	Probability of mom being 'mostly high' in negative expressiveness	40	18	69.0
	High Negative	15	41	73.2
	Overall Percentage			71.1

a. The cut value is .500



Diagonal segments are produced by ties.

Area Under the Curve

Test Result Variable(s): Predicted probability

Area	Std. Error ^a	Asymptotic Sig. ^b	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.739	.047	.000	.647	.831

The test result variable(s): Predicted probability has at least one tie between the positive actual state group and the negative actual state group. Statistics may be biased.

a. Under the nonparametric assumption

b. Null hypothesis: true area = 0.5

Appendix F4

Additional Output for Question #2b: Predicting Low Positive Maternal Expressiveness

Omnibus Tests of Model Coefficients - Full Model

	Chi-square	df	Sig.
Step 1 Step	45.780	15	.000
Block	45.780	15	.000
Model	45.780	15	.000

When the pre-selected variables are simultaneously considered, they predict whether a mother will be less positively expressive in the home

($\chi^2 = 45.780, df = 15, n = 114, p < 0.001$). I used SPSS output in fitting a logistic regression model. Based on the Variables in the Equation table (below), an initial equation for the logit function using all predictors in the model is as follows:

$$\text{logit}[\hat{\pi}(x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12} + x_{13} + x_{14} + x_{15})] = \ln\left(\frac{\hat{\pi}(x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12} + x_{13} + x_{14} + x_{15})}{1 - \hat{\pi}(x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12} + x_{13} + x_{14} + x_{15})}\right) =$$

$$\hat{\beta}_0 + \hat{\beta}_1 + \hat{\beta}_2 + \hat{\beta}_3 + \hat{\beta}_4 + \hat{\beta}_5 + \hat{\beta}_6 + \hat{\beta}_7 + \hat{\beta}_8 + \hat{\beta}_9 + \hat{\beta}_{10} + \hat{\beta}_{11} + \hat{\beta}_{12} + \hat{\beta}_{13} + \hat{\beta}_{14} + \hat{\beta}_{15} = 2.431 + 1.966 - 1.571 + 0.492 + 0.045 - 0.266 - 0.233 + 0.065 - 0.493 + 0.764 - 0.959 - 0.971 - 1.752 + 2.125 - 1.885 - 0.426$$

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
Delay_Status	1.966	.846	5.405	1	.020	7.144	1.362	37.485
Services_any_child	-1.571	.752	4.366	1	.037	.208	.048	.907
Frequency_Behavior	.492	.667	.543	1	.461	1.635	.442	6.045
Behavior_Internalizing	.045	.658	.005	1	.946	1.046	.288	3.799
Behavior_Externalizing	-.266	.866	.095	1	.758	.766	.140	4.185
Behavior_None	-.233	.797	.085	1	.770	.792	.166	3.778
Better_with_age	.065	.556	.014	1	.907	1.067	.359	3.176
Stress_Level	-.493	.566	.757	1	.384	.611	.201	1.854
Outreach_Professional	.764	.636	1.444	1	.230	2.146	.617	7.461
Very_Helpful_Support	-.959	.610	2.472	1	.116	.383	.116	1.267
Number_Avenues_Grouped	-.971	.596	2.650	1	.104	.379	.118	1.219
H.S_staff_initiated_advice	-1.752	.601	8.494	1	.004	.173	.053	.563
educ_pre_hs	2.125	.693	9.408	1	.002	8.369	2.153	32.531
Number_Children_grouping	-1.885	.748	6.342	1	.012	.152	.035	.658
beh_help_siblings	-.426	.656	.421	1	.516	.653	.181	2.363
Constant	2.431	1.005	5.848	1	.016	11.373		

Initial likelihood ratio test:**Model Summary - Full Model**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	112.257 ^a	.331	.441

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients - Full Model

		Chi-square	df	Sig.
Step 1	Step	45.780	15	.000
	Block	45.780	15	.000
	Model	45.780	15	.000

Model Summary-Reduced Model

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	120.152 ^a	.283	.377

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients- Reduced Model

		Chi-square	df	Sig.
Step 1	Step	37.885	5	.000
	Block	37.885	5	.000
	Model	37.885	5	.000

$$\begin{aligned}\chi^2 &= -2[\ln L(R) - \ln L(F)] \sim \chi_{(15-5)df}^2 \\ &= -2\ln(R) + 2\ln(F) \\ &= (120.152 - 112.257) \\ &= 7.895\end{aligned}$$

Using SPSS, i.e., [1-CDF.CHISQ(7.895, 10)], the *p* - value is 0.64.

Based only on the significant predictors from the initial model: **I can now fit an initial reduced logit model** containing only those statistically significant predictors:

$$\begin{aligned}\text{logit}[\hat{\pi}(x_1 + x_2 + x_{12} + x_{13} + x_{14})] &= \hat{\beta}_0 + \hat{\beta}_1 + \hat{\beta}_2 + \hat{\beta}_{12} + \hat{\beta}_{13} + \hat{\beta}_{14} = \\ &= 2.431 + 1.966 - 1.571 - 1.752 + 2.125 - 1.885\end{aligned}$$

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a Delay_Status	1.799	.772	5.429	1	.020	6.043	1.331	27.444
Services_any_child	-1.635	.660	6.143	1	.013	.195	.054	.710
H.S._staff.initiated_advice	-1.762	.540	10.660	1	.001	.172	.060	.495
Number_Children_groupin g	-1.741	.592	8.653	1	.003	.175	.055	.559
educ_pre_hs	1.646	.583	7.984	1	.005	5.186	1.656	16.243
Constant	1.669	.528	10.007	1	.002	5.308		

Leaving delay_status in final model.

Variables in the Equation

	B	S.E.	Wald	Df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a Delay_Status	1.663	.891	3.486	1	.062	5.278	.921	30.255
Services_any_child	-1.608	.753	4.559	1	.033	.200	.046	.876
H.S._staff.initiated_advice	-1.818	.620	8.600	1	.003	.162	.048	.547
Number_Children_groupin g	-1.646	.695	5.611	1	.018	.193	.049	.753
educ_pre_hs	1.860	.647	8.267	1	.004	6.423	1.808	22.819
C_gender	.565	.522	1.170	1	.279	1.759	.632	4.891
C_age4	-.172	.508	.115	1	.734	.842	.311	2.277
C_age5	1.575	1.885	.698	1	.404	4.829	.120	194.399
foster_child	.766	1.328	.332	1	.564	2.150	.159	29.044
beh_help_siblings	-.605	.611	.980	1	.322	.546	.165	1.810
parents_home	.159	.506	.099	1	.753	1.173	.435	3.164
M_age	.052	.077	.459	1	.498	1.054	.906	1.225
M_age_grouping	.094	.870	.012	1	.914	1.098	.199	6.046
educ_post_hs	.093	.850	.012	1	.913	1.098	.207	5.806
race_white	.001	.620	.000	1	.999	1.001	.297	3.370
race_nonwhite_nonblack	-.672	1.015	.438	1	.508	.511	.070	3.735
Constant	-.033	1.917	.000	1	.986	.967		

a. Variable(s) entered on step 1: C_gender, C_age4, C_age5, foster_child, beh_help_siblings, parents_home, M_age, M_age_grouping, educ_post_hs, race_white, race_nonwhite_nonblack.

Model Summary- Reduced, 5-predictor model

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	120.152 ^a	.283	.377

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Model Summary- Reduced, 4-predictor model (excluding delay_status)

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	126.137 ^a	.244	.325

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients- Reduced, 5-predictor model

	Chi-square	df	Sig.
Step 1 Step	37.885	5	.000
Block	37.885	5	.000
Model	37.885	5	.000

Omnibus Tests of Model Coefficients- Reduced, 4-predictor model (excluding delay_status)

	Chi-square	df	Sig.
Step 1 Step	31.901	4	.000
Block	31.901	4	.000
Model	31.901	4	.000

I computed the likelihood ratio test using the reduced-5 variable model ($-2\ln L = 120.152$) and the reduced-4 variable model ($-2\ln L = 126.137$).

$$\begin{aligned}\chi^2 &= -2[\ln L(\text{Reduced} - 4) - \ln L(\text{Reduced} - 5)] \sim \chi_{(5-4)df}^2 \\ &= -2\ln(R - 2) + 2\ln(R - 3) \\ &= (126.137 - 120.152) \\ &= 5.985\end{aligned}$$

Using SPSS, i.e., $[1 - \text{CDF.CHISQ}(5.985, 1)]$, the p -value is 0.01.

Results indicate that the p -value is less than the nominal alpha value, so I will reject the null hypothesis. This indicates that the reduced-4 variable model, excluding delay_status, is not a better fit than the reduced-5 variable model. In other words, having a Head Start child with a diagnosed delay is a variable that significantly improves the fit of the model ($-2 \log L = 120.152$, $\chi_1^2 = 5.985$, $p = 0.01$). The ‘badness of fit indicator’ reduced by a significant value of 5.985 once delay status was included. This confirms that the fitted model capturing the predicted probability in being a mother with high

negative expressivity in the population should therefore include all the significant predictors in the original reduced model.

Quality of Final Model in Research Question #2:

Iteration History^{a,b,c,d}

Iteration	-2 Log likelihood	Coefficients					
		Constant	Delay_Status	Services_an y_child	H.S._staff.initiate d_advice	Number_Children _grouped	Educ_pre_hs
Step 1	122.361	1.217	1.236	-1.126	-1.271	-1.277	1.173
2	120.210	1.594	1.700	-1.545	-1.680	-1.663	1.563
3	120.152	1.667	1.796	-1.631	-1.759	-1.738	1.643
4	120.152	1.669	1.799	-1.635	-1.762	-1.741	1.646
5	120.152	1.669	1.799	-1.635	-1.762	-1.741	1.646

a. Method: Enter

b. Constant is included in the model.

c. Initial -2 Log Likelihood: 158.038

d. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

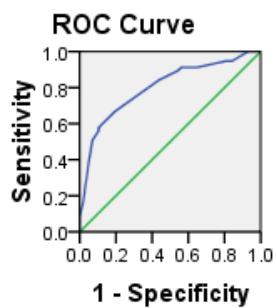
Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	4.815	7	.682

Classification Table^a

		Predicted			
		Probability of mom being 'mostly low positive' in expressiveness		Percentage Correct	
Observed		High Positive	Low Positive		
Step 1	Probability of mom being 'mostly low positive' in expressiveness	High Positive	51	6	89.5
		Low Positive	24	33	57.9
	Overall Percentage				73.7

a. The cut value is .500



Diagonal segments are produced by ties.

Area Under the Curve

Test Result Variable(s):

Predicted probability

Area
.802

The test result variable(s): Predicted probability has at least one tie between the positive actual state group and the negative actual state group. Statistics may be biased.

Appendix F5
Additional Output for Question #3: Predicting Incongruent
Perceived Role in Emotional Development

**Omnibus Tests of Model Coefficients -
Full Model**

		Chi-square	df	Sig.
Step	Step	19.909	13	.098
1	Block	19.909	13	.098
	Model	19.909	13	.098

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
Delay_Status	1.186	.729	2.646	1	.104	3.274	.784	13.671
Services_any_child	-.078	.556	.020	1	.888	.925	.311	2.750
Frequency_Behavior	.164	.551	.089	1	.766	1.178	.401	3.467
Behavior_Internalizing	-.192	.571	.113	1	.737	.825	.269	2.528
Behavior_Externalizing	-.743	.787	.894	1	.345	.475	.102	2.221
Behavior_None	.107	.694	.024	1	.877	1.113	.286	4.336
Better_with_age	.362	.470	.594	1	.441	1.437	.572	3.608
Stress_Level	-.244	.468	.272	1	.602	.784	.313	1.961
Outreach_Professional	-.179	.543	.109	1	.742	.836	.289	2.423
Very_Helpful_Support	-.277	.516	.289	1	.591	.758	.275	2.085
Number_Avenues_Grouped	.002	.516	.000	1	.996	1.002	.365	2.755
H.S._staff.initiated_advice	-1.322	.508	6.774	1	.009	.267	.099	.722
Number_Children_grouped	-1.401	.577	5.893	1	.015	.246	.079	.763
Constant	1.746	.823	4.500	1	.034	5.730		

a. Variable(s) entered on step 1: Disability_Status, Services_any_child, Frequency_Behavior, Behavior_Internalizing, Behavior_Externalizing, Behavior_None, Better_with_age, Stress_Level, Outreach_Professional, Very_Helpful_Support, Number_Avenues_Grouped, H.S._teacher.initiated_home.ideas, Number_Children_grouping.

As noted in the Omnibus test, when the pre-selected variables are simultaneously considered, they do not significantly predict whether a mother will not be highly aware of her role in emotional development ($\chi^2 = 19.909, df = 13, n = 114, p = 0.098$). [Note: a

non-significant omnibus test will not necessarily preclude finding legitimate significant predictors in the model (http://www.ask.com/wiki/Omnibus_test.)]

The SPSS output can be used to fit a logistic regression model. Based on the Variables in the Equation table, an initial equation for the fitted logit function that utilizes all the predictors in the model would be as follows:

$$\text{logit}[\hat{\pi}(x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12})] =$$

$$\ln\left(\frac{\hat{\pi}(x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12})}{1 - \hat{\pi}(x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12})}\right) =$$

$$\hat{\beta}_0 + \hat{\beta}_1 + \hat{\beta}_2 + \hat{\beta}_3 + \hat{\beta}_4 + \hat{\beta}_5 + \hat{\beta}_6 + \hat{\beta}_7 + \hat{\beta}_8 + \hat{\beta}_9 + \hat{\beta}_{10} + \hat{\beta}_{11} + \hat{\beta}_{12} =$$

$$1.746 + 1.186 - 0.078 + 0.164 - 0.192 - 0.743 + 0.107 + 0.362 - 0.244 - 0.179 - 0.277 - 1.322 - 1.401$$

I can now fit a final logit model containing only those statistically significant predictors:

$$\text{logit}[\hat{\pi}(x_{12} + x_{13})] = \hat{\beta}_0 + \hat{\beta}_{12} + \hat{\beta}_{13} = 1.746 - 1.322 - 1.401$$

Initial likelihood ratio test:

Model Summary - Full Model

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	136.405 ^a	.160	.215

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients - Full Model

	Chi-square	df	Sig.
Step 1 Step	19.909	13	.098
Block	19.909	13	.098
Model	19.909	13	.098

Model Summary - Reduced Model

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	141.927 ^a	.119	.159

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients - Reduced Model

	Chi-square	df	Sig.
Step 1 Step	14.387	2	.001
Block	14.387	2	.001
Model	14.387	2	.001

I computed the likelihood ratio test using the full model ($-2\ln L = 136.405$) and the reduced model ($-2\ln L = 141.927$):

$$\begin{aligned}\chi^2 &= -2[\ln L(R) - \ln L(F)] \sim \chi^2_{(13-2)df} \\ &= -2\ln(R) + 2\ln(F) \\ &= (141.927 - 136.405) \\ &= 5.522\end{aligned}$$

Using SPSS, i.e., $[1-\text{CDF.CHISQ}(5.522, 11)]$, the p -value is 0.90.

		Variables in the Equation						95.0% C.I. for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	H.S.staff.initiated_ advice	1.282	.454	7.973	1	.005	.277	.114	.676
	Number_Children_ grouped	1.238	.493	6.299	1	.012	.290	.110	.762
	Constant	1.552	.473	10.770	1	.001	4.721		

a. Variable(s) entered on step 1: H.S._staff.initiated_advice, Number_Children_grouped.

Checking significance of ‘white_race’ variable in perceived role model. Although ‘race_white’ was non-significant when assessing mean differences using an independent t -test ($t_{112} = 1.632, p = 0.109$), this variable was significant when holding all else constant in the above stepwise analysis ($\hat{\beta}_j = -1.439, x_1^2 = 6.427, p = 0.011$). I ran a Likelihood Ratio Test to determine whether adding this variable significantly aids model fit.

Variables in the Equation							95.0% C.I. for EXP(B)	
	B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a								
H.S._teacher.initiated_ home.ideas	-1.766	.553	10.189	1	.001	.171	.058	.506
Number_Children_grouping	-1.431	.647	4.895	1	.027	.239	.067	.849
C_gender	-.342	.457	.561	1	.454	.710	.290	1.738
C_age4	.320	.470	.462	1	.497	1.377	.548	3.460
C_age5	1.387	1.364	1.034	1	.309	4.004	.276	58.066
foster_child	.585	1.160	.255	1	.614	1.795	.185	17.435
beh_help_siblings	.096	.534	.033	1	.856	1.101	.387	3.134
parents_home	.891	.486	3.370	1	.066	2.439	.941	6.318
M_age	-.006	.071	.008	1	.928	.994	.865	1.141
M_age_grouping	-.513	.784	.428	1	.513	.599	.129	2.781
educ_post_hs	-.648	.746	.754	1	.385	.523	.121	2.257
race_white	-1.439	.568	6.427	1	.011	.237	.078	.722
race_nonwhite_nonblack	.367	.952	.148	1	.700	1.443	.223	9.329
educ_pre_hs	.737	.555	1.764	1	.184	2.090	.704	6.202
Constant	1.817	1.797	1.022	1	.312	6.152		

I computed the likelihood ratio test using the reduced 3-predictor model ($-2\ln L = 138.884$) and the reduced 2-predictor model ($-2\ln L = 141.927$):

$$\begin{aligned}\chi^2 &= -2[\ln L(R - 2 \text{ predictors}) - \ln L(R - 3 \text{ predictors})] \sim \chi^2_{(3-2)df} \\ &= -2\ln(R - 2 \text{ predictors}) + 2\ln(R - 3 \text{ predictors}) \\ &= (141.927 - 138.884) \\ &= 3.043\end{aligned}$$

Using SPSS, i.e., $[1 - \text{CDF.CHISQ}(3.043, 1)]$, the p -value is 0.08.

**Model Summary- Reduced- 3 predictor
(including white_race)**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	138.884 ^a	.142	.190

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

**Omnibus Test - Reduced- 3 predictor
(including 'white_race')**

	Chi-square	df	Sig.
Step 1 Step	17.430	3	.001
Block	17.430	3	.001
Model	17.430	3	.001

Model Summary - Reduced (without white_race)

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	141.927 ^a	.119	.159

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

**Omnibus Tests of Model Coefficients - Reduced
(without white_race)**

	Chi-square	df	Sig.
Step 1 Step	14.387	2	.001
Block	14.387	2	.001
Model	14.387	2	.001

Results indicate that the p – value is not less than the nominal alpha value; I will therefore fail to reject the null hypothesis. This indicates that the 2-predictor model is actually a better fit than the 3-predictor model. In other words, ‘white_race’ among mothers is a variable that does not significantly improve the fit of the model ($-2 \log L = 138.884$, $\chi_1^2 = 3.043$, $p = 0.08$). The reduced model’s minus 2 times the log of the likelihood value was 141.927. The ‘badness of fit indicator’ did reduce by 3.043 to a value of 138.884 once I added the initially non-significant ‘white_race’ variable, but this was not statistically significant in the population. The final fitted model capturing the predicted probability in the population of a mother not being highly aware of her role should only include the two predictors in the original reduced model.

Quality of final model in research question 3:

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	.460	2	.794

Iteration History^{a,b,c,d}

Iteration		-2 Log likelihood	Coefficients		
			Constant	H.S._staff. initiated_advice	Number_ Children_grouping
Step 1	1	142.143	1.342	-1.159	-1.045
	2	141.928	1.542	-1.277	-1.229
	3	141.927	1.552	-1.282	-1.238
	4	141.927	1.552	-1.282	-1.238

a. Method: Enter

b. Constant is included in the model.

c. Initial -2 Log Likelihood: 156.314

d. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Classification Table^a

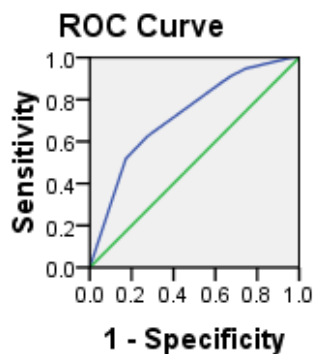
Observed			Predicted		
			Probability of not being strongly supportive of the literature or not highly aware of one's role in preschoolers' emotional development	Highly aware; views strongly supportive of the literature	Not highly aware; views not strongly in support of the literature
Step 1	Probability of not being strongly supportive of the literature or not highly aware of one's role in preschoolers' emotional development	Highly aware; views strongly supportive of the literature	16	34	32.0
		Not highly aware; views not strongly supportive of the literature	7	57	89.1
Overall Percentage					64.0

a. The cut value is .500

Area Under the Curve

Test Result Variable(s):
Predicted probability

Area
.680



Diagonal segments are produced by ties.

Appendix F6

Additional Output for Question #4: Predicting Low Maternal Receptivity to Support

Omnibus Tests of Model Coefficients - Full Model

		Chi-square	df	Sig.
Step 1	Step	56.220	15	.000
	Block	56.220	15	.000
	Model	56.220	15	.000

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a								
Delay_Status	.891	.913	.951	1	.329	2.437	.407	14.601
Services_any_child	1.163	.732	2.526	1	.112	3.200	.762	13.433
Frequency_Behavior	.390	.721	.293	1	.588	1.477	.360	6.068
Behavior_Internalizing	-.803	.795	1.019	1	.313	.448	.094	2.130
Behavior_Externalizing	.831	.961	.747	1	.387	2.296	.349	15.104
Behavior_None	2.392	.911	6.886	1	.009	10.933	1.832	65.244
Better_with_age	1.935	.670	8.340	1	.004	6.926	1.862	25.754
Stress_Level	-.397	.629	.399	1	.528	.672	.196	2.305
Outreach_Professional	.269	.652	.171	1	.680	1.309	.365	4.694
Very_Helpful_Support	-.518	.624	.688	1	.407	.596	.175	2.026
Number_Avenues_Grouped	-2.292	.680	11.366	1	.001	.101	.027	.383
H.S._staff.initiated_advice	-.016	.629	.001	1	.979	.984	.287	3.372
educ_post_hs	-1.767	1.278	1.911	1	.167	.171	.014	2.092
educ_pre_hs	1.735	.763	5.168	1	.023	5.669	1.270	25.305
Number_Children_grouping	-2.750	.831	10.946	1	.001	.064	.013	.326
Constant	.420	.937	.200	1	.654	1.521		

a. Variable(s) entered on step 1: Delay_Status, Services_any_child, Frequency_Behavior, Behavior_Internalizing, Behavior_Externalizing, Behavior_None, Better_with_age, Stress_Level, Outreach_Professional, Very_Helpful_Support, Number_Avenues_Grouped, H.S._staff.initiated_home.ideas, educ_post_hs, educ_pre_hs, Number_Children_grouping.

When the pre-selected variables are simultaneously considered, they predict not being highly receptive to professional support in the population

($\chi^2 = 56.220, df = 15, n = 114, p < 0.001$). The SPSS output is used in fitting a logistic regression model. Based on the Variables in the Equation table, an initial equation for the fitted logit function that utilizes all predictors in the model would be as follows:

$$\text{logit}[\hat{\pi}(x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12} + x_{13} + x_{14} + x_{15})] =$$

$$\ln\left(\frac{\hat{\pi}(x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12} + x_{13} + x_{14} + x_{15})}{1 - \hat{\pi}(x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12} + x_{13} + x_{14} + x_{15})}\right) =$$

$$\hat{\beta}_0 + \hat{\beta}_1 + \hat{\beta}_2 + \hat{\beta}_3 + \hat{\beta}_4 + \hat{\beta}_5 + \hat{\beta}_6 + \hat{\beta}_7 + \hat{\beta}_8 + \hat{\beta}_9 + \hat{\beta}_{10} + \hat{\beta}_{11} + \hat{\beta}_{12} + \hat{\beta}_{13} + \hat{\beta}_{14} + \hat{\beta}_{15} =$$

$$0.420 + 0.891 + 1.163 + 0.390 - 0.803 + 0.831 + 2.392 + 1.935 - 0.397 + 0.269 - 0.518 - 2.292 - 0.016 - 1.767 + 1.735 - 2.750$$

Initial likelihood ratio test:

Model Summary - Full Model

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	97.546 ^a	.389	.526

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Model Summary - Reduced Model

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	112.004 ^a	.307	.414

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients - Full Model

		Chi-square	df	Sig.
Step 1	Step	56.220	15	.000
	Block	56.220	15	.000
	Model	56.220	15	.000

Omnibus Tests of Model Coefficients - Reduced Model

		Chi-square	df	Sig.
Step 1	Step	41.761	5	.000
	Block	41.761	5	.000
	Model	41.761	5	.000

I computed the likelihood ratio test using the full model ($-2\ln L = 97.546$) and the reduced model ($-2\ln L = 112.004$).

$$\begin{aligned}\chi^2 &= -2[\ln L(R) - \ln L(F)] \sim \chi^2_{(15-5)df} \\ &= -2\ln(R) + 2\ln(F) \\ &= (112.004 - 97.546) \\ &= 14.458\end{aligned}$$

Using SPSS, i.e., [1-CDF.CHISQ(14.458, 10)], the p – value is 0.15.
I can now fit a **reduced logit model** containing only those statistically significant predictors:

$$\text{logit}[\hat{\pi}(x_6 + x_7 + x_{11} + x_{14} + x_{15})] = \hat{\beta}_0 + \hat{\beta}_6 + \hat{\beta}_7 + \hat{\beta}_{11} + \hat{\beta}_{14} + \hat{\beta}_{15} = \\ 0.420 + 2.392 + 1.935 - 2.292 + 1.735 - 2.750$$

Variables in the Equation

	B	S.E.	Wald	Df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a Behavior_None	1.755	.611	8.236	1	.004	5.782	1.744	19.169
Better_with_age	1.214	.495	6.016	1	.014	3.367	1.276	8.881
Number_Avenues_Grouped	-2.002	.511	15.345	1	.000	.135	.050	.368
educ_pre_hs	1.536	.614	6.264	1	.012	4.644	1.395	15.457
Number_Children_grouped	-1.635	.595	7.554	1	.006	.195	.061	.626
Constant	.304	.530	.329	1	.566	1.355		

a. Variable(s) entered on step 1: Behavior_None, Better_with_age, Number_Avenues_Grouped, educ_pre_hs, Number_Children_grouping.

Assessing if number of children and education level should be included in receptivity model. Since number of children and pre-high-school each had none statistically significant mean differences when assessed using independent t-tests, I conducted two additional Likelihood Ratio Tests by hand.

Model Summary - Reduced Model (5 predictors)

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	112.004 ^a	.307	.414

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients - Reduced Model (5 predictors)

Step	Step	Chi-square	df	Sig.
1	Step	41.761	5	.000
	Block	41.761	5	.000
	Model	41.761	5	.000

**Model Summary-Reduced - excluding
number_children_grouped**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	120.407 ^a	.254	.343

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

**Omnibus Tests of Model Coefficients -
Reduced -excluding
number_children_grouped**

Step		Chi-square	df	Sig.
Step 1	Step	33.358	4	.000
	Block	33.358	4	.000
	Model	33.358	4	.000

I ran a Likelihood Ratio test to see whether the model would be a better fit without including this initially non-significant variable: I computed the likelihood ratio test using the reduced-5 variable model ($-2\ln L = 112.004$) and the reduced-4 variable model (excluding number_children_grouped; $-2\ln L = 120.407$).

$$\begin{aligned}\chi^2 &= -2[\ln L(\text{Reduced} - 4) - \ln L(\text{Reduced} - 5)] \sim \chi_{(5-4)df}^2 \\ &= -2\ln(R - 4) + 2\ln(R - 5) \\ &= (120.407 - 112.004) \\ &= 8.403\end{aligned}$$

Using SPSS, i.e., [1-CDF.CHISQ(8.403, 1)], the p -value is 0.001.

Results indicate that the p -value is less than the nominal alpha value, so I will reject the null hypothesis. This indicates that the reduced-4 variable model excluding number of children is not a better fit than the reduced-5 variable model. In other words, although assessing the mean difference between those with only one child and those with more than two children was non-significant when conducting an independent t -test ($t_{112} = 1.065$, $p = 0.289$), including this variable does significantly improve the fit of the model ($-2 \log L = 112.004$, $\chi_1^2 = 8.403$, $p = 0.001$). The 'badness of fit indicator' reduced by a statistically significant value of 8.403 once number of children was included as a predictor.

I also ran a Likelihood Ratio test to see whether the model would be a better fit without including the initially non-significant variable of `pre_high_school`. I computed the likelihood ratio test using the reduced-5 variable model ($-2\ln L = 112.004$) and the reduced-4 variable model that excluded ‘`pre_high_school`’ ($-2\ln L = 118.969$).

	Chi-square	df	Sig.
Step 1 Step	34.796	4	.000
Block	34.796	4	.000
Model	34.796	4	.000

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	118.969 ^a	.263	.355

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

$$\begin{aligned}\chi^2 &= -2[\ln L(\text{Reduced} - 4) - \ln L(\text{Reduced} - 5)] \sim \chi_{(5-4)df}^2 \\ &= -2\ln(R - 4) + 2\ln(R - 5) \\ &= (118.969 - 112.004) \\ &= 6.965\end{aligned}$$

Using SPSS, i.e., $[1 - \text{CDF.CHISQ}(6.965, 1)]$, the p -value is 0.01.

Results indicate that the p -value is less than the nominal alpha value, so I will reject the null hypothesis. This indicates that the reduced-4 variable model excluding number of children is not a better fit than the reduced-5 variable model. In other words, although assessing the mean difference between those dropping out and those graduating high school was non-significant when conducting an independent t -test

($t_{112} = -0.982, p = 0.331$), including this variable significantly improves model fit ($-2 \log L = 112.004, \chi_1^2 = 6.965, p = 0.01$). The ‘badness of fit indicator’ reduced by a statistically significant value of 8.403 once number of children was included as a predictor.

Quality of final model in research question 4:**Hosmer and Lemeshow Test**

Step	Chi-square	df	Sig.
1	8.572	8	.380

Iteration History^{a,b,c,d}

Iteration	-2 Log likelihood	Coefficients					
		Constant	Behavior_None	Better_with_age	Number_Avenues_Grouped	educ_pre_hs	Number_Children_grouped
Step 1 1	115.049	.200	1.233	.792	-1.434	.992	-1.041
2	112.114	.282	1.650	1.125	-1.888	1.422	-1.512
3	112.004	.303	1.750	1.210	-1.997	1.530	-1.629
4	112.004	.304	1.755	1.214	-2.002	1.536	-1.635
5	112.004	.304	1.755	1.214	-2.002	1.536	-1.635

a. Method: Enter

b. Constant is included in the model.

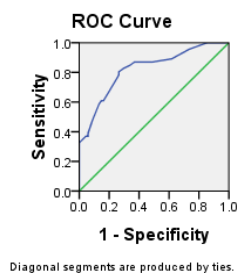
c. Initial -2 Log Likelihood: 153.765

d. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Classification Table^a

Observed		Predicted			
		Probability of mom not being highly receptivity to behavior-related support		Percentage Correct	
		Highly Receptive	Not Highly Receptive		
Step 1	Probability of mom not being highly receptivity to behavior-related support	Highly Receptive	58	10	85.3
		Not Highly Receptive	18	28	60.9
	Overall Percentage				75.4

a. The cut value is .500



Area Under the Curve

Test Result Variable(s): Predicted probability

Area	Std. Error ^a	Asymptotic Sig. ^b	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.822	.040	.000	.743	.901

The test result variable(s): Predicted probability has at least one tie between the positive actual state group and the negative actual state group. Statistics may be biased.

a. Under the nonparametric assumption

b. Null hypothesis: true area = 0.5

Appendix F7
Computing Probabilities in Logistic Regression Models

Research Question #2a: Negative Expressivity Model

1. The predicted probability of being a mother with high negative expressiveness in the home at the value of 0 for the dichotomous predictors in the model can be calculated using the following equation:

$$\begin{aligned}\hat{\pi} &= \frac{e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i}}}{1 + e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i}}} = \frac{e^{-0.648 - 1.264x_{1i} + 1.354x_{2i} + 1.448x_{3i}}}{1 + e^{-0.648 - 1.264x_{1i} + 1.354x_{2i} + 1.448x_{3i}}} \\ &= \frac{e^{-0.648 - 1.264(0) + 1.354(0) + 1.448(0)}}{1 + e^{-0.648 - 1.264(0) + 1.354(0) + 1.448(0)}} = \frac{e^{-0.648 + 0}}{1 + e^{-0.648 + 0}} = \frac{e^{-0.648}}{1 + e^{-0.648}} \\ &= \frac{0.523090913}{1.523090913} = 0.343440374 = 0.34\end{aligned}$$

This indicates that, at the value of 0 for the three categorical predictors in the model, the predicted probability of being a mother with mainly negative expressivity is 0.343. In other words, when considering mothers of children with a mix of internalizing and externalizing behaviors (0), who is low in parenting stress (0), and for the mean of mothers in the ‘other’ education category (0), a mother would be predicted to act mostly negative around her family 34.3% of the time.

2. In the situation where a mother has a child with no behavior concerns (1), there is low parenting stress (0), and she has obtained an advanced degree (1), a mother would be predicted to act mostly negative around her family 38.6% of the time.**

$$\begin{aligned}\hat{\pi} &= \frac{e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i}}}{1 + e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i}}} = \frac{e^{-0.648 - 1.264x_{1i} + 1.354x_{2i} + 1.448x_{3i}}}{1 + e^{-0.648 - 1.264x_{1i} + 1.354x_{2i} + 1.448x_{3i}}} \\ &= \frac{e^{-0.648 - 1.264(1) + 1.354(0) + 1.448(1)}}{1 + e^{-0.648 - 1.264(1) + 1.354(0) + 1.448(1)}} = \frac{e^{-0.648 + 0.184}}{1 + e^{-0.648 + 0.184}} = \frac{e^{-0.464}}{1 + e^{-0.464}} \\ &= \frac{0.628763554}{1.628763554} = 0.386037343 = 0.39\end{aligned}$$

3. In the situation where a mother has a child with both internalizing and externalizing behavior concerns (0), there is high parenting stress (1), and the mother does not obtain an advanced degree (0), a mother would be predicted to be highly negative in expressiveness 67% of the time.**

$$\begin{aligned}\hat{\pi} &= \frac{e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i}}}{1 + e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i}}} = \frac{e^{-0.648 - 1.264x_{1i} + 1.354x_{2i} + 1.448x_{3i}}}{1 + e^{-0.648 - 1.264x_{1i} + 1.354x_{2i} + 1.448x_{3i}}} \\ &= \frac{e^{-0.648 - 1.264(0) + 1.354(1) + 1.448(0)}}{1 + e^{-0.648 - 1.264(0) + 1.354(1) + 1.448(0)}} = \frac{e^{-0.648 + 1.354}}{1 + e^{-0.648 + 1.354}} = \frac{e^{0.706}}{1 + e^{0.706}} \\ &= \frac{2.025871544}{3.025871544} = 0.669516704 = 0.67\end{aligned}$$

4. The percentage of mothers with negative expressivity increases to 90% when mothers of children with internalizing and externalizing behaviors (0) and those with high perceived parenting stress (1) also have obtained an associates or college degree (1).**

$$\begin{aligned}\hat{\pi} &= \frac{e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i}}}{1 + e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i}}} = \frac{e^{-0.648 - 1.264x_{1i} + 1.354x_{2i} + 1.448x_{3i}}}{1 + e^{-0.648 - 1.264x_{1i} + 1.354x_{2i} + 1.448x_{3i}}} \\ &= \frac{e^{-0.648 - 1.264(0) + 1.354(1) + 1.448(1)}}{1 + e^{-0.648 - 1.264(0) + 1.354(1) + 1.448(1)}} = \frac{e^{-0.648 + 2.802}}{1 + e^{-0.648 + 2.802}} = \frac{e^{2.154}}{1 + e^{2.154}} \\ &= \frac{8.619266601}{9.619266601} = 0.896041971 = 0.896\end{aligned}$$

Research Question #2b: Low Positive Expressivity Model

1. Based on this sample, a mother with a Head Start child recently diagnosed with a delay (1) who does not have any child in the family receiving specialized supports in the past year (0), who has not received teacher-initiated suggestions for ways to handle behaviors (0), who is only raising one child (in the 3-5 age range) (0), and who has dropped out of high school (1) would be predicted of being low in positive expressiveness 99.4% of the time.

$$\begin{aligned}\hat{\pi} &= \frac{e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i} + \hat{\beta}_4 x_{4i} + \hat{\beta}_5 x_{5i}}}{1 + e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i} + \hat{\beta}_4 x_{4i} + \hat{\beta}_5 x_{5i}}} = \frac{e^{1.669 + 1.799x_{1i} - 1.635x_{2i} - 1.762x_{3i} - 1.741x_{4i} + 1.646x_{5i}}}{1 + e^{1.669 + 1.799x_{1i} - 1.635x_{2i} - 1.762x_{3i} - 1.741x_{4i} + 1.646x_{5i}}} \\ &= \frac{e^{1.669 + 1.799(1) - 1.635(0) - 1.762(0) - 1.741(0) + 1.646(1)}}{1 + e^{1.669 + 1.799(1) - 1.635(0) - 1.762(0) - 1.741(0) + 1.646(1)}} = \frac{e^{1.669 + 3.445}}{1 + e^{1.669 + 3.445}} = \frac{e^{5.114}}{1 + e^{5.114}} \\ &= \frac{166.3343634}{167.3343634} = 0.994023941 = 0.99\end{aligned}$$

2. On the other hand, a mother whose Head Start child has not been diagnosed with a delay (0) who does have at least one child in the family receiving specialized supports in the past year (1), who has received teacher-initiated suggestions on ways to handle behavior (1), who is raising two or more children (1), and who has graduated from high school (0) would be predicted of being low in positive expressiveness 3% of the time.

$$\begin{aligned}\hat{\pi} &= \frac{e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i} + \hat{\beta}_4 x_{4i} + \hat{\beta}_5 x_{5i}}}{1 + e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i} + \hat{\beta}_4 x_{4i} + \hat{\beta}_5 x_{5i}}} = \frac{e^{1.669 + 1.799x_{1i} - 1.635x_{2i} - 1.762x_{3i} - 1.741x_{4i} + 1.646x_{5i}}}{1 + e^{1.669 + 1.799x_{1i} - 1.635x_{2i} - 1.762x_{3i} - 1.741x_{4i} + 1.646x_{5i}}} \\ &= \frac{e^{1.669 + 1.799(0) - 1.635(1) - 1.762(1) - 1.741(1) + 1.646(0)}}{1 + e^{1.669 + 1.799(0) - 1.635(1) - 1.762(1) - 1.741(1) + 1.646(0)}} = \frac{e^{1.669 - 5.138}}{1 + e^{1.669 - 5.138}} = \frac{e^{-3.469}}{1 + e^{-3.469}} \\ &= \frac{0.031148163}{1.031148163} = 0.030207292 = 0.03\end{aligned}$$

Research Question #3: Perceived Role Model

1. Based on this sample, a mother who is not receiving Head Start staff-initiated specific behavior advice in the past year (0) and who is only raising one child (in the 3-5 age range) (0) would be predicted of not being strongly supportive of the research in how she perceives her role in preschoolers' emotional development (i.e., predicted of not being strongly aware of or in agreement with the emotional competence literature) 82.5% of the time.

$$\hat{\pi} = \frac{e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i}}}{1 + e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i}}} = \frac{e^{1.552 - 1.282x_{1i} - 1.238x_{2i}}}{1 + e^{1.552 - 1.282x_{1i} - 1.238x_{2i}}}$$

$$\begin{aligned}
&= \frac{e^{1.552-1.282(0)-1.238(0)}}{1+e^{1.552-1.282(0)-1.238(0)}} = \frac{e^{1.552-0}}{1+e^{1.552-0}} = \frac{e^{1.552}}{1+e^{1.552}} \\
&= \frac{4.720902552}{5.720902552} = 0.825202406 = 0.825
\end{aligned}$$

2. On the other hand, a mother who has received Head Start staff-initiated behavior advice in the past year (1) and who is raising two or more children (1) would be predicted of not being strongly supportive of researchers' findings in how she perceives her role in emotional development (i.e., predicted of not being strongly aware of or in agreement with the emotional competence literature) only 27.5% of the time.

$$\begin{aligned}
\hat{\pi} &= \frac{e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i}}}{1 + e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i}}} = \frac{e^{1.552-1.282x_{1i} - 1.238x_{2i}}}{1 + e^{1.552-1.282x_{1i} - 1.238x_{2i}}} \\
&= \frac{e^{1.552-1.282(1)-1.238(1)}}{1 + e^{1.552-1.282(1)-1.238(1)}} = \frac{e^{1.552-2.52}}{1 + e^{1.552-2.52}} = \frac{e^{-0.968}}{1 + e^{-0.968}} \\
&= \frac{0.379841963}{1.379841963} = 0.275279324 = 0.275
\end{aligned}$$

Research Question #4: Low Receptivity to Support Model

1. Based on this sample, mothers who are not particularly concerned about or frustrated by their preschool child's behavior (1), who believe inappropriate behavior will likely improve with age (1), who have sought less than 5 sources of behavior advice in the past year (0), who have dropped out of high school (1), and who have only one child (age 3-5) (0) have a high probability of declining proposed parent-focused support 99.2% of the time.

$$\begin{aligned}
\hat{\pi} &= \frac{e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i} + \hat{\beta}_4 x_{4i} + \hat{\beta}_5 x_{5i}}}{1 + e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i} + \hat{\beta}_4 x_{4i} + \hat{\beta}_5 x_{5i}}} = \frac{e^{0.304+1.755x_{1i} + 1.214x_{2i} - 2.002x_{3i} + 1.536x_{4i} - 1.635x_{5i}}}{1 + e^{0.304+1.755x_{1i} + 1.214x_{2i} - 2.002x_{3i} + 1.536x_{4i} - 1.635x_{5i}}} \\
&= \frac{e^{0.304+1.755(1)+1.214(1)-2.002(0)+1.536(1)-1.635(0)}}{1 + e^{0.304+1.755(1)+1.214(1)-2.002(0)+1.536(1)-1.635(0)}} = \frac{e^{0.304+4.505}}{1 + e^{0.304+4.505}} = \frac{e^{4.809}}{1 + e^{4.809}}
\end{aligned}$$

$$= \frac{122.6089472}{123.6089472} = 0.991909971 = 0.992$$

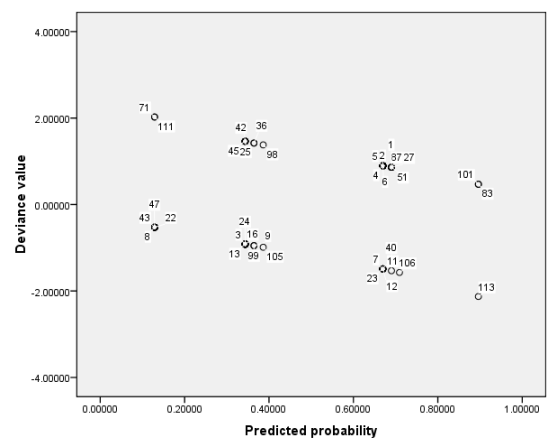
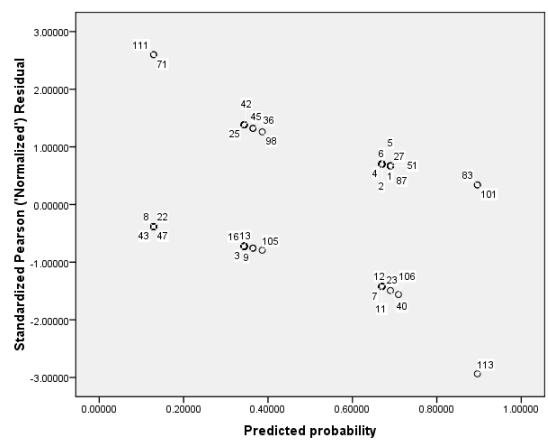
2. On the contrary, a mother who reports raising a preschool child with a combination of internalizing and externalizing behaviors in recent months (0), who believes adult guidance is most likely needed to improve a child's inappropriate behavior (0), who has sought at least 5 or more sources of behavior advice in the past year (1), who graduated from high school (0), and who has two or more children (1) would have an extremely low probability of declining proposed, parent-focused support 3.45% of the time

$$\begin{aligned} \hat{\pi} &= \frac{e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i} + \hat{\beta}_4 x_{4i} + \hat{\beta}_5 x_{5i}}}{1 + e^{\hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \hat{\beta}_3 x_{3i} + \hat{\beta}_4 x_{4i} + \hat{\beta}_5 x_{5i}}} = \frac{e^{0.304 + 1.755x_{1i} + 1.214x_{2i} - 2.002x_{3i} + 1.536x_{4i} - 1.635x_{5i}}}{1 + e^{0.304 + 1.755x_{1i} + 1.214x_{2i} - 2.002x_{3i} + 1.536x_{4i} - 1.635x_{5i}}} \\ &= \frac{e^{0.304 + 1.755(0) + 1.214(0) - 2.002(1) + 1.536(0) - 1.635(1)}}{1 + e^{0.304 + 1.755(0) + 1.214(0) - 2.002(1) + 1.536(0) - 1.635(1)}} = \frac{e^{0.304 - 3.637}}{1 + e^{0.304 - 3.637}} = \frac{e^{-3.333}}{1 + e^{-3.333}} \\ &= \frac{0.035685887}{1.035685887} = 0.034456284 = 3.446 \end{aligned}$$

Appendix F8. Assessing Residuals in Logistic Regression Models

Assessing residuals in Negative Expressivity Model

After fitting the high negative expressivity model, I saved residuals and assessed whether there were interesting cases warranting examination.

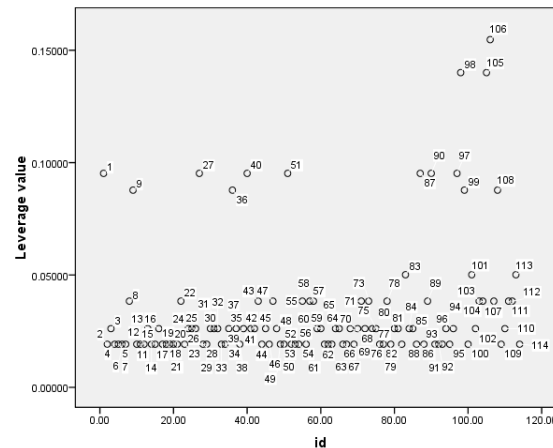


Casewise List^b

Case	Selected Status ^a	Observed	Predicted	Predicted Group	Temporary Variable	
		Probability of mom being mostly high in negative expressiveness			Resid	ZResid
71	S	H**	.129	L	.871	2.600
111	S	H**	.129	L	.871	2.600
113	S	L**	.896	H	-.896	-2.937

a. S = Selected, U = Unselected cases, and ** = Misclassified cases.
 b. Cases with studentized residuals greater than 2.000 are listed.

The above scatter plots and SPSS output suggest that no case exceeds the cutoff value of ± 3 ; I am therefore not concerned about potentially problematic outliers.



I also examined leverage values to assess each case's standing on the set of predictors in the model (with higher values indicating that a case's scores are further from the means of the explanatory variables). Using a cut-off of $3 * p/n = 0.079$, case #1 ($h_1 = 0.09521$), #9 ($h_1 = 0.08775$), #27 ($h_1 = 0.09521$), #36 ($h_1 = 0.08775$), #40 ($h_1 = 0.09521$), #51 ($h_1 = 0.09521$), #87 ($h_1 = 0.09521$), #90 ($h_1 = 0.09521$), #97 ($h_1 = 0.09521$), #98 ($h_1 = 0.14005$), #99 ($h_1 = 0.08775$), #105 ($h_1 = 0.14005$), #106 ($h_1 = 0.15473$), and #108 ($h_1 = 0.08775$) have leverage values exceeding the criterion; by not including these cases, the logistic regression estimate may deviate too much from the model that includes these cases. Typically, cases with high leverage have a higher likelihood of being influential (www-stat.wharton.upenn.edu/~dsmall/stat112-f04/lectures/lect7.ppt).

To assess if any cases may be changing the values of the regression coefficients, I examined Cook's D (to assess how much deleting a given case would affect residuals for all cases). In the plot of Cook's D values by case number, since no value in this plot exceeds the cut-off value (i.e., only cases exceeding 1.0 should be identified as

influential; www.utexas.edu/courses/.../Logistic Regression CompleteProblems.ppt), I am not concerned that there are influential outliers unduly affecting the model of best fit.

	N	Minimum	Maximum	Sum
DFBETA for constant	114	-.04088	.11124	.01648
DFBETA for Behavior_None	114	-.23820	.26352	-.01988
DFBETA for Stress_Level	114	-.14409	.07713	-.02232
DFBETA for educ_post_hs	114	-.44068	.26122	-.00898
Valid N (listwise)	114			

I also examined standardized DFBETA values (measuring the change in the logit coefficients for a certain predictor variable when a case is removed); the above table indicates that since no absolute DFBETA value exceeds one, I do not need to be concerned about the presence of any influential points in my final model (<http://faculty.chass.ncsu.edu/garson/PA765/logistic.htm>).

Assessing residuals in Low Positive Expressivity Model

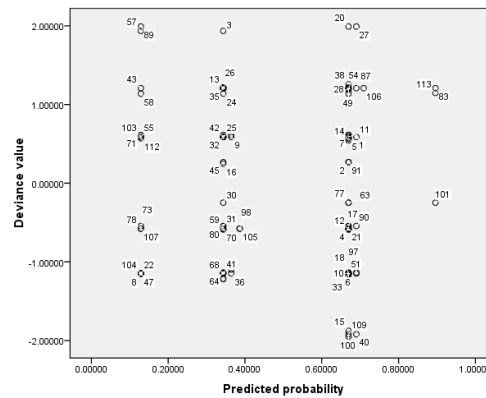
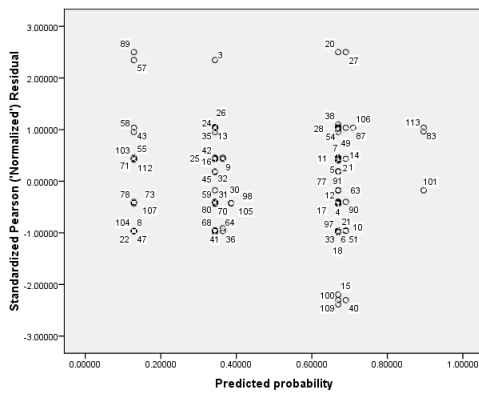
After fitting the final low positive expressivity model, I saved residuals and assessed whether interesting cases needed to be examined. The below output suggest that no cases need to be addressed as potentially problematic outliers (by visually inspecting the plots or using the ± 3 cutoff value).

Casewise List^b

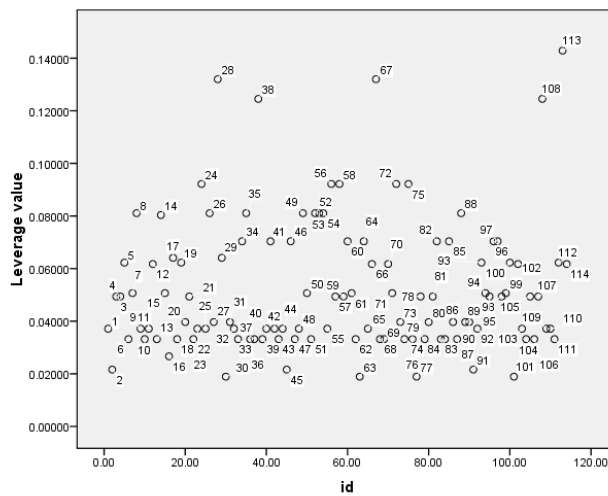
Case	Selected Status ^a	Observed	Predicted	Predicted Group	Temporary Variable	
		Probability of mom being 'mostly low positive' in expressiveness			Resid	ZResid
20	S	I**	.138	H	.862	2.501
27	S	I**	.138	H	.862	2.501
89	S	I**	.138	H	.862	2.501
100	S	H**	.851	I	-.851	-2.386

a. S = Selected, U = Unselected cases, and ** = Misclassified cases.

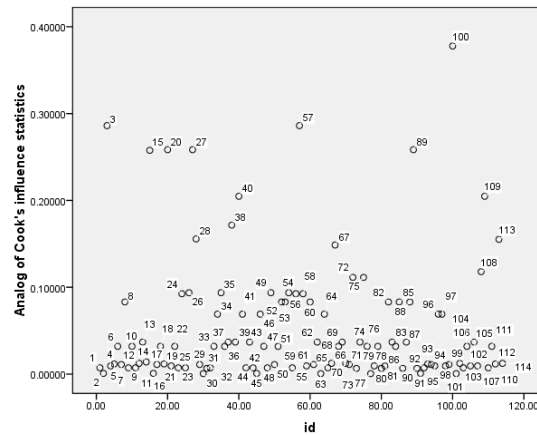
b. Cases with studentized residuals greater than 2.000 are listed.



I then examined leverage values to assess each case's standing on the set of predictors in the second model (with higher values indicating that a case's scores are further from the means of the explanatory variables).



Using a cut-off of $3 * p/n = 0.132$, the above plot of leverage by case number shows that case #113 ($h_1 = 0.14287$) has a leverage value exceeding the criterion; by not including this case, the logistic regression estimate may deviate too much from a model that includes this case.



To make sure that there are no influential cases changing the values of the regression coefficients, I examined Cook's D. In the below plot of Cook's D values versus case number, no value exceeds the absolute cut-off value of 1.00; I am therefore not concerned about influential cases unduly affecting the model of best fit.

Descriptive Statistics

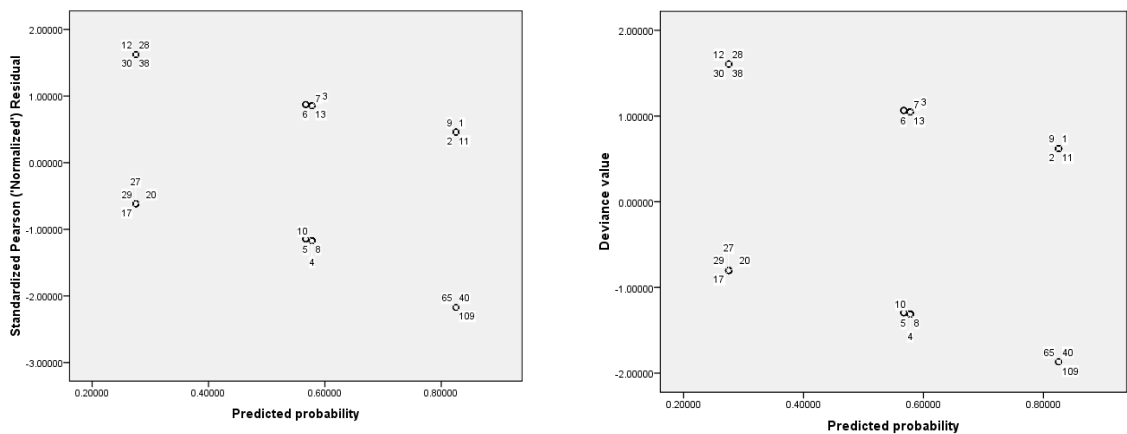
	N	Minimum	Maximum	Sum
DFBETA for constant	114	-.24332	.07580	.00527
DFBETA for Disability_Status	114	-.34527	.17172	.01762
DFBETA for Services_any_child	114	-.12571	.30350	.00677
DFBETA for H.S._teacher.initiated_home.ideas	114	-.11319	.22091	-.00654
DFBETA for Number_Children_grouping	114	-.12924	.21661	-.00748
DFBETA for educ_pre_hs	114	-.24560	.15859	-.00437
Valid N (listwise)	114			

To further examine whether there are influential points in the data set, I looked at standardized DFBETAS. The above table confirms that since no absolute DFBETA value

exceeds one, I am not concerned that cases unduly influence the positive expressivity model.

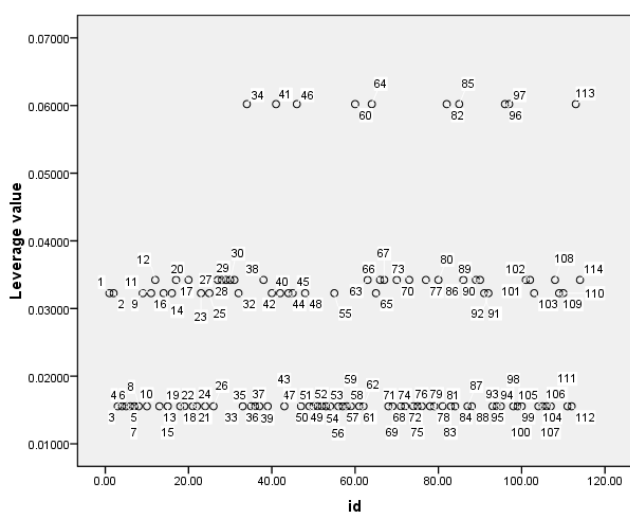
Assessing residuals in Perceived Role Model

After fitting the perceived role in emotional development model, I saved residuals and explored case diagnostics to assess whether there were interesting cases unduly affecting the model.

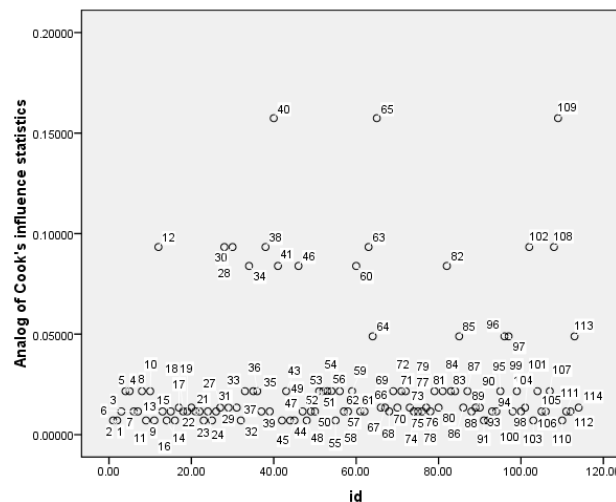


Casewise List^a
a. The casewise plot is not produced because no outliers were found.

Using visual inspection and the ± 3 cut-off, the output suggests no outliers warrant investigation.



I then examined leverage values to assess each case's standing on the set of predictors in the model (with higher values indicating that a case's scores are further from the means of the explanatory variables). Using a cut-off of $3 \cdot p/n = 0.053$, the adjacent plot shows that cases #34 ($h_1 = 0.06021$), #41 ($h_1 = 0.06021$), #46 ($h_1 = 0.06021$), #60 ($h_1 = 0.06021$), #64 ($h_1 = 0.06021$), #82 ($h_1 = 0.06021$), #85 ($h_1 = 0.06021$), #96 ($h_1 = 0.06021$), #97 ($h_1 = 0.06021$), and #113 ($h_1 = 0.06021$) have leverage values slightly exceeding the criterion; by not including these cases, the logistic regression estimate may deviate too much from the model that includes these cases.



As noted earlier, data points with higher leverage have a higher chance of being influential (www-stat.wharton.upenn.edu/~dsmall/stat112-f04/lectures/lect7.ppt). To ensure that no influential cases may be changing regression coefficient values, I examined Cook's D. In the above plot of Cook's D values versus case number, no case exceeds the absolute cut-off value of 1.00. Therefore, I am not concerned about influential outliers unduly affecting the model of best fit. To further examine whether there are influential points in the data set, I looked at standardized DFBETAS. The below

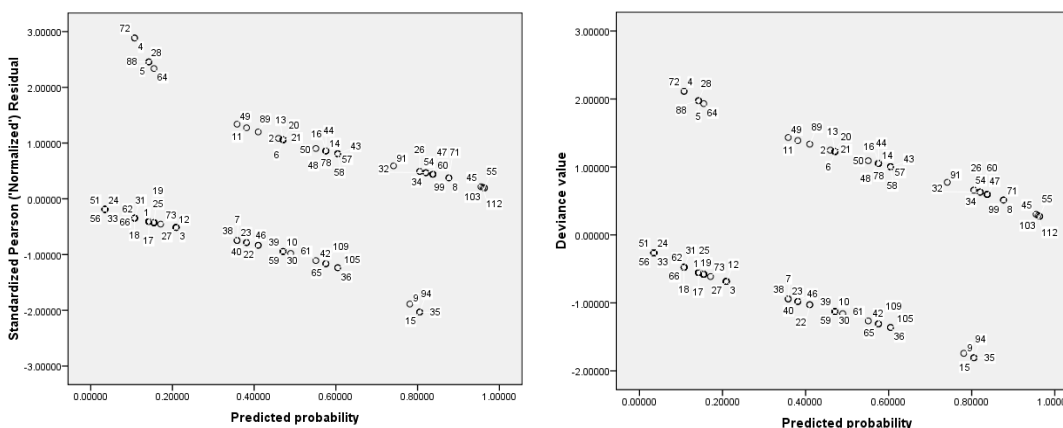
table reinforces that since no absolute DFBETA value exceeds 1.00, I am not concerned about influential points.

Descriptive Statistics

	N	Minimum	Maximum	Sum
DFBETA for constant	114	-.19074	.06052	-.00255
DFBETA for Head.Start_teacher_initiated_advice	114	-.06873	.11784	-.00271
DFBETA for Number_Children_grouping	114	-.07304	.17195	.00388

Assessing Residuals in Low Receptivity to Support Model

Assessing residuals. After fitting the final receptivity to support model, I saved residuals and assessed whether there were interesting cases warranting examination.



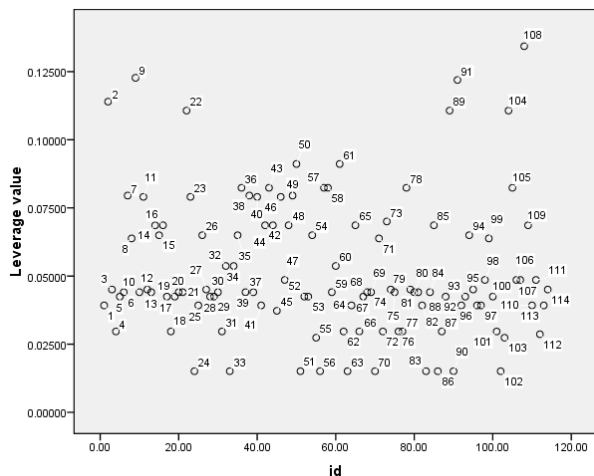
Casewise List^d

Case	Selected Status ^a	Observed	Predicted	Predicted Group	Temporary Variable	
		Probability of mom NOT being highly receptivity to additional support			Resid	ZResid
4	S	n**	.107	H	.893	2.885
5	S	n**	.142	H	.858	2.456
28	S	n**	.142	H	.858	2.456
72	S	n**	.107	H	.893	2.885
88	S	n**	.142	H	.858	2.456

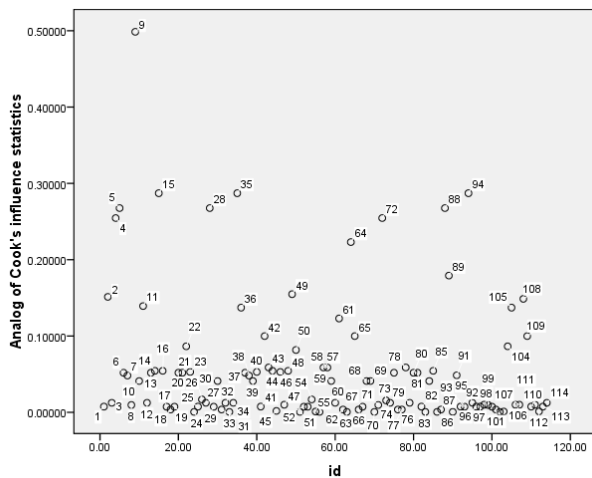
a. S = Selected, U = Unselected cases, and ** = Misclassified cases.

b. Cases with studentized residuals greater than 2.000 are listed.

Using visual inspection and the ± 3 cut-off value, the above SPSS output indicates that no cases warrant additional scrutiny as potential outliers.



I then examined leverage values to assess each case's standing on the set of predictors in the model (with higher values indicating that a case's scores are further from the means of the explanatory variables). Using a cut-off of $3 * p / n = 0.132$, the adjacent plot shows that case #108 ($h_1 = 0.13433$) has a leverage value exceeding the criterion; by not including this case, the logistic regression estimate may deviate too much from the model that includes this case.



However, by looking at the above Cook's influence versus Case Number plot, no cases exceed the absolute cut-off value of 1.00; I am therefore not concerned about influential outliers unduly affecting the model of best fit (i.e., no influential outliers overly change the values of the regression coefficients).

Descriptive Statistics

	N	Minimum	Maximum	Sum
DFBETA for constant	114	-.17353	.14061	.01598
DFBETA for Behavior_None	114	-.33655	.17306	-.03760
DFBETA for Better_with_age	114	-.17250	.09407	-.02245
DFBETA for Number_Avenues_Grouped	114	-.08917	.18131	-.01379
DFBETA for educ_pre_hs	114	-.26419	.16332	-.00629
DFBETA for Number_Children_grouping	114	-.14172	.27308	.00539

In addition, I looked at standardized DFBETAS. The above table shows that since no absolute DFBETA value exceeds one, I do not need to be concerned about influential points in this final fitted model.

References

- Achenbach, T. M. (1997). *Teacher/caregiver Report Form for ages 2-5*. Burlington, VT: University of Vermont, Department of Psychiatry.
- Administration for Children, Youth and Families. (2006). Head Start program fact sheet. Washington, DC: DHHS. Retrieved April 2, 2007, from:
<http://www2.acf.dhhs.gov/programs/hsb/research/2006.htm>
- Alink, L. R., Mesman, J., van Zeijl, J., Stolk, M. N., Juffer, F., Koot, H. M., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2006). The early childhood aggression curve: Development of physical aggression in 10- to 50-month-old children. *Child Development, 77*(4), 954-966.
- Anthony, L. G., Anthony, B. J., Glanville, D. N., Naiman, D. Q., Waanders, C., & Shaffer, S. (2005). The relationships between parenting stress, parenting behavior and preschoolers' social competence and behaviour problems in the classroom. *Infant and Child Development, 14*(2), 133-154.
- Bailey, D., Scarborough, A., Hebbeler, K., Spiker, D., & Malik, S. (2004). *National Early Intervention Longitudinal Study: Family outcomes at the end of early intervention*. CA: SRI International. Retrieved September 2008 from:
http://www.sri.com/neils/pdfs/FamilyOutcomesReport_011405.pdf
- Baumrind, D. (1972). An exploratory study of socialization effects on black children: Some black-white comparisons. *Child Development, 43*, 261-267.
- Bayer, J., Hiscock, H., Ukoumunne, O. C., Price, A., & Wake, M. (2008). Early childhood aetiology of mental health problems: a longitudinal population-based study. *The Journal of Child Psychology and Psychiatry, 49*(11), 1166-1174.

Retrieved November 2008 from <http://www3.interscience.wiley.com.proxy-um.researchport.umd.edu/cgi-bin/fulltext/121356512/PDFSTART>

- Bell, R. Q. (1968). A reinterpretation of the direction of effects in studies of socialization. *Psychological Review*, 75, 81-95.
- Benedict, E., Horner, R., & Squires, J. (2007). Assessment and implementation of positive behavior supports in preschools. *Topics in Early Childhood Special Education*, 27(3), 174-192.
- Berry, J. O., & Jones, W. H. (1995). The Parental Stress Scale: Initial psychometric evidence. *Journal of Social and Personal Relationships*, 12, 463-472.
- Boyer, W. (2009). Crossing the glass wall: Using preschool educators' knowledge to enhance parental understanding of children's self-regulation and emotion regulation. *Early Childhood Education Journal*, 37(3), 175-182.
- Boyum, L. A. (1995). Family emotional expressiveness as a mediator of children's social competence. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 55(9-B), 4112.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32, 513-531.
- Bronfenbrenner, U. (1992). Ecological systems theory. In R. Vasta (Ed.), *Six theories of child development: Revised formulations and current issues* (pp. 187-249). Ithaca, NY: Cornell University Department of Human Development and Family Studies.

- Bronfenbrenner, U. (2001). Bioecological perspectives on human development. In N.J. Smelser & P.B. Baltes (Eds.), *International encyclopedia of the social and behavioral sciences* (Vol. 10, pp. 6963–6970). NY: Elsevier. Chapter Citation
- Bronfenbrenner, U. (2005). *Making human beings human: Bioecological perspectives on human development*. Thousand Oaks, CA: Sage Publications, Ltd.
- Bronfenbrenner, U. & Ceci, S. J. (1994). Nature-nurture reconceptualized in developmental perspective: A bioecological model. *Psychological Review*, *101*(4), 568-586.
- Bronson, M. B. (2000). Recognizing and supporting the development of self-regulation in young children. *Young Children*, *55*(2), 32-37.
- Brotherson, M. J. (2001). The role of families in accountability. *Journal of Early Intervention*, *24*(1), 22-24.
- Buss, D. M. (1981). Predicting parent-child interactions from children's activity level. *Developmental Psychology*, *17*(1), 59-65.
- Campos, J. J., Campos, R. G., & Barrett, K. C. (1989). Emergent themes in the study of emotional development and emotion regulation. *Developmental Psychology*, *25*(3), 394-402.
- Carnegie Corporation. (1994). *Starting points: Meeting the needs of our youngest children*. [on-line]. Retrieved April 5, 2007 from:
http://www.carnegie.org/starting_points/startpt1.html
- Caspi, A., Moffitt, T. E., Morgan, J., Rutter, M., Taylor, A., Arseneault, L., Tully, L., Jacobs, C., Kim-Cohen, J., Polo-Tomas, M. (2004). Maternal expressed

emotion predicts children's antisocial behavior problems: Using monozygotic-twin differences to identify environmental effects on behavioral development.

Developmental Psychology, 40(2), 149-161.

Cassidy, J. (1994). Emotion regulation: Influences of attachment relationships. In N.

Fox (Ed.), *The development of emotion regulation. Monographs of the Society for Research on Child Development*, 59, (2-3, serial no. 240), 228-249.

Chang, L., Schwartz, D., Dodge, K., & McBride-Chang, C. (2003). Harsh parenting in relation to child emotion regulation and aggression. *Journal of Family*

Psychology, 17(4), 598-606.

Chaplin, T. M., Cole, P. M., Zahn-Waxler, C. (2005). Parental socialization of emotion expression: Gender differences and relations to child adjustment. *Emotion*, 5(1),

80-88.

Cole, P. M., Michel, M. K., & Teti, L. O. (1994). The development of emotion

regulation and dysregulation: A clinical perspective. *Monographs of the Society for Research on Child Development*, 59, (2-3, Serial No. 240), 73-100.

Coll, C. (1990). Developmental outcome of minority infants: A process-oriented look into our beginnings. *Child Development*, 61, 270-289.

Collins, A., Laursen, B. P., & Hartup, W. W. (Eds). (1999). Retrospective themes and contemporary issues. In *Relationships as developmental contexts: The*

Minnesota Symposia on Child Psychology, 30, 13-35. NJ: Lawrence Erlbaum Associates.

- Contreras, J. M., Kerns, K. A., Weimer, B. L., Gentzler, A. I., & Tomich, P. L. (2000). Emotion regulation as a mediator of associations between mother-child attachment and peer relations in middle childhood. *Journal of Family Psychology*, 14, 111-124.
- Crowe, D. (2009). *Poverty 101*. Center for Public Policy Priorities. Retrieved May 2009 from <http://www.cppp.org/files/8/Pov%20101%20Jan%2009.pdf>
- Cummings, E. M., Davies, P. T., & Campbell, S. B. (2002). *Developmental psychopathology and family process: Theory, research, and clinical implications*. Guilford Press.
- Dadds, M. R., Sanders, M. R., Behrens, B. C., & James, J. E. (1987). Marital discord and child behavior problems: A description of family interactions during treatment. *Journal of Clinical Child Psychology*, 16(3), 192-203.
- Denham, S. A. (2005). Assessing social-emotional development in children from a longitudinal perspective for the National Children's Study: Social-Emotional Compendium of Measures.
- Denham, S. A. (2006). Social-emotional competence as support for school readiness: What is it and how do we assess it? *Early Education and Development*, 17(1), 57-89.
- Denham, S. A., Blair, K. A., DeMulder, E., Levitas, J., Sawyer, K., Auerbach-Major, S., & Queenan, P. (2003). Preschool emotional competence: Pathway to social competence? *Child Development*, 74(1), 238-256.

- Dennis, T. A., Cole, P. M., Wiggins, C. N., Cohen, L. H., Zalewski, M. (2009). The functional organization of preschool-age children's emotion expressions and actions in challenging situations. *Emotion, 9*(4), 520-530.
- DeLeeuw, E., Borgers, N., & Strijbos-Smits, A. (2004). Children as respondents: Developing, evaluating, and testing questionnaires for children. In Presser et al. (Eds). *Methods for Testing and Evaluating Survey Questionnaires*. New York: Wiley.
- The Division for Early Childhood (DEC) Research Committee. (2006). *Research priorities for early intervention and early childhood special education*. Retrieved August 2008 from <http://www.dec-sped.org/pdf/positionpapers/PrioritiesPaperFinal.pdf>
- Domitrovich, C. E., Cortes, R. C., Greenberg, M. T. (2007). Improving young children's social and emotional competence: A randomized train of the preschool 'PATHS' curriculum. *Journal of Primary Prevention, 28*(2), 67-91.
- Doussard-Roosevelt, J. A., Porges, S. W., Scanlon, J. W., Alemi, B., & Scanlon, K. B. (1997). Vagal regulation of heart rate in the prediction of developmental outcome for very low birth weight preterm infants. *Child Development, 68*, 173-186.
- Dunsmore, J. C., & Halberstadt, A. G. (1997). How does family emotional expressiveness affect children's schemas? In W. Damon (Series Ed.) & K.C. Barrett (Vol. Ed.), *New Directions for Child Development. The communication of emotion: Current research from diverse perspectives*, (no. 77, pp. 45-68). San Francisco: Jossey-Bass Publishers.

- Dunsmore, J. C., & Karn, M. A. (2001). Mothers' beliefs about feelings and children's emotional understanding. *Early Childhood and Development, 12*(1), 117-138.
- Edgar, H. (1982). Birth order and personality: Some empirical findings and a biobehavioral theory. *Personality and Individual Differences, 3*(2), 205-210.
- Eisenberg, N., Cumberland, A., & Spinrad, T., (1998). Parental socialization of emotion. *Psychological Inquiry, 9*, 241-273.
- Eisenberg, N., & Fabes, R. A. (1994). Mothers' reactions to children's negative emotions: Relations to children's temperament and anger behavior. *Merrill-Palmer Quarterly, 40*, 138-156.
- Eisenberg, N., Fabes, R. A., Carlo, G., and Karbon, M. (1992). Emotional responsivity to others: Behavioral correlates and socialization antecedents. In W. Damon (Ser. Ed.) & N. Eisenberg & R. Fabes (Vol. Eds.) *New directions for child development: No: 55. Emotion and its regulation in early development* (pp. 57-73). San Francisco, CA: Jossey-Bass.
- Eisenberg, N., Sadovsky, A., & Spinrad, T. L. (2005). Associations of emotion-related regulation with language skills, emotion knowledge, and academic outcomes. *New Directions for Child and Adolescent Development, 2005*(109), 109-118.
- Epstein, M. H., & Nelson, J. R. (2006). *Early Childhood Behavior Problem Screening Scale*. Lincoln: University of Nebraska, Center for At-Risk Children's Services.
- Fabes, R. A. (2002). Emotions and the family. *Marriage and Family Review, 34* (1/2/3/4).

- Fabes, R. A., Eisenberg, N., & Bernzweig, J. (1990). *The Coping with Children's Negative Emotions Scale (CCNES): Procedures and scoring*. Available from authors. Arizona State University. Retrieved October 2008 from <http://www.public.asu.edu/~rafabes/cnesall.pdf>
- Fabes, R. A., Eisenberg, N., Jones, S., Smith, M., Guthrie, I., Poulin, R., Shepard, S. & Friedman, J. (1999). Regulation, emotionality, and preschoolers' socially competent peer interactions. *Child Development, 70*, 432-442.
- Fabes, R., Poulin, R., Eisenberg, N., & Madden-Derdich, D. (2002). The coping with children's negative emotions scale (CCNES): Psychometric properties and relations with children's emotional competence. *Marriage and Family Review, 34*(3/4), 285-311. Retrieved October 2008 from <http://www.public.asu.edu/~rafabes/metric.doc>
- Fantuzzo, J., McWayne, C., Perry, M., & Childs, S. (2004). Multiple dimensions of family involvement and their relations to behavioral and learning competencies for urban, low-income children. *School Psychology Review, 33*(4), 467-480.
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191.
- Farran, D. C., & Haskins, R. (1977). *Reciprocal control in social interactions of mothers and three-year-old children*. Paper presented at the Biennial Meeting of the Society for Research in Child Development. New Orleans, Louisiana. Retrieved October 2008 from <http://web.ebscohost.com.proxy->

[um.researchport.umd.edu/ehost/pdf?vid=3&hid=5&sid= a36c6ff0-c48e-433e-b0b7-ab6566f81188%40sessionmgr2](http://um.researchport.umd.edu/ehost/pdf?vid=3&hid=5&sid=a36c6ff0-c48e-433e-b0b7-ab6566f81188%40sessionmgr2)

- Farran, D. C., Ramey, C. T., & Campbell, F. A. (1977). *Social interactions of mothers and young children: Implications for development*. Paper presented at the Biennial Meeting of the Society for Research in Child Development. New Orleans, Louisiana. Retrieved October 2008 from http://www.eric.ed.gov.proxy-um.researchport.umd.edu/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/37/47/1a.pdf
- Fitzgerald, H., McKelvey, L., Schiffmen, R., & Montanez, M. (2006). Exposure of low-income families and their children to neighborhood violence and paternal antisocial behavior. *Parenting: Science and Practice, 6*(2), 243-255.
- Fleiss, J., Levin, B., & Paik, M. (2004). *Statistical methods for rates and proportions* (Third Edition). John Wiley and Sons, Inc. Retrieved November 2007 from <http://www3.interscience.wiley.com/cgi-bin/bookhome/106599353/>
- Fowler, F. J. Jr. (1995). *Improving survey questions: Design and evaluation*. Applied Social Research Methods Series, 38. Thousand Oaks, CA: SAGE Publications.
- Gagnon, S. G., & Nagle, R. J., & Nickerson, A. B. (2007). Parent and teacher ratings of peer interactive play and social-emotional development of preschool children at risk. *Journal of Early Intervention, 29*(3), 228-242.
- Galanaki, E. (2004). Teachers and loneliness: The children's perspective. *School Psychology International, 25*(1), 95-105.

- Gamble, W. C., Ramakumar, S., & Diaz, A. (2007). Maternal and paternal similarities and differences in parenting: An examination of Mexican-American parents of young children. *Early Childhood Research Quarterly, 22*(1), 72-88.
- Garner, P. W. (2006). Prediction of prosocial and emotional competence from maternal behavior in African American preschoolers. *Cultural Diversity and Ethnic Minority Psychology, 12*(2), 179-198.
- Garner, P. W. (2008). Mother-child conversations about emotions: Linkages to child aggression and prosocial behavior. *Social development, 17*(2), 259-277.
- Garner, P. W., Jones, D. C., & Miner, J. L. (1994). Social competence among low-income preschoolers: Emotion socialization practices and social cognitive correlates. *Child Development, 65*(2), 622-637.
- Gilliom, M., Shaw, D. S., Beck, J. E., Schonberg, M. A., & Lukon, J. L. (2002). Anger regulation in disadvantaged preschool boys: Strategies, antecedents, and the development of self-control. *Developmental Psychology, 38*(2), 222-235.
- Goldsmith, H. H. & Davidson, R. J. (2004). Disambiguating the components of emotion regulation. *Child Development, 75*(2), 361-365.
- Gottman, J. M., Katz, L. F., & Hooven, C. (1996). Parental meta-emotion philosophy and emotional life of families: Theoretical models and preliminary data. *Journal of Family Psychology, 10*, 243-268.
- Gregson, J. (2001). System, environmental, and policy changes: Using the social-ecological model as a framework for evaluating nutrition education and social marketing programs with low-income audiences. *Journal of Nutrition Education, 33*(1), 4-15.

- Griffith, A. K., Nelson, J. R., Epstein, M. H., & Pederson, B. (2008). Convergent validity of the Early Childhood Behavior Problem Screening Scale. *Journal of Early Intervention, 30*(4), 282-294.
- Halberstadt, A. G., Cassidy, J., Stifter, C. A., Parke, R. D., Fox, N. A. (1995). Self-Expressiveness within the Family Context: Psychometric Support for a New Measure. *Psychological Assessment, 7*(1), 93-103.
- Halberstadt, A. G., Cassidy, J., Stifter, C. A., Parke, R. D., & Fox, N. A. (1995). Self-expressiveness within the family context. *Psychological Assessment, 7*, 93-103.
- Halberstadt, A. G., Fox, N., & Jones, N. A. (1993). Do expressive mothers have expressive children? The role of socialization in children's affect expression. *Social Development, 2*(1), 48-65.
- Halberstadt, A. G., Denham, S. A., & Dunsmore, J. (2001). Affective social competence. *Social Development, 10*, 79-119.
- Harwood, M. D., O'Brien, K. A., Carter, C. G., Eyberg, S. M. (2009). Mental health services for preschool children in primary care: A survey of maternal attitudes and beliefs. *Journal of Pediatric Psychology, 34*(7), 760-768.
- Hastings, P. D., Nuselovici, J. N., Utendale, W. T., Coutya, J., McShane, K., & Sullivan, C. (2008). Applying the polyvagal theory to children's emotion regulation: Social context, socialization, and adjustment. *Biological Psychology, 79*(3), 299-306.
- Havighurst, S., Harley, A., & Prior, M. (2004). Building preschool children's emotional competence: A parenting program. *Early Education and Development, 15*(4), 423-447.

Head Start Performance Standards. (1996). Washington, DC: Head Start Bureau.

Retrieved April 13, 2007, from <http://www.headstartinfo.org/pdf/1304.pdf>

Head Start Performance Standards. (2002). Washington, DC: Head Start Bureau.

Herring, S., Gray, K., Taffe, J., Tonge, B., Sweeney, D., & Einfeld, S. (2006).

Behavioral and emotional problems in toddlers with pervasive developmental disorders and developmental delay: Associations with parental mental health and family functioning. *Journal of Intellectual Disability Research*, 50(12), 874-882.

Hoeksma, J., Oosterlaan, J., & Schipper, E. M. (2004). Emotion regulation and the dynamics of feelings: A conceptual and methodological framework. *Child Development*, 75(2), 354-360.

Huck, S. (2008). *Reading statistics and research* (5th Edition). Boston, MA: Pearson Education, Inc.

Hyson, M. C., & Lee, K. M. (1996). Assessing early childhood teachers' beliefs about emotions: Content, contexts, and implications for practice. *Early Education and Development*, 7, 59-78.

Individuals with Disabilities Education Improvement Act, Amendments of 2004, Pub. L. No. 108-446, U.S.C. 20. 1400 et seq.

Izard, C., Trentacosta, C., King, K., & Mostow, A. (2004). An emotion-based prevention program for head start children. *Early Education & Development*, 15(4), 407-422.

Javo, C., Ronning, J. A., Heyerdahl, S., & Rudmin, F. W. (2004). Parenting correlates of child behavior problems in a multiethnic community sample of preschool children in northern Norway. *European Child and Adolescent Psychiatry*, 13(1), 8-18.

- Kelley, M. L., Power, T. G., & Wimbush, D. D. (1992). Determinants of disciplinary practices in low-income Black mothers. *Child Development, 63*(3), 573-582.
- Kenny, K., & McGilloway, S. (2007). Caring for children with learning disabilities: An exploratory study of parental strain and coping. *British Journal of Learning Disabilities, 35*, 221-228.
- Kerr, D. C. R., Lunkenheimer, E. S., & Olson, S. L. (2007). Assessment of child problem behaviors by multiple informants: A longitudinal study from preschool to school entry. *Journal of Child Psychology and Psychiatry, 48*(10), 967-975.
- Kidwell, S. L., & Barnett, D. (2007). Adaptive emotion regulation among low-income African American children. *Merrill-Palmer Quarterly, 53*(2), 155-183.
- Kimonis, E., Frick, P., Boris, N., Smyke, A., Cornell, A., Farrell, J., & Zeanah, C. (2006). Callous-unemotional features, behavioral inhibition, and parenting: Independent predictors of aggression in a high-risk preschool sample. *Journal of Child and Family Studies, 15*(6), 745-756.
- Knapp, M., Scott, S., & Davies, J. (1999). The costs of antisocial behaviour in younger children. *Journal of Child Psychology and Psychiatry, 4*(4), 457-473.
- Kochanska, G., Philibert, R. A., & Robin, B., (2009). Interplay of genes and early mother-child relationship in the development of self-regulation from toddler to preschool age. *Journal of Child Psychology and Psychiatry, 50*(11), 1331-1338.
- Koplow, L. (Ed.) (1996). *Unsmiling faces: How preschools can heal*. New York: Teachers College Press.

- Ladd, G. (1990). Having friends, keeping friends, making friends, and being liked by peers in the classroom: Predictors of children's early school adjustment? *Child Development, 61*, 1081-1100.
- Levac, A. M., McCay, E., Merka, P., Reddon-D'Arcy, M.L. (2008). Exploring parent participation in the parent training program for children's aggression: Understanding and illuminating mechanisms of change. *Journal of Child and Adolescent Psychiatric Nursing, 21(2)* 78-88.
- Lovering, K., Frampton, I., Crowe, B., Moseley, A., & Broadhead, M. (2006). Community-based early intervention for children with behavioural, emotional and social problems: Evaluation of the scallywags scheme. *Emotional and Behavioural Difficulties, 11(2)*, 83-104.
- Lucas K. (2006). Investing in infants and toddlers: The economics of early childhood. Zero to Three Policy Center: D.C. Retrieved April 2007 from <http://www.zerotothree.org/site/DocServer/EconomicsofEarlyChildhood.pdf?docID=5881>
- Macomber, J. (2006). *An overview of selected data on children in vulnerable families*. The Urban Institute. Retrieved April 2007 from <http://www.urban.org/url.cfm?ID=311351>
- Mahoney, G., & Perales, F. (2003). Using relationship-focused intervention to enhance the social-emotional functioning of young children with Autism Spectrum disorders. *Topics in Early Childhood Special Education, 23(2)*, 77-89.

Mallory, N. J. & Goldsmith, N. A. (1991). The Head Start experience. ERIC digest.

ERIC Clearinghouse on Elementary and Early Childhood Education. ERIC

Identifier: ED327313. Retrieved May 2009 from [http://www.ericdigests.org/pre-](http://www.ericdigests.org/pre-9218/head.htm)

[9218/head.htm](http://www.ericdigests.org/pre-9218/head.htm)

Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology*, 35(2), 63-78.

Marin, N. J. (2008). The association between maternal parenting stress and quality of mother-child interactions in various family structures. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 68(7-B), 4890.

Marshall, H. (2001). Cultural influences on the development of self-concept: Updating our thinking. *Young Children*, 56(6), 19-25.

McLeod, J. D., Kruttschnitt, C., & Dornfield, M. (1994). Does parenting explain the effects of structural conditions on children's antisocial behavior? A comparison of Blacks and Whites. *Social Forces*, 73, 575-604.

McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *American Psychologist*, 53(2), 185-204.

McWayne, C., Campos, R., & Owsianik, M. (2008). A multidimensional, multilevel examination of mother and father involvement among culturally diverse Head Start families. *Journal of School Psychology*, 46(5), 551-572.

Minuchin, P. (1985). Families and individual development: Provocations from the field of family therapy. *Child Development*, 56, 289-302.

- Morris, J. E. (2005). Predictors of work-family role strain and effects on children in low-income Urban families. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 65(12-B), 6665.
- Morrison, E. F., Rimm-Kauffman, S., Pianta, R. C. (2003). A longitudinal study of mother-child interactions at school entry and social and academic outcomes in middle school. *Journal of School Psychology*, 41, 185-200.
- National Education Goals Panel. (1997). *Getting a good start in school*. Washington, DC: Author.
- National Research Council [NRC]. (2001). *Eager to learn: Educating our preschoolers*. Washington, DC: National Academy Press.
- Nelson, J. R., Stage, S., Duppong-Hurley, K., Synhorst, L., & Epstein, M. (2007). Risk factors predictive of the problem behavior of children at risk for emotional and behavioral disorders. *Exceptional Children*, 73(3), 367-379.
- New, M., Razzino, B., Lewin A., Schlumpf, K., and Joseph, J. (2002). Mental health service use in a community head start population. *Archives of Pediatrics and Adolescent Medicine*, 156(7), 721-727. Retrieved November 2008 from <http://archpedi.ama-assn.org/cgi/content/full/156/7/721>
- Nungesser, N., & Watkins, R. (2005). Preschool teachers' perceptions and reactions to challenging classroom behavior: Implications for speech-language pathologists. *Language, Speech, and Hearing Services in Schools*, 36, 139-151.
- Pedhazur, E. J. (1997). *Multiple Regression in Behavioral Research* (Third edition). New York: Harcourt Brace College Publishers.

- Peterson, C., Wall, C., Raikes, H., Kisker, E., Swanson, M., Jerald, J., Atwater, J., & Qiao, W. (2004). Early Head Start: Identifying and serving children with disabilities. *Topics in Early Childhood Special Education, 24*(2), 76-88.
- Peth-Pierce, R. (2000). *A good beginning: Sending America's children to school with the social and emotional competence they need to succeed*. Bethesda, MD: National Institute of Mental Health (The Child Mental Health Foundations and Agencies Network).
- Powell, D., Fixsen, D., & Dunlap, G. (2003). *Pathways to service utilization: A synthesis of evidence relevant to young children with challenging behavior*. Center for Evidence-based Practice: Young Children with Challenging Behaviors. Retrieved November 2007 from <http://challengingbehavior.fmhi.usf.edu/fixsen-et-al-may03.html>
- Querido, J. G., Warner, T. D., & Eyberg, S. M. (2002). Parenting styles and child behavior in African American families of preschool children. *Journal of Clinical Child Psychology, 31*(2), 272-277.
- Ramsden, S. & Hubbard, J. A. (2002). Family expressiveness and parental emotion coaching: Their role in children's emotion regulation and aggression. *Journal of Abnormal Child Psychology, 30*(6), 657-667.
- Raver, C. C., & Spagnola, M. (2003). 'When my mommy was angry, I was speechless': Children's perceptions of maternal emotional expressiveness within the context of economic hardship. *Marriage and Family Review, 34*(1-2), 63-88.

- Renk, K., Roddenberry, A., Oliveros, A., & Sieger, K. (2007). The relationship of maternal characteristics and perceptions of children to children's emotional and behavioral problems. *Child and Family Behavior Therapy, 29*(1), 37-57.
- Rodriguez, M., Ayduk, O., Aber, J., Mischel, W., Sethi, A., & Shoda, Y. (2005). A contextual approach to the development of self-regulatory competencies: The role of maternal unresponsivity and toddlers' negative affect in stressful situations. *Social Development, 14*(1), 136-157.
- Roskam, I., & Schelstraete, M.A. (2007). A qualitative analysis of mothers' childrearing behaviour towards their disabled child. *Research in Developmental Disabilities, 28*, 130-144.
- Santos, R. M., & McCollum, J. A. (2007). Perspectives of parent-child interaction in Filipino mothers of very young children with and without disabilities. *Journal of Early Intervention, 29*(3), 243-261.
- Shamir-Essakow, G., Ungerer, J. A., Rapee, R. M., & Safier, R. (2004). Caregiving representations of mothers of behaviorally inhibited and uninhibited preschool children. *Developmental Psychology, 40*, 899, 910.
- Shaw, D., Gilliom, M., Ingoldsby, E., & Nagin, D. (2003). Trajectories leading to school-age conduct problems. *Developmental Psychology, 39*, 189-200.
- Shields, A. & Cicchetti, D. (1999). *Emotion regulation checklist*. Unpublished questionnaire, M. Hope Family Center, University of Rochester, NY.
- Singh, N., Lancioni, G., Winton, A., Fisher, B., Wahler, R., McAleavey, K., Singh, J., & Sabaawi, M. (2006). Mindful parenting decreases aggression, noncompliance,

- and self-injury in children with Autism. *Journal of Emotional and Behavioral Disorders, 14*(3), 169-177.
- Smith, C., Calkins, S., Keane, S., Anastopoulos, A., & Shelton, T. (2004). Predicting stability and change in toddler behavior problems: Contributions of maternal behavior and child gender. *Developmental Psychology, 40*(1), 29-42.
- Smith, S., Lochman, J., & Daunic, A. (2005). Managing aggression using cognitive-behavioral interventions: State of the practice and future directions. *Behavioral Disorders, 30*(3), 227-240.
- Snyder, J., Cramer, A., & A Frank, J. (2005). The contributions of ineffective discipline and parental hostile attributions of child misbehavior in the development of conduct problems at home and school. *Developmental Psychology, 41*(1), 30-41.
- Spinrad, T., Eisenberg, N., Gaertner, B., Popp, T., Smith, C., Kupfer, A., Greving, K., Liew, J., & Hofer, C. (2007). Relations of maternal socialization and toddlers' effortful control to children's adjustment and social competence. *Developmental Psychology, 43*(5), 1170-1186.
- Stacks, A. M., & Goff, J. (2006). Family correlates of internalizing and externalizing behavior among boys and girls enrolled in Head Start. *Early Child Development and Care, 176*(1), 67-85.
- Stright, A. D. & Bales, S. S. (2003). Coparenting quality: Contributions of child and parent characteristics. *Family Relations, 52*(3), 232-240.

- Summers, J., Steeples, T., Peterson, C., Naig, L., McBride, S., Wall, S., Liebow, H., Swanson, M., & Stowitschek, J. (2001). Policy and management supports for effective service integration in Early Head Start and Part C programs. *Topics in Early Childhood Special Education, 21*(1), 16-30.
- Smith, T. (2004). Developing comparable questions in cross-national surveys. In *Methods for Testing and Evaluation Survey Questionnaires*. Hoboken, NY: Wiley (pages 431-453).
- Snyder, J., Cramer, A., & A Frank, J. (2005). The contributions of ineffective discipline and parental hostile attributions of child misbehavior in the development of conduct problems at home and school. *Developmental Psychology, 41*(1), 30-41.
- Spratt, E. G., Saylor, C. F., Macias, M. M. (2007). Assessing parenting stress in multiple samples of children with special needs (CSN). *Family, Systems, and Health, 25*(4), 435-449.
- Swick, K. J. & Williams, R. D. (2006). An analysis of Bronfenbrenner's bio-ecological perspective for early childhood educations: Implications for working with families experiencing stress. *Early Childhood Education Journal, 33*(5), 371-378.
- Tania, T., Ungerer, J. A., McMahon, C. A. (2008). Maternal depression: Relations with maternal caregiving representations and emotion availability during the preschool years. *Attachment and Human Development, 10*(1), 73-90.
- Tosteson, T. D., Buzas, J. S., Demidenko, E., Karagas, M. (2003). Power and sample size calculations for generalized regression models with covariate measurement error. *Statistics in Medicine, 22*(7), 2003. Published Online: 10 Mar 2003.

- Tourangeau, R. & Yan, T. (2007). Sensitive questions in surveys. *Psychological Bulletin*, 133(5), 859-883.
- Turnbull, A. P., Summers, J. A., Turnbull, R., Brotherson, M. J., Winton, P., Roberts, R., Snyder, P., McWilliam, R., Chandler, L., Schrandt, S., Stowe, M., Bruder, M. B., Diverere, N., Epley, P., Hornback, M., Huff, B., Miksch, P., Mitchell, L., Sharp, L., & Stroup-Rentier, V. (2007). Family supports and services in early intervention: A bold vision. *Journal of Early Intervention*, 29(3), 187-206.
- U.S. Census Bureau (2007). American Community Survey. Retrieved May 2009 from www.census.gov/acs/www/
- Wall, S., Taylor, N., Liebow, H., Sabatino, C., Mayer, L., Farber, M., & Timberlake, E. (2005). Early Head Start and access to early intervention services: A qualitative investigation. *Topics in Early Childhood Special Education*, 25(4), 218-229.
- Webster-Stratton, C. (1990). Stress: A potential disruptor of parent perceptions and family interactions. *Journal of Clinical Child Psychology*, 19(4), 302-312.
- Wertsch, J. V. (2005). Review of making human beings human: Bioecological perspectives on human development. *British Journal of Developmental Psychology*, 23(1), 143-151.
- Whiteside-Mansell, L., Pope, S. K., & Bradley, R. H. (1996). Patterns of parenting behavior in young mothers. *Family Relations*, 45(3), 273-281.
- Wilson, B. J., Fernandes-Richards, S., Aarskog, C, Osborn, T, & Capetillo, D. (2007). The role of emotion regulation in the social problems of boys with developmental delays. *Early Education and Development*, 18(2), 201-222.

Zubrick, S., Ward, K., Silburn, S., Lawrence, D., Williams, A., Blair, E., Robertson, D., & Sanders, M. (2005). Prevention of child behavior problems through universal implementation of a group behavioral family intervention. *Prevention Science*, 6(4), 287-302.