



Fall 2022

Influences of Child and Caregiver-Directed Home Visitor Behaviors on Caregiver Engagement and Caregiver-Child Interactions

Mary Kienstra Frese

Follow this and additional works at: https://ecommons.luc.edu/luc_diss

 Part of the [Early Childhood Education Commons](#)

Recommended Citation

Frese, Mary Kienstra, "Influences of Child and Caregiver-Directed Home Visitor Behaviors on Caregiver Engagement and Caregiver-Child Interactions" (2022). *Dissertations*. 3971.
https://ecommons.luc.edu/luc_diss/3971

This Dissertation is brought to you for free and open access by the Theses and Dissertations at Loyola eCommons. It has been accepted for inclusion in Dissertations by an authorized administrator of Loyola eCommons. For more information, please contact ecommons@luc.edu.



This work is licensed under a [Creative Commons Attribution-NonCommercial-No Derivative Works 3.0 License](#).
Copyright © 2022 Mary Kienstra Frese

LOYOLA UNIVERSITY CHICAGO AND ERIKSON INSTITUTE

INFLUENCES OF CHILD AND CAREGIVER-DIRECTED HOME VISITOR BEHAVIORS
ON CAREGIVER ENGAGEMENT AND CAREGIVER-CHILD INTERACTIONS

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

PROGRAM IN CHILD DEVELOPMENT

BY

MARY FRESE

CHICAGO, IL

AUGUST 2022

Copyright by Mary Frese, 2022
All rights reserved.

TABLE OF CONTENTS

LIST OF TABLES	v
LIST OF FIGURES	viii
ABSTRACT	ix
CHAPTER ONE: INTRODUCTION	1
CHAPTER TWO: LITERATURE REVIEW	3
Evidence of Home Visiting Effectiveness	4
Family Participation and Engagement	6
Selection of Visit Content and Activities	8
Home Visitor Communication Strategies	13
Novel Model of Home Visiting Effectiveness	21
CHAPTER THREE: METHODOLOGY	24
Study Questions	24
Study Design	28
Analysis Plan	35
CHAPTER FOUR: RESULTS	38
Home Visitor Content, Behaviors and Activities	38
Visit Interactions and Content: HVOF	38
Purpose of Communication: RIAS	44
CHAPTER FIVE: DISCUSSION	82
Overview of Key Findings	82
Implications	88
Limitations and Future Directions	93
Conclusions	95
APPENDIX A: RIAS-HV: MODIFIED FOR PROGRAMS	96
APPENDIX B: HOVRS A+	101
APPENDIX C: HOME VISIT OBSERVATION FORM REVISED	119
APPENDIX D: SURVEY ITEMS	127
APPENDIX E: TESTS OF MODEL ASSUMPTIONS	133
REFERENCE LIST	145

LIST OF TABLES

Table 1. Purpose of Home Visitor Behaviors and Visit Content by Recipient	12
Table 2. Purpose of Home Visitor Communication with the Child	20
Table 3. Study Variables	36
Table 4. Interaction Partners as Measured by HVOF	39
Table 5. Visit Content as Measured by HVOF-adapted	40
Table 6. Home Visitor Behavior by Recipient	41
Table 7. Home Visitor Behavior with Child	42
Table 8. Caregiver Behavior with Child	43
Table 9. Home Visitor to Caregiver Talk	44
Table 10. Adult to Child Talk	46
Table 11. Descriptives for Engagement Measures	47
Table 12 Bivariate Correlations between Dependent and Independent Variables	50
Table 13. Predictability of Caregiver Engagement from Home Visit Content Focus	51
Table 14. Predictability of Caregiver Engagement from Caregiver and Child-directed Behaviors	52
Table 15. Predictability of Caregiver Engagement from Home Visitors' Child-focused Behaviors	54
Table 16. Predictability of Caregiver Engagement from RIAS	56
Table 17. Predictability of Caregiver Engagement from Caregiver-directed and Child-directed <u>Responsiveness</u> Behaviors	57

Table 18. Predictability of Caregiver Engagement from Caregiver-directed and Child-directed <u>Partnership</u> Behaviors	58
Table 19. Descriptives for Caregiver-Child Interaction Quality	58
Table 20. Predictability of Caregiver-Child Interaction Quality from Content Focus	60
Table 21. Predictability of Caregiver Interaction Quality from Child and Caregiver Directed Home Visitor Behavior	61
Table 22. Predictability of Caregiver-Child Interaction Quality from Visitor Behavior	63
Table 23. Predictability of Caregiver-Child Interaction Quality Home Visitor Partnership Statements	65
Table 24. Predictability of Caregiver Child Interaction Quality from Home Visitor Responsive Statements	66
Table 25. Descriptives for Caregiver Supportive Behaviors	67
Table 26. Influence of Visit Content and HV Behavior on Caregiver Supportive Behaviors with Children	69
Table 27. Predictability of Caregiver Use of Responsive Statements from Home Visitor Use of Responsive Statements	72
Table 28. Predictability of Home Visitor Use of Responsiveness Techniques on Caregiver Use of Responsiveness Techniques (Child-directed v Caregiver-directed)	74
Table 29. Predictability of Caregiver Use of Partnership Statements from Home Visitor Use of Partnership Statements	76
Table 30. Predictability of Caregiver Use of Partnership Statements from Home Visitor Use of Partnership Statements (Child-directed V Caregiver-directed)	78
Table 31. Predictability of Reasons for Enrolling on the Effect of HV Child-directed Partnership Behaviors on Caregiver Engagement	79
Table 32. Predictability of Reasons for Enrolling on the Effect of HV Child-directed Responsiveness Behaviors on Caregiver Engagement	80
Table 33. Predictability of Reasons for Enrolling on the Effect of HVOF Child-focused Content on Caregiver Engagement	80

Table 34. Predictability of Reasons for Enrolling on the Effect of HVOF Child-directed Behaviors on Caregiver Engagement	81
Table 35. Summary of Engagement Effects	84
Table 36. Summary of Caregiver Supportive Behaviors Effects	86
Table 37. Summary of Influence on Caregiver Use of Communication Techniques with Children	87

LIST OF FIGURES

Figure 1. Generalized Home Visiting Model of Change	22
Figure 2. Proposed Home Visiting Model of Change	23
Figure 3. Distribution of Home Visitor Ratings of Caregiver Engagement	47
Figure 4. Distribution of HVORS Caregiver Engagement Scales	48
Figure 5. Distribution for Caregiver-Child Interaction Scores	59
Figure 6. Distribution of Caregiver Supportive Behaviors	67
Figure 7. Caregiver Use of Child-directed Partnership Techniques	70
Figure 8. Caregiver Use of Child-directed Responsiveness Techniques	70

ABSTRACT

Home visiting is a widely used prevention modality aimed at supporting child and family well-being. Recent efforts to understand the mechanisms through which home visiting programs influence families have revealed a predictive relationship between home visitor behaviors and subsequent child and family outcomes. Specifically, home visitor's caregiver-directed use of emotionally responsive and partnership building communication techniques (Michalopoulos et al., 2019) and child focused content (Peterson et al., 2018) have been associated with positive program influences. However, the effects of home visitors' child-direct behaviors have not been addressed in previous literature.

The current study used 200 home visit recordings to explore the influence of home visitor's child-directed communication and content selection on three broad outcomes: caregivers' visit engagement, caregiver-child interaction quality, and caregivers' use of positive communication and supportive behaviors with their children. Results indicate that child-directed behaviors such as modeling and direct instruction were negatively associated with caregiver engagement, while caregiver-directed coaching was positively related to both caregiver engagement and caregiver-child interaction quality. On the other hand, a positive relationship emerged between home visitors' use of child-directed communication strategies and caregivers' use of child-directed communication strategies. There was no relationship between home visitors' use of caregiver-directed communication strategies and caregiver child-directed communication strategies, indicating that for this outcome child-directed communication was

more effective in eliciting caregiver behavior than caregiver directed behaviors. These results suggest that both caregiver and child-directed behaviors are efficacious home visiting strategies. However, the effectiveness of these behaviors may differ based on the target outcome. Overall, brief behaviors, like caregivers' use of a positive communication strategy, were positively related to child-directed behaviors like modeling, while more sustained outcomes, such as overall visit engagement, were positively related to caregiver-directed behaviors like coaching. Implications and study limitations are discussed.

CHAPTER ONE

INTRODUCTION

Early childhood home visiting is a popular in-home intervention modality intended to support child development, health, and family well-being. Home visits are facilitated by trained providers who offer information, guidance, and support to families on a regular basis. It is widely assumed that the home visitors' interactions with families influence Early Childhood Home Visiting (ECHV) program outcomes. Despite this widespread belief, little is known about the specific home visitor behaviors that influence caregivers' engagement in and behaviors during visits (Korfmacher et al., 2008). Emerging literature suggests that two elements of home visitor behavior – selection of content and communication strategies - may be particularly influential (Daro & Harding, 1999; Marshal, et al, 2018; McCurdy & Daro, 2001; Nygren et al., 2018; Roggman, Cook, Peterson et al., 2008). While there is some literature examining the associations between home visitors' use of these strategies, caregiver visit engagement, and subsequent family outcomes, to date this body of research has focused solely on caregiver-directed behaviors. The impact of home visitors' child-directed behavior is currently unknown. This is somewhat surprising, because although the caregiver is typically the primary target of ECHV services, the ultimate goal of home visiting is to enhance child health and wellbeing. In addition, in most home visiting models, children are active participants in family visits. For these reasons, understanding the role of child-directed aspects of services, both in addition to and in interaction with adult-directed behaviors, is essential.

This project examines the relationships between home visitors' behavioral and communicative strategies, caregiver engagement in services, and subsequent caregiver-child communication and interaction quality. It explores specific home visitor strategies as used with both adult caregivers and their children and highlights the relative lack of information regarding how these critical elements operate in relation to child participants. Finally, it proposes a novel framework for conceptualizing the influence of home visitor behaviors that incorporates child-directed interactions.

CHAPTER TWO

LITERATURE REVIEW

Children exposed to environmental and familial risk factors, including parental mental illness, substance abuse, incarceration, domestic violence, and poverty, are more likely than other children to experience negative long-term sequela (Durlak & Wells, 1997; Shonkoff & Philips, 2000). Unfortunately, children in the United States encounter these risks at alarming rates. An estimated 15% to 21% of pregnant women and new mothers experience some form of mental illness (Kendig, et.al., 2017), while approximately 2.3% of children have at least one incarcerated parent (Glaze & Maruschak, 2020). Exposure to poverty and violence is even more common with an estimated 43% of children currently living in low-income families (Jang & Koball, 2018) and 57% of children experiencing physical abuse, sexual assault, maltreatment, robbery, or violence against a caregiver (U.S. Department of Justice, 2015).

To mitigate these risks, home visitation models were adopted in the U.S. during the 1890's and continued to provide in home education and health care services to families through the early 20th century. Support for these initiatives decreased during the Great Depression and did not re-emerge until the 1960's War on Poverty tied home visiting to the larger early childhood system of care (Kempe, 1976). At this time, home visiting programs began targeting a wider range of social and cognitive outcomes and have since evolved to include a diverse set of family supports targeting an expansive array of family outcomes including parent-child relationships,

school readiness, infant and maternal mental health, and overall family well-being (Astuto & Allen, 2009; Sweet & Appelbaum, 2004).

The National Home Visiting Resource Center (2019) estimates that over 280,000 families in the U.S. currently receive evidence-based home visiting services, while others estimate that as many as 2,000,000 families are currently enrolled in some form of home-based family support (Lanier et al., 2015). Sustaining this level of intervention requires a substantial financial investment from both private and public systems. By 2009, 40 states reported implementing home visiting programs through internal state agencies with funding totaling an estimated \$250 million dollars across 30 states who provided budget information (Johnson, 2009). At the federal level, large-scale investment in home visitation began in 2010 when the U.S. Department of Health and Human Services allocated 1.5 billion dollars to establish and evaluate the Maternal Infant and Early Childhood Home Visiting Program (MIECHV), which has since received continued funding through at least 2023 (<https://www.hrsa.gov/grants/find-funding>).

Evidence of Home Visiting Effectiveness

Randomized controlled trials examining the impact of home visiting services have yielded positive results on a variety of outcomes including child cognitive and social development, health, school readiness and high school graduation rates, as well as, maternal health, parenting practices, and family economic self-sufficiency. Decreased rates of child abuse and neglect and need for special education supports have also been reported (Bierman et al., 2018; Johnson et al., 2006; Kitzman et al., 2010; LeCroy & Krysik, 2011; Wagner et. al, 2001). Unfortunately, these effects have been small to moderate and inconsistent across studies (Howard & Brooks-Gunn, 2009; Sweet & Appelbaum, 2004).

Monetary support for ECHV has continued, despite modest outcomes, based on cost-benefit analyses, the social value of small improvements (Olds et al., 1993) and the potential for program refinement to create even larger effects (Duncan et al., 2017). However, sustained funding has come with an increasingly high demand for empirical evidence of home visiting effectiveness and proof of compliance to funder requirements. As funding has become increasingly contingent on compliance standards, programs have faced a high stakes impetus to quantify and assess service quality.

Federal MIECHV funding allocated in 2010, for example, stipulated those programs must implement evidence-based curricula and participate in rigorous quality evaluation and improvement activities. In addition to individual program efforts, initial MIECHV funding was tied to a large-scale randomized evaluation. Consistent with previous findings, the resulting MIHOPE study reported positive, yet modest effects, and lower than expected family retention (Michalopoulos et al., 2019). This finding is particularly concerning given that previous studies have consistently linked positive program outcomes to service dosage and participant engagement (Casady & Van Egeren, 2002; Paulsell et al., 2010). Unfortunately, service providers frequently struggle to effectively engage and retain families in services. Estimates suggest that on average only 50% of families receive the minimum number of model recommended visits and even fewer, 35-40%, reach program completion (Holland et al., 2017; Duggan et al., 1999). Consequently, understanding how to strengthen family engagement is essential to improving home visiting outcomes.

Family Participation and Engagement

Most attempts to identify the antecedents of family engagement have focused on broad program and family characteristics (Alonso-Marsden et al., 2014; Cho et al., 2017; Raikes et al., 2006; Supple & Duggan, 2019). This body of work has yielded inconsistent results with little consensus around how these characteristics operate in relation to family engagement (Hans & Korfmacher, 2002; McCurdy et al., 2006). Further, these variables lie outside of the program's control. For these reasons, investigations of malleable home visitor skills and behaviors may offer a more practical avenue for guiding program improvement; however, little attention has been given to the impact of discrete, teachable home visitor behaviors, including choice of visit content and activities and use of communication strategies with caregivers and families (Supplee et al., 2018). This is surprising given that home visitor-family interactions serve as the primary mechanism of home visiting services. Thus, exploring the nature of within visit interactions offers a unique opportunity to understand the relationship between specific home visitor behaviors and family response to service.

Home Visitor Influences on Within Visit Engagement

Two proposed home visiting frameworks offer insight regarding potential behavioral influences on family engagement and subsequent program outcomes (McCurdy & Daro, 2001, Roggman, Cook, Peterson et al., 2008). First, in a theoretical exploration of participant retention, McCurdy and Daro (2001) point to two broad domains of home visitor behavior, cultural competence, and service delivery style. Within this framework, cultural competence represents the home visitor's understanding of and responsiveness to the family's goals and values, while service delivery style includes specific communication skills, focus of services

(child-directed, caregiver-directed, or dyad-directed) and presentation of program goals.

Similarly, Roggman and colleagues (2008) have isolated two primary features of home visitor behavior related to family engagement: allowing parents to take an active role in visits and delivering relevant child-focused content, including facilitating parent-child activities, and providing child development information. Taken together these models suggest that two overarching home visitor skills may exert a powerful influence: emphasis on child-content and communication/relationship building.

During visits, home visitors participate in a complex set of exchanges in which they must select content, ensure effective communication, and balance adult-*directed* and child-*directed* visit elements. Existing research indicates that caregivers are more engaged in visits when home visit content is child-focused and service providers use positive communication strategies (McCurdy & Daro, 2001; Roggman et al., 2008). It is important to recognize that previous studies have concentrated solely on home visitor skills during interactions with adult caregivers. That is to say, even when considering child-focused content (e.g., providing child development information), they have not distinguished between adult-*directed* and child-*directed* interactions. Consequently, there is no research on the differential effects of caregiver-*directed* versus child-*directed* behaviors on family engagement and program outcomes. The current study aims to address this gap in the literature by examining two broad aspects of home visits: (1) home visitor choice of content and activities, and (2) home visitor use of communication strategies. The study will specifically address the implications of using child-*directed* versus caregiver-*directed* methods of delivery within each of these visit elements.

Selection of Visit Content and Activities

Home visiting models have sought to address the myriad challenges of enrolled families by providing a comprehensive continuum of services. These services often include a wide array of supports including parent education and job training, material assistance, and mental health services; however, most ECHV programs aim to enhance child development primarily through their influence on parenting. Rooted in the child development literature indicating that parenting behaviors are highly predictive of children's subsequent functioning (Bornstein & Bradley, 2014; Maccoby, 2000; Prevatt, 2003; Ramey & Ramey, 2002), home visiting models seek to enhance parenting skills and knowledge and parent-child relationships (Raikes et al., 2014).

Child-Focused Content and Family Engagement and Outcomes

Although the content of home visits varies widely based on model curricula and family goals, evidence suggests that program participants value *child-focused* services (Burrell et al., 2018; Tandon et al., 2007) and that *child-focused* content is associated with positive caregiver engagement in visits (Roggman, Cook, Peterson et al., 2008; Peterson et al., 2018). Research on Healthy Families America, for example, documented consistently longer enrollment periods when visits focused on supporting parent-child interactions than when visits concentrated on providing information and supporting family well-being (McKelvey et al., 2018). Similarly, Filene and colleagues (2013) performed a meta-analysis of program components and reported that programs had moderate impacts on parenting skills and practices when program content covered developmental norms and expectations, behavior management, and recognizing and responding to child cues. Nygren and colleagues (2018) found that mothers reported lower levels

of parenting stress when their home visitors noted spending more time on parenting topics, while Raikes and colleagues (2006) reported that time spent on child-*focused* content was related to increases in child cognitive and language development, greater maternal support for child language, and lower levels of maternal depression.

One specific form of child-focused content, home visitor facilitation of parent-child interaction (PCI) has been of particular interest in recent literature. Support for PCI has been linked to positive parenting and child outcomes in both the therapeutic and home visiting literatures (Moss et al., 2011; Peterson et al., 2007; Roggman et al., 2016). For instance, therapeutic interventions such as Parent Child Interaction Therapy and Triple P Positive Parenting Program, which focus on improving PCI, have yielded reductions in parent reported child behavior problems and parenting difficulties (Thomas & Zimmer-Gembeck, 2007). Another salient example, Attachment and Biobehavioral Catch-up (ABC; Yarger et al., 2016) has shown positive effects on child attachment classification (Bernard et al., 2012) and preschool executive function (Lewis-Morrarty et al., 2012). Within preventative home visiting models, small scale studies have linked promotion of PCI to positive outcomes such as favorable parent-child relationship ratings and increases in child social and cognitive functioning (Peterson et al., 2013; Rogmann et al., 2016).

As might be expected, the actual amount of time spent on child-*focused* topics varies depending on the program model studied and method of data collection employed (Hallgren et al., 2010; Peterson et al., 2018; Vogel et al., 2015). For example, using a self-report measure, Healthy Families America visitors estimated spending about 49% of visits addressing child-focused topics with the remainder of time spent primarily on issues of family wellbeing. In

contrast, home visitors from Nurse Family Partnership, participating in the same study, reported spending only 31% of visits focused on child related topics, while spending 67% of visit time on maternal and family wellbeing (Daro et al., 2012). Observational measures have also yielded highly variable and model specific estimates. For example, Baby FACES, a large-scale observational study of Early Head Start programs, reported that home visitors spent about 50% of visits devoted to child-development topics (Vogel et al. 2011), while a study of Partnering with Families for Early Learning (PFEL) programs using the same measure found that home visitors spent only 27% of visits on child-*focused* topics (Hallgren et al., 2010).

Studies of time spent specifically supporting parent-child interactions have yielded much lower estimates than those reported above, suggesting that most child-focused content centers around providing caregivers with information about parenting and developmental norms. For example, a recent observational study reported that on average only 17% of visit intervals were spent in triadic interactions between home visitors, caregivers, and children. This estimate was further divided by specific home visitor behavior, with 8% of intervals spent observing caregiver-child engagement, 7% modeling for the caregiver, and 2% actively coaching caregiver-child interactions (Peterson et al., 2018). Other studies have yielded even lower estimates of triadic interactions, reporting that 5.4% of intervals were spent in triadic interactions, and only 2.6% of intervals included direct support for parent-child interactions (Peterson et al., 2013).

Modes of Delivery

While emerging evidence points to an important link between child-*focused* content and family enrollment, engagement, and subsequent outcomes, little is known about how home visitors provide this type of support. For example, is child-*focused* content provided by

reviewing handouts, sharing developmental information, or coaching interactions (Wasik & Bryant, 2001)? Moreover, home visitors must choose between various ports of entry for content delivery (Stern-Bruschweiler & Stern 1989). Home visitors may choose caregiver-*directed* instruction - working directly with the caregiver under the assumption that learned knowledge and skills will subsequently be integrated into parenting practices. Home visitors might opt, instead, for child-*directed* methods - working directly with the child to improve his or her capacity to interact effectively with the caregiver and to meet the caregiver's behavioral expectations. Based on evidence from social learning theory indicating that new behaviors can be learned effectively through observation (Bandura, 1977), home visitors may also work directly with the child to provide an opportunity for caregivers to observe new strategies. Home visitors might also choose to work with the parent and child together to improve interactions and support caregiver understanding of the child's behavior. Finally, home visitors may use a combination of these strategies to achieve desired outcomes. Given accumulating evidence regarding the efficacy of child-*focused* content, it is important to explore how home visitors engage with families around these topics and to whom they direct their attention during these exchanges (caregiver, child, or the dyad). It is important to note that in some instances, program models may dictate the ports of entry used by home visitors (Michalopoulos et al., 2019). For instance, while Nurse Family Partnership guides staff to introduce new skills through facilitating, modeling, and supporting interactions between caregivers and children, indicating that home visitors will work directly with the child for at least a portion of the visit, Parents as Teachers encourages home visitors to allow caregivers to lead activities by observing and providing

constructive feedback without directly participating in interactions, suggesting that the home visitor will interact primarily with the caregiver.

Measuring Visit Content

Although evidence suggests that child-*focused* content is associated with positive caregiver engagement, studies have not distinguished between caregiver-*directed* (i.e., discussions around child development and parenting) and child-*directed* content and behaviors within this construct (i.e., home visitor coaching v modeling). The proposed study will attempt to describe these differences. Due to the difficult and time-consuming nature of the task, interest in measuring home visit content has been limited (Peterson et al., 2018). The Home Visit Observation Form (HVOF; McBride & Peterson, 1996) offers the most comprehensive evaluation of home visit content and interactions to date and is used in the current study. Table 1 describes how items from the HOVF can be categorized to make the distinction between caregiver and child directed behaviors and caregiver and child focused content.

Table 1. Purpose of Home Visitor Behaviors and Visit Content by Recipient

	Directed Behaviors	Focused Content
<i>Caregiver</i>	Providing Information Asking for Information Listening Affirming Self-disclosing Coaching Interactions	Family Functioning Service Referral Family Health Basic Need Employment/Education
<i>Child</i>	Modeling for caregiver Direct Skill Instruction	Developmental Activity Developmental Info Child Health/Safety Parenting
<i>Triad</i>	Observing Interaction	Developmental Activity

This distinction allows for comparisons of caregiver and child directed behaviors and content and provides a first step in understanding the differential effects of these visit elements on caregiver engagement. Distinctions were made based on the intended recipient of the behavior or content. This differs slightly from the original conceptualization of the HVOF which categorized behaviors based on who was present during noted interactions.

Home Visitor Communication Strategies

Home visitor-family relationships are thought to be central to program engagement and participant outcomes (Korfmacher et al., 2007; Saïas et.al, 2016; Shanti, 2017); however, there has been little consensus around how to define healthy working relationships and which behaviors influence their development (Brookes et al., 2006). Despite the lack of home visiting specific research, it is possible to identify skills likely to influence home visitor-family interactions by drawing on literature from other helping professions. Two theories in particular, Social Exchange Theory and the Theory of the Working Alliance, are helpful in this regard. Both theories have been widely used to describe helping relationships and have been studied extensively in the medical and clinical psychology literature (Chalmers, 2003; Bordin, 1994; Roter, 1991). Here we will review literature drawing from these theories to propose a framework suggesting that home visitor communication skills can be described using two essential constructs, partnership building and emotionally responsive behaviors.

Evidence from Social Exchange Theory

Much of the evidence regarding how social exchange theory operates within professional-client relationships comes from the medical literature examining doctor-patient communication (Tates & Meeuwesen, 2001). Although it is important to acknowledge that

doctor-patient relationships differ from home visitor-family relationships in many aspects, including motivations for help seeking, level of familiarity, and expectations of participant roles, this literature serves as a useful guide for considering home visitor-family communication. Social exchange theory suggests that positive relationship development requires providing adequate information, offering joint decision-making opportunities, and giving appropriate social support. Congruent with these assumptions, empirical findings suggest that the use of patient centered communication strategies, such as conveying understanding and empathy, providing relevant information, and supporting the patient as a joint decision maker, is related to higher rates of patient satisfaction and compliance to treatment regimens (Charlton et al., 2008; Cramm & Nieboer, 2015; Pollack et al., 2011; White et.al, 2015; Zolenierek & Dimatteo, 2009). On a more affective level, patient reports of physician empathy and compassion are significantly correlated with treatment adherence and patient satisfaction, indicating that social support is also vital to doctor-patient relationships (O'Malley et al., 2002).

Like the home visiting literature, existing medical research focuses primarily on adult-*directed* interactions and is especially lacking in studies addressing physician communication with young pediatric patients. Even when focusing exclusively on pediatric visits, the unit of analysis is, by default, doctor-caregiver communication. In their review of doctor-parent-child triadic communication, Tates and Meeuwesen (2001) recognize this disparity stating, "it is surprising that the specific role of the child in medical conversation has not been considered a point of interest" (p. 839). Overall, the literature indicates that communication by pediatricians tends to be most effective when it addresses the parent and the child in a sensitive, informative, and collaborative manner (Levetown, 2008; Lindly et.al, 2017; Schor, 2003; Tates &

Meeuwesen, 2001). However, children generally continue to play marginal roles in medical conversations (Coyne & Gallagher, 2011). Although doctor's visits are highly structured and typically problem-driven compared to prevention-focused home visits (as well as shorter), this finding may have implications for the relationship between home visitor-child communication and caregiver engagement in visits. As caregivers tend to seek home visiting services for a variety of reasons (e.g., support for child health and development, parenting practices, or caregiver well-being), these motivations may influence caregivers' reactions to home visitors' direct interaction with the child. For instance, caregivers who enroll in home visiting programs for social and material supports may expect that the home visitor will spend little time directly interacting with their child, while a caregiver who is seeking a parenting role model may prefer that the home visitor interact with the child. Consequently, the caregivers' reasons for enrolling in home visiting should be also considered when assessing the influence of home visitor-child level interactions.

Evidence from the Working Alliance Literature

While, Social Exchange Theory addresses cognitive and behavioral components of relationship formation, it does not explore social-emotional elements which are detailed in the Working Alliance literature. The Working Alliance is a widely accepted relationship concept used extensively in medical and clinical therapeutic literature (Horvath & Bedi, 2002). Although therapeutic relationships differ in that they are clinical and not preventive, the process of alliance development provides a useful model for describing home visitor-family relationships. Within the framework, relationships, or alliances, are conceptualized as including three basic components: agreement on tasks (therapeutic activities), agreement on goals

(intended outcomes), and bonds (mutual trust, acceptance, and confidence). The framework emphasizes collaboration and consensus building within the context of a positive affective attachment. Studies of the adult population consistently indicate that the working alliance is one of the strongest predictors of participation, retention, and success in clinical treatment across disciplines (Marsh et al., 2012; Castonguay et al., 2006; Horvath & Bedi, 2002; Martin et al., 2000).

Child-therapist alliances have been studied less extensively (McLeod, 2011). Existing studies of school aged children have reported inconsistent results regarding the relationship between child-therapist alliances and treatment outcomes with some indicating positive correlations and others finding no effect (Kazdin & Durbin, 2012). There is little empirical evidence in the infant mental health or family therapy literature regarding relationship formation between therapists and young children. One reason for this discrepancy is that, like home visiting, therapies for young children typically include the caregiver as a co-participant, and the dyadic relationship is often viewed as the primary focus of services rather than the individual participants (Emde et al., 2000). Common treatment paradigms for this age group, including Parent-Child Interaction Therapy and Child-Parent Psychotherapy, are based on theoretical foundations that favor working with the child indirectly through the parent. In these models, the therapist's relationship with the child is secondary to their relationship with the parent and receives little empirical attention (Borrego & Urquiza, 1998; Emde et al., 2004; Tronick, 2003). This practice is reminiscent of some home visiting models in which home visitors coach caregivers through parent-child interactions by making observations and providing suggestions, while minimizing their own interactions with the child (Roggman et al., 2012). In this view,

acting as an observer/coach empowers the caregiver's sense of efficacy, while directly interacting with the child (such as directly instructing or modeling), may unintentionally lead to caregiver feelings of inadequacy and disengagement from services. This theory suggests that home visitors' direct interactions with children may have a negative effect on caregiver visit engagement. In short, the relative efficacy of direct interaction with caregivers versus children is an open empirical question that requires further investigation.

Partnering and Responding in Home Visiting

Recently, Korfmacher and colleagues (2019) have attempted to combine elements of both Social Exchange Theory and the Working Alliance to define and measure home visitor use of communication techniques. Their studies represent the only known attempt to systematically document home visitor use of these skills and their relationship to caregiver engagement. The group has used the Roter Interaction Analysis System (RIAS; Roter & Larson, 2002) to guide this effort. Drawing from both Social Exchange and Working Alliance literatures, the Roter Interaction Analysis System describes home visitor communication skills as converging around three primary constructs: task oriented, partnership building, and emotionally responsive speech. More recently, Korfmacher and colleagues (2019) proposed a distilled conceptualization of these constructs that coalesce around two overarching functions of social emotional communication: Partnering and Responding.

Partnership has been broadly conceptualized as a mutual effort to work towards common goals within a relationship and includes positive communication, shared responsibility, and joint decision-making (Blue-Banning et al., 2004). More specifically, the idea of partnership within the helping relationship is also derived from theories of empowerment and participatory practice

in which service providers allow their clients to exert control over decision-making processes (Braye & Preston-Shoot, 1995). Partnership behaviors are hypothesized to influence caregiver and child outcomes both directly, through new skill development, and indirectly through increased parental autonomy and self-efficacy (Landry et al., 2011). In turn, these positive changes allow caregivers to focus on child-rearing efforts that result in positive child-level outcomes (Trivette et al., 2010; Wasik & Bryant, 2001).

Responsiveness includes demonstrating a sense of understanding, validation, and concern towards the service recipient (Reis & Shaver, 1998; Canevello & Crocker, 2010). Use of these strategies is related to parent's feelings of empowerment and engagement in program services (Paulsell et al., 2010) and provides a positive model for responsive parenting behaviors. Home visitor responsiveness is hypothesized to influence parent and child outcomes both directly, through providing the caregiver and child with emotional support and modeling of responsive behaviors, and indirectly through increased parental well-being and willingness to engage in new skill learning.

Korfmacher, Sparr et al. (2019) suggest that partnership behaviors can be operationalized as: (1) soliciting information, (2) seeking consensus and shared understanding, and (3) collaborating and sharing decision-making power, while responsive behaviors can be operationalized as: (1) recognizing and affirming family accomplishments, (2) demonstrating emphatic understanding of and affective connection with the family, and (3) reassuring and responding to the emerging needs and concerns. The RIAS has been used extensively to measure these constructs as they apply to adult-adult interactions. It has not; however, traditionally been used to address interactions between a child and service provider. Thus, there is little

understanding of how home visitors negotiate their attention between conversational participants (caregiver or child) and how caregivers react to child-level interactions.

Child-Directed versus Adult Directed Communication

While preliminary evidence suggests that home visitors' use of *adult-directed* partnership and responsiveness behaviors influences caregiver engagement in home visits (Korfmacher, Sparr et al., 2019) there is no existing literature examining home visitors' use of these communication strategies with children. The little evidence that exists from the pediatric and child clinical literature suggests that relationships between children and adult helpers can serve important roles in intervention (Levetown, 2008; McLeod, 2011). However, it is important to recognize that while partnering and responding may be positive communication skills that benefit both adults and children, it is also possible that *child-directed* communication is more complex and may operate differently than adult-adult interactions (Shirk & Karver, 1992). For one, children do not possess the same agency as their adult caregivers. Home visitor-child communication likely influences the caregiver who often serves as the regulator, or at least the observer, of their child's interactions with other adults. In this way, home visitor-child communication cannot be separated definitively from the messages that caregivers, themselves, are receiving during these exchanges. Consequently, home visitor-child communication may serve several strategic objectives within the visit. Table 2 lists four possible strategies that may be in play during home visitor-child communication in order of increasing complexity.

Table 2. Purpose of Home Visitor Communication with the Child

Label	Definition	Reference
Social convention	Home visitor interacts with the child out of necessity or in response to the child's bid for attention	Wasik & Bryant (2001)
Message to caregiver	Home visitor speaks to or for the child, bringing the caregiver's attention to the child's cues or affirming the caregiver's efforts	(Carter et al., 1991)
Direct instruction	Home visitor interacts directly with the child to teach a skill or convey information	Roggman, Boyce et al., 2008
Modeling	Home visitor uses conversations or interactions with the child to model positive interactions for caregivers	Cook & Sparks, 2008)

Based on existing literature, this taxonomy represents a first attempt to clarify ways in which home visitors may choose to interact with children and the purposes these child-directed interactions may serve within the context of broader family goals.

Novel Model of Home Visiting Effectiveness

While home visiting programs are somewhat of a “catch-all” service with various eligibility criteria and intended outcomes, the vast majority of ECHV programs share the underlying assumption that working with caregivers to increase parenting skills and capacities will lead to positive outcomes for children (Sweet & Appelbaum, 2004). Figure 1 provides a generalized theory of change for home visiting programs. As depicted in the figure, home visiting outcomes are assumed to occur through several pathways: facilitating or coaching parent-child interactions, teaching parents developmentally appropriate expectations and parenting strategies, and supporting family functioning.

It is important to note that such a broad conceptualization of change does not specify the mechanisms through which home visitors teach content, model behaviors, or provide support. It also fails to recognize children as participants in, or recipients of, services.

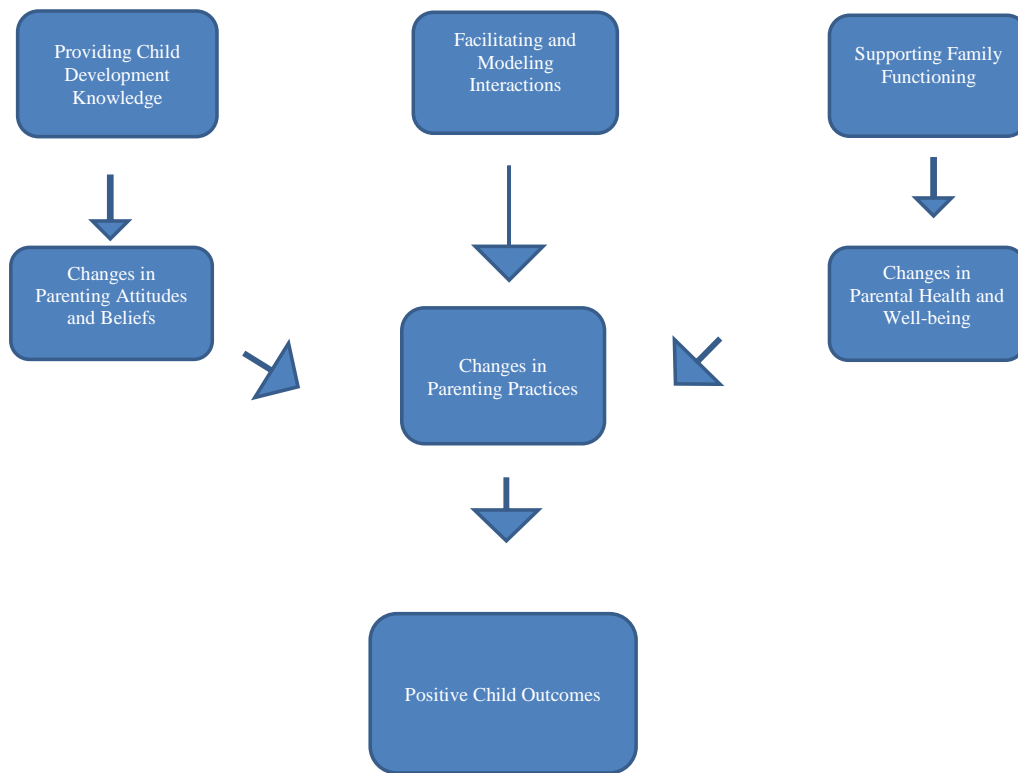


Figure 1. Generalized Home Visiting Theory of Change

The model shown in Figure 2 attempts to rectify this lack of specification by proposing a more nuanced framework. The model suggests that home visitor behavior is comprised of two core components: (1) content and activities, and (2) communication. Note that the model specifies the recipient of the home visitor's actions (child, caregiver, or dyad) as a key variable. Finally, based on previous literature indicating that home visiting outcomes vary based on participant characteristics and motivations for enrolling (Duggan et al., 2009; Filene et al., 2013; Korfmacher et al., 2008), the model recognizes potential moderating variables.

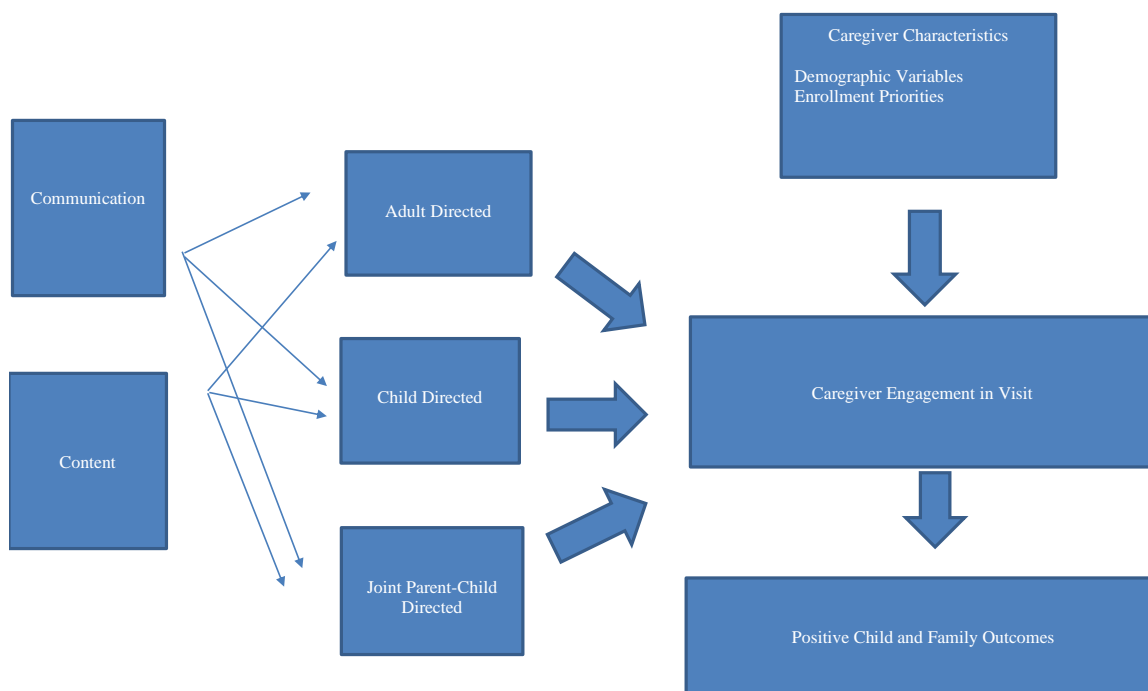


Figure 2. Proposed Home Visiting Theory of Change

CHAPTER THREE

METHODOLOGY

This study was a reanalysis of archival data collected during Phase 2 of the Home Visitor Communication Study, an observational study, funded by Heising Simons Foundation through Erikson Institute, Johns Hopkins University, and James Bell Associates. The following pages detail the original data collection as well as methodology employed during the reanalysis.

Study Questions

The study addressed the relationship between home visitor actions in observed home visits (focused content, directed behavior, and communication techniques) and caregiver engagement, caregiver visit behavior, and caregiver-child interaction quality. Specific study questions are outlined below.

1. What is the frequency of *child-directed* communication during home visits?

As noted, there is little in the available research literature on how frequently *child-directed* communication and content occurs in home visits, so the first question was descriptive.

2. Does home visitor content selection and communication predict caregiver engagement in visits?

Specifically:

2a. Does home visitor use of *child-focused* and *family-focused* content predict caregiver visit engagement?

- 2b. Does home visitor use of *child-directed* and *caregiver-directed* behaviors predict caregiver visit engagement?
- 2c. Does home visitors' use of emotionally responsive and partnership building communication techniques influence caregiver engagement in visits?
- 2d. Does the relationship between emotionally responsive and partnership building communication and caregiver engagement differ based on whether communication techniques are *child-directed* or *adult-directed*?

It was predicted that home visitor choice of content, behaviors, and communication strategies would influence engagement. Specifically, it was anticipated that *child-focused* content and *caregiver-directed* behaviors would be associated with higher ratings of engagement. It was also hypothesized that home visitor use of responsive and partnership building communication strategies would be related to more positive engagement scores regardless of whether they were *caregiver-directed* or *child-directed*.

3. Do home visitor content selection and communication techniques predict the observed quality of caregiver-child interactions in visits?

Specifically:

- 3a. Does home visitor use of *child-focused* and *caregiver-focused* content predict caregiver-child interactions during visits?
- 3b. Does home visitor use of *child-directed* and *adult-direct* behaviors predict the caregiver-child interactions during visits?
- 3c. Does home visitor use of partnership building and emotionally responsive communication techniques predict caregiver-child interactions during visits?

3d. Does the predictive relationship between emotionally responsive and partnership building communication caregiver-child interactions differ based on whether communication techniques are *child-directed* or *adult-directed*?

It was predicted that home visitor choice of content, behaviors, and communication strategies would influence caregiver-child interaction rating. Specifically, it was anticipated that *child-focused* content and *caregiver-directed* behaviors would be associated with higher ratings of interaction quality. It was also hypothesized that home visitor use of responsive and partnership building communication strategies would be related to more positive interaction scores regardless of whether they were *caregiver-directed* or *child-directed*.

4. Does home visitor content selection predict caregiver supportive behaviors in visits (i.e., – instructing, modeling for, and coaching their child)?

Specifically:

4a. Does home visitor use of *child-focused* and *caregiver-focused* content predict caregiver use of supportive behaviors during visits?

4b. Does home visitor use of *child-directed* and *adult-directed* behaviors predict caregiver use of supportive behaviors during visits?

It was predicated that home visitor choice of content, behaviors, and communication strategies would influence caregiver use of supportive behaviors with their children. Specifically, it was anticipated that *child-focused* content and *caregiver-directed* behaviors would be associated with more frequent use of supportive behaviors.

5. Does home visitor caregiver supportive use of responsive and partnership building communication techniques predict caregiver use of these techniques with the children during visits?

Specifically:

5a. Does home visitors' use of responsive communication techniques predict caregiver use of these techniques with their children?

5b. Does the predictive relationship between home visitor and caregiver use of responsiveness techniques differ based on whether they are *child-directed* or *adult-directed*?

5c. Does home visitors' use of partnership building communication techniques influence caregiver use of these techniques with their children?

5d. Does the predictive relationship between home visitor use and caregiver use of partnership building techniques differ based on whether they are *child-directed* or *adult-directed*?

It was predicted that home visitor use of both responsiveness and partnership building strategies would be associated with more frequent use of *child-directed* strategies by caregivers regardless of whether the home visitor was addressing the caregiver or the child when they employed strategies.

6. Do the relationships in study questions 2-5 differ based on the caregiver's reasons for seeking services?

It was hypothesized that caregivers' reasons for enrolling in home visiting might interact with the type of home visitor behavior (e.g., *child-directed*, *child-focused*) such that caregivers

who enrolled for child driven reasons may expect and react more positively towards child-*focused* content and/or child-*directed* behaviors than caregivers enrolling for reasons such as seeking social support or material services.

Study Design

The current study was reanalysis of an existing dataset, originally collected as part of a collaboration between the Johns Hopkins Bloomberg School of Public Health, Erikson Institute, and James Bell Associates. Phase 1 of the project identified existing measures of home visitor-caregiver communication. Phase 2 focused on observing communication strategies used during home visits and examining the relationship between the use of strategies and home visitor-caregiver alliance and caregiver visit engagement. Preliminary data analysis suggested that a meaningful portion of visit talk was child-*directed* and had not been addressed in previous coding attempts. To fill this gap, researchers did a second coding pass using the RIAS to code home visitor-child and caregiver-child talk. The current study analyzed data from this coding pass in addition to recoding the data once more using an additional measure of home visit content and activities.

Participants

Participants included a total of 53 home visitors (HVS) and 107 caregivers (CGS). HVS were recruited from 20 local home visiting programs across the U.S. Participating programs implemented seven different model curricula. Seven programs implemented Parents as Teachers, six Healthy Families America, two Early Head Start, two HIPPY, one Nurse Family Partnership, one Nurses for Newborns, and one PC Home. HIPPY observations were not used in the final sample, because visits did not include children and were highly scripted. HVS reported a mean

age of 40.4 years. Twenty-nine self-identified as white, 12 as Black, 11 as Hispanic, and one as a mix of Hispanic and American Indian. Three HVS had a high school diploma, 16 had completed some college, 29 had a bachelor's degree and five held a masters. HVS were trained in a variety of fields ranging from Child Development to Nursing. They reported an average of 5.5 years of experience working as home visitors with an average caseload of 17 families.

CGS were recruited into the study by their home visitors and had an average of two children and a reported mean age of 28 years. Four CGS did not report their race/ethnicity, while 72 reported one affiliation and thirty-one endorsed two or more racial/ethnic groups. Fifty-seven CGS self-identified as white, 33 as Black, 29 as Hispanic, five as American Indian, three as Asian, one as Pacific Islander, and 13 as other. Eighty-eight CGS reported speaking English at home, while 19 reported speaking Spanish. Twenty-one CGS reported not finishing high school, 40 had finished high school, 36 had completed some college, seven had a bachelor's degree and two had a master's degree. Forty-seven were single, 22 were cohabitating with a significant other, and 38 were married.

Measures

Rotter Interaction Analysis System Adapted (RIAS-HV)

The current study used this measure to examine *child-directed* communication in home visiting (by both the home visitor and the caregiver). The RIAS was initially developed to examine physician-patient communication and includes 38 mutually exclusive items chosen based on a meta-analysis of existing studies examining physician-patient communication (Roter et al., 1988). Individual utterances are coded and then aggregated into one of four broad communication goals (data gathering, education and counseling, partnership building and

responding to emotions). Each of the four categories is assigned a total score by summing individual items within that domain. Note that the current study focused on the partnering and responding categories and examined these categories as two separate predictors. The RIAS codes all talk such that the percentage of a speaker's utterances dedicated to each type of communication strategy is calculated. The measure has been used extensively in the medical literature and has demonstrated strong reliability and validity across studies (Roter & Larson, 2002). More recently it was adapted for use in home visiting and was used in the MIHOPE evaluation to describe home visitor-caregiver communication (RIAS-HV; Michalopoulos et al., 2019). The RIAS-HV is the version used in current analyses and is detailed in Appendix A.

Home Visit Observation Rating Scale (HOVRS)

The HOVRS is a quality rating scale that rates home visit behavior across seven domains. The first four examine home visiting practices in the following areas: (1) Relationship with family, (2) Responsiveness to family, (3) Facilitation of parent-child interaction, and (4) Non-intrusive collaboration. The final three scales are designed to assess the participants' response to home visitor practices: (5) Quality of parent-child interaction, (6) Parent visit engagement, and (7) Child visit engagement. Only Scales 5 and 6 (measuring parent-child interaction and parent engagement in visit) were included in the current study. For each scale, specific items are rated on a scale between one and seven based on global observations of the entire visit. The observer then assigns a scale score based on the pattern of scores from individual items. The HOVRS (see Appendix B) has been used reliably in numerous studies and the home visitor practice scales have shown good predictive validity (Roggman, et al., 2019; Roggman et al., 2016). To date, the predictive validity of the HVORS caregiver scales has not been published.

Home Visit Observation Form Revised (HVOF-Adapted)

The HVOF was developed to describe home visit content and processes (McBride & Peterson, 1996). Its coding system consists of four broad categories: (1) Participants present (e.g., mother, child, HV), (2) Interaction Partners (e.g., mother and HV), (3) Content (e.g., child development, family well-being), and (4) Home visitor behaviors (e.g., modeling, listening). Each category is divided into more discrete codes that were selected by the original authors based on existing home visiting literature and professional insight. Using an interval coding procedure, trained observers view visits in 30-second intervals and choose one code from each of the four main categories that best represents the segment overall. For intervals containing multiple interactions, the interaction with the longest duration is coded for the entire interval. The HOVF has been used successfully in previous studies reporting strong estimates of reliability and predictive validity (Hughes-Belding et al., 2019).

The original HVOF was created mainly to document interactions between home visitors and caregivers. For the purposes of the current study, two additional categories were added to address interactions with the child in consultation with one of the original authors (Dr. Peterson). The first addresses the purpose of caregiver interactions with the child (e.g., modeling, coaching) and the other addresses the purpose of home visitor interactions with the child (e.g., modeling, drawing attention to child cues). Given our primary interest in the effect of home visitor communication on caregiver behavior, the home visitor-child scale is conceptualized in terms of what the interaction conveys to the caregiver. For example, home visitor affirmation of the child's actions would be coded as "modeling" as it demonstrates positive communication that the caregiver may replicate with the child. Codes for these scales were based on the original HOVF

codes and relevant literature. It is also important to note that interactions with children tend to be quite brief. For this reason, the caregiver-child and home visitor-child categories were coded in 30 second intervals but behaviors were coded if they occurred during the interval rather than if they lasted most of the interval (i.e., the statement or action does not have to last at least 15 seconds to be coded). If more than one type of child-*directed* interaction was noted within an interval, coders were instructed to code the most complex interaction (e.g., code coaching before modeling and code modeling before response to social cue) Appendix C provides more detail about the specific HVOF codes.

Maternal Baseline Survey (MBS) and Home Visitor Post-Visit Survey (HVPS)

Home visitors and caregivers were asked to complete extensive baseline surveys before their first visit recording. Surveys were designed to elicit information about the home visitor-caregiver relationship, program emphasis, home visit content, home visitor and caregiver well-being, and basic demographics. The current study used selected items from the MBS and HVPS pertaining to gender, race/ethnicity, education level, and relationship status (items A1-5).

In addition, a portion of the MBS survey included a list of 14 common reasons for enrolling in home visiting services (MBS items B3a-n). Caregivers were instructed to rate each item on a 4-point scale ranging from not a reason for enrolling to an important reason for enrolling. Three of these items referred specifically to child-focused motivations: (1) have a healthy baby, (2) have my baby learn and develop good social emotional skills, and (3) manage child behavior. The remaining ten items were related to caregiver physical and mental health and family well-being. For the current study, the three child-focused items were aggregated to achieve a preference for child-focused content score. Home visitors also completed a short post-

visit survey designed to measure visit characteristics and perceptions of caregiver engagement. From this survey, a single item rated by home visitors of caregiver within-session engagement was selected (HVPS item 1), using a 5-point scale ranging from *not interested and engaged* to *very interested and engaged* (see Appendix D for surveys).

Procedure

Data Collection

Data for the current study was originally collected as part of a collaboration investigating home visitor communication with caregivers. Informed consent was obtained from home visitors who were then asked to choose two families from their caseload to participate in the study. Home visitors introduced the study to caregivers during a subsequent visit. If caregivers were interested in participating, the home visitor and caregiver contacted a member of the study staff who explained the project and asked caregivers to complete a signed consent form that study staff provided to the home visitor before the visit. The home visitors then video recorded two visits with each family using recording equipment provided by study staff. Home visitors were instructed to record what they considered typical visits for their model curriculum. Instructions/helpful hints for recording visits were provided. The second visit was filmed approximately one month after the first recording. A small number of home visitors and families dropped out of the study before the second visit. These participants were replaced so that a total of 200 visits were recorded. Three of these visits used the HIPPY model, so the final sample included 197 video recordings. One hundred-sixty-nine videos were recorded in English. Thirty-one were recorded in Spanish. Visits ranged from 20 to 90 minutes in length. Coders were instructed to stop coding after 60 minutes regardless of the actual visit length. In addition to visit

recordings, home visitors and caregivers completed baseline surveys, and home visitors completed post-visit surveys.

Original Coding

Videos were coded using the RIAS (Roter & Larsen, 2002) and HOVRS (Roggman et al., 2012) by trained staff. Bilingual coders were used to code Spanish videos, while monolingual coders were assigned English videos only. All coders attended a two-day training and established initial reliability before they began coding independently. Throughout the project, coders attended weekly reliability sessions to ensure that a minimum of 85% interrater reliability was maintained.

New Study Elements

The current study analyzed child-level RIAS data (i.e., home visitor-child and caregiver-child talk) to address child-*directed* communication and used an expanded version of the HVOF to explore the role of the child within the context of visit activities. Trained RIAS coders from the original study made a second pass adding codes for home visitor-child and caregiver-child utterances. Additionally, an author of the HVOF (Carla Peterson) provided a two-day training for the current author and a master's level research assistant from Erikson Institute on the use of the HVOF and remained available for consultation throughout the project. Dr Peterson reviewed and approved all additions to the HOVF that were included in the expanded instrument.

For both measures videos were scored by two coders individually until a minimum of 85% reliability was achieved. Thereafter, coders overlapped on 20% of videos and participated in weekly reliability meetings where they discussed any discrepancies in their scoring. This process helped to ensure that an acceptable level of reliability was maintained throughout the

project. Bi-lingual coders were used for all home visits delivered in Spanish.

Analysis Plan

Variables of Interest

The primary dependent variables for this study were: (i) caregiver visit engagement as measured both by the HOVRS and home visitor post-visit survey; (ii) parent-child interaction quality as measured by the HOVRS; and (iii) caregiver use of child-directed communication strategies and supportive behaviors as measured by the RIAS and HOVF respectively. The primary independent variables were home visitor behaviors: (i) communication strategies as measured by the RIAS; (ii) choice of content and purpose of activities as measured by the adapted HFOV; and (iii) caregiver desire for enrollment measured from the MBS. Caregiver and home visitor characteristics as measured by the MBS and HVBS were included as fixed effects covariates, including age, race/ethnicity, and education level. Table 3 summarizes the study variables.

Table 3. Study Variables

Construct	Purpose	Measure	Items	Unit of Measure
Home Visitor Use of Communication Strategies	IV	RIAS	Responsiveness & Partnership Items (to CG and to C)	Number strategies used per minute
Caregiver Use of Communication Strategies	DV	RIAS	Responding and Building Partnership Items	Number strategies used per minute
Home Visit Content	IV	HVOF	Content	% Intervals behavior present
Home Visitor Behaviors/Activities	IV	HVOF	HV Behavior with CG, HV Behavior with C	% Intervals behavior present
Caregiver Behaviors/Activities	DV	HVOF	CG Behavior with C	% Intervals behavior present
Caregiver-child Interaction Quality	DV	HOVRS	Parent-child Interaction Scale	Rating 1-7
Caregiver Engagement in Visit	DV	HOVRS	Parent Engagement Scale	Rating 1-7
		HVPVS	Survey Item	Rating 1-5
Caregiver Reasons for Enrolling	CoVar	MBS	Survey Items	Rating from “not a reason” to “very important reason”
Caregiver Demographic Variables	CoVar	MBS	Survey Items	Various
Home Visitor Demographic Variables	CoVar	HVBS	Survey Items	Various

Note: IV= independent variable, DV=dependent variable, CoVar=covariate

Data Structure

Due to the project’s sampling procedures, the data are nested in four levels, Level 1 (visit or observation, Level 2 (caregiver), Level 3 (home visitor), and Level 4 (program). This structure creates a set of observations that are dependent, or clustered. This dependence breaks the

assumption of independence which is integral to ordinary least squares regression (OLS). Use of traditional (OLS) regression analyses under these circumstances is likely to underestimate standard error and artificially inflate estimates of the effects of independent variables of interest. To address this issue, analyses were conducted using multilevel modeling, which allows for a more accurate estimation of the random effects of nesting on outcomes. The advantages of using this technique for multi-level data have been discussed by Bryk and Raudenbush (1992). Analyses were conducted using Hierarchical Linear Modeling, HLM 7 (Raudenbush et al., 2004). Visit outcomes were entered as Level 1 outcome variables, caregiver characteristics were entered as Level 2 predictor variables, and home visitor characteristics and behaviors were entered as Level 3 predictor variables. Sample size constraints prohibited the use of a 4 Level model; however, the effects of Level 4 (program) nesting were estimated by using program model, as a predictor at Level 3.

Analysis Plan

1. The first study question was addressed using descriptive statistics for the HVOF and RIAS to understand the child's role in home visit interactions. Next, the relationship between caregiver demographic variables and outcomes were evaluated. Significantly correlated variables were entered as covariates in subsequent models. In the interest of parsimony, demographic variables that did not share significant relationships with proposed outcomes were excluded from further analyses.
2. Study questions 2-5 were addressed using 3-level HLM models as described above.
3. The final study question was addressed by repeating the proposed analyses for study questions 2-5 adding an interaction term for caregiver reason for enrollment.

CHAPTER FOUR

RESULTS

Home Visit Content, Behaviors and Activities

Study Question 1 describes home visitor communication, content and activities as measured by the HVOF and RIAS.

Study Question 1. What is the frequency of child-*focused* content and child-*directed* communication during home visits?

The child's role in home visits was explored using descriptive statistics from the HVOF and RIAS. The HVOF was used to address content, activities and macro-level behaviors taking place during visits, while the RIAS was used to analyze the purpose of communicative utterances at a micro-level. The combination of these measures provided a detailed description of home visit interactions.

Visit Interactions and Content: HVOF

Analysis of HVOF data indicated that exchanges between the home visitor and the caregiver dominated visits (see Table 4). Triadic interactions during which the caregiver, child, and home visitor interacted constituted most of additional visit intervals. As expected, interactions including only the child were less frequent. In fact, in over half of the recorded visits neither the home visitor nor the caregiver interacted with the child in any capacity. This is due, in part, to the fact that in keeping with the original structure of the HVOF, if all three parties were present and attentive, interactions were coded as triadic regardless of whether the interaction was

adult or child directed. For example, if the home visitor and child were interacting and the caregiver was observing, the interaction was coded as triadic.

Table 4. Interaction Partners as Measured by HVOF

	Mean	SD	Range
Caregiver-Home Visitor	61.3	26.5	0-100
Triadic	30.9	24.0	0-94
Home Visitor-Other	3.7	13.1	0-93
Home Visitor-Child	2.1	6.8	0-74
Caregiver-Child	1.1	3.5	0-23
No Interaction	.9	2.3	0-18

Note. The dominant activity was coded for each 30 sec interval. N=197.

On average child-*focused* content dominated home visits (see Table 5). The largest portion of this time was dedicated to child activities including skill development and caregiver-child interactions. The remainder of child-*focused* content consisted of home visitor-caregiver discussions of child development, child health and safety, and parenting practices. Family-focused topics such as family functioning, basic needs, and referrals and procedural issues such as program administration or paperwork or general small talk comprised roughly equivalent portions of visits.

Table 5. Visit Content as Measured by HVOF-adapted

	Mean	SD	Range
Child Focused Content	68.6	17.0	21-96
Child Activity	32.9	24.4	0-85
Child Development	22.1	16.6	0-74
Child Health Safety	9.6	13.4	0-80
Parenting	4.0	7.2	0-43
Caregiver Focused	15.7	14.8	0-71
Family Functioning	6.0	7.5	0-44
Referral	3.4	5.6	0-38
Family Health	2.9	5.7	0-38
Basic Need	1.9	4.3	0-34
Employment/Ed	1.5	3.6	0-26
Other Content	15.7	14.9	0-49
General Conversation	5.6	7.3	0-44
Administrative/Paperwork	4.5	6.0	0-38
Orientation/Transition	4.7	6.9	0-25
No Content	.9	2.0	0-16

Note. The dominant activity was coded for each 30 sec interval. N=197.

Table 6 describes how home visitors divided their interactions between the caregiver, child, and dyad. Most home visitor behavior was caregiver-*directed*, followed by child-*directed* behavior, including direct instruction and modeling for the caregiver. The home visitor addressed the dyad to a lesser extent, while the smallest portion of intervals were not directed toward the caregiver or the child.

Table 6. Home Visitor Behavior by Recipient

	Mean	SD	Range
Caregiver Directed	57.4	24.6	3-100
Providing Information	26.3	16.0	0-81
Asking for Information	18.1	12.4	0-67
Listening	11.6	10.5	0-58
Self-disclosing	1.4	2.8	0-17
Affirming	.04	.03	0-3
Child Directed	18.4	15.7	0-66
Modeling for CG	15.1	15.8	0-64
Direct Instruction	3.3	5.6	0-30
Triad Directed	15.0	17.5	0-84
Observe CCI	10.1	13.2	0-74
Coach CCI	4.9	8.5	0-57
Other Directed	9.2	7.7	0-37
Paperwork	3.4	5.1	0-33
Transition	3.7	4.1	0-26
Engaging Other Family	.6	2.4	0-24
Making Small Talk	.6	2.4	0-16
No HV Behavior	.9	2.4	0-16

Note. The dominant activity was coded for each 30 sec interval. N=197

Table 7 describes a more nuanced measure of *child-directed* home visitor behavior, using the additional HVOF scales created for this study. To maximize our ability to capture these behaviors, items were coded if they **occurred** during an interval rather than if they **comprised most of** that interval (as is typically scored for the HVOF). This adapted coding structure allowed us to document brief instances of modeling and direct instruction that were not

represented in the home visitor behavior scale and to explore additional behaviors that tend to be brief communications rather than longer interactions (e.g., social convention). Using this more liberal coding system, we found that on average home visitors interacted with children in some capacity during approximately 42% of visit intervals. These interactions were most likely to serve as a model for the caregiver ($x=28.2\%$). The second most frequent reason for home visitor interaction with the child was to respond to a social convention – typically a bid for attention initiated by the child ($x=6.1\%$). On average, home visitors chose to provide direct skill instruction at some point during 3% of visit intervals and spoke to the child to alert the caregiver to a child’s cue during 2.6% of visit intervals. During the remainder of interactions, the home visitor attempted to affirm the caregiver’s efforts by speaking through the child ($x=.5\%$) or to orient the child to an activity ($x=1.5\%$).

Table 7. Home Visitor Behavior with Child

	Mean	SD	Range
Modeling for CG	28.2	20.7	0-80
Social Convention	6.1	6.5	0-37
Direct Instruction	3.0	5.6	0-38
Cueing Caregiver	2.6	3.8	0-27
Orient to Activity	1.5	3.4	0-18
Affirming Caregiver	0.5	1.1	0-9
No Interaction with Child	58.0	26.3	0-100

Note. Activity was coded if it occurred during a 30 sec interval regardless of duration. N=197,

Table 8 captures caregiver behavior with the child. Again, behaviors were noted if they occurred during a visit interval regardless of the duration of the interaction. Like previous patterns, over half of visit intervals did not involve an interaction between the caregiver and the

child ($x=51.7\%$). When the caregiver did engage the child, they were most likely to be coaching the child through a skill building activity ($x=12.9\%$) or providing information ($x=10.4\%$).

Almost 8% of visit intervals included the caregiver actively observing interactions between the home visitor and the child, while an additional 6% of visit intervals included direct instruction from the caregiver. The caregiver modeled skills for the child during approximately 3.5% of intervals, and the remainder of visit intervals were spent on a variety of relatively low frequency behaviors.

Table 8. Caregiver Behavior with Child

	Mean	SD	Range
Coaching Activity	12.9	14.7	0-73
Providing Information	10.4	11.1	0-49
Observing HVCI	7.5	9.6	0-43
Direct Instruction	6.1	9.8	0-47
Modeling Skill	3.5	6.9	0-40
Social Convention	3.1	5.5	0-27
Asking for Information	1.1	4.0	0-35
Trying to Engage Child	1.5	4.1	0-35
Listening	0.6	3.5	0-31
Affirming Child Efforts	1.0	1.8	0-9
No Interaction with Child	51.7	27.2	0-100

Note. Activity was coded if it occurred during a 30 sec interval regardless of duration. N=197.

Overall, the HVOF revealed that most visit interactions occur between adult participants, while *child-directed* interactions were less frequent. Further, content tends to be *child-focused* with less attention given to *caregiver-focused* topics. Child-focused content seems to be split somewhat equally between home visitor-caregiver discussions around child development and

child-*directed* activities. Home visitors interact directly with the child less frequently than with adult participants. When home visitors are engaged with the child, they are most likely to be modeling behaviors for the caregiver rather than providing direct instruction. Home visitor observation of caregiver-child interactions occurs relatively frequently, while active coaching of interactions (i.e., verbalizing suggestions, interpreting behaviors, or offering feedback) is employed to a much lesser extent. On the other hand, caregivers frequently coached children through activities but modeled actual behaviors less often.

Purpose of Communication: RIAS

RIAS data were collected for all communication partners and aggregated such that averages represent the percentage of all talk between two partners dedicated to each of five tasks: education/counseling, responding, partnership building, information gathering and procedural talk. Analyses revealed that the most frequent purpose of home visitor communication with caregivers was education/counseling ($x=42.8\%$). Responding to caregiver emotions and building partnerships were also frequent reasons for utterances, comprising 28.1% and 13.2% of home visitor talk respectively (see Table 9).

Table 9. Home Visitor to Caregiver Talk

	Mean	SD	Range
Education/Counseling	42.8	14.5	11.6-82.7
Responding	28.1	10.5	2.2-59.8
Partnership Building	13.2	6.8	0-31.6
Information Gathering	10.7	6.1	1.7-36.7
Procedural Talk	5.2	3.7	.3-22.7

Note. Every utterance was coded into one of the above categories. N=192.

Home visitors and caregivers spoke to children in similar ways for a variety of purposes (see Table 10). Overall talk to the child was most likely to be used as a means of responding to emotions or building partnerships. The only notable difference between home visitor and caregiver communication was that home visitors were more focused on soliciting information from children, while caregivers used more of their utterances to provide procedural information such as explaining an activity. This difference is unsurprising given the differing roles that home visitors and caregivers take within the visit.

Overall, RIAS data indicated that home visitors used conversational utterances to convey a variety of messages to both caregivers and children. While almost half of home visitor utterances to caregivers were used to educate or counsel, their utterances to children were more likely to be used to respond to emotions or build partnerships. On the other hand, caregiver utterances to their children were most likely to be procedural or responsive to emotions. It may be that while home visitors see their role with caregivers as being an educator and counselor, they recognized that caregivers should take this role with children and stepped back during these conversations.

Table 10. Adult to Child Talk

	Mean	SD	Range
Responding			
<i>HV to Child</i> ^a	25.4	10.4	0-71.4
<i>CG to Child</i> ^b	24.4	13.3	0-100
Partnership Building			
<i>HV to Child</i>	20.1	15.7	0-90
<i>CG to Child</i>	17.1	14.8	0-73
Information Gathering			
<i>HV to Child</i>	19.5	11.5	0-100
<i>CG to Child</i>	13.5	9.3	0-50
Education/Counseling			
<i>HV to Child</i>	18.5	11.2	0-57
<i>CG to Child</i>	18.8	14.1	0-100
Procedural Talk			
<i>HV to Child</i>	16.5	11.9	0-56.4
<i>CG to Child</i>	26.3	15.0	0-69.2

Note. Every utterance was coded into one of the above categories. N=187, b. N=186. 5 videos did not include any HV to child talk and 6 videos did not include any CG to child talk.

Study Questions 2-6: Predicting outcomes from home visitor communication, content, and activities.

The remaining hypotheses focus on how home visitor communication, content and activities predict caregiver engagement in visits, caregiver communication and activities with their child in the visit, and caregiver-child interaction quality. Note that all standard statistical assumptions for conducting HLM models were evaluated. Results indicated that all analyses conformed to standard assumptions. Detailed information can be found in Appendix E

Predicting Caregiver Engagement

Study Question 2 addresses how home visitor communication, content and activities predict caregiver engagement. The initial plan was to measure within-visit caregiver engagement using both the HVORS Caregiver Engagement Scale and the Home Visitor Post-Visit Rating (see Table 11).

Table 11. Descriptives for Engagement Measures

	Mean	SD	Range
HOVRS CG Engagement ^a	4.8	1.1	2-7
HV Rated CG Engagement ^b	4.4	.80	2-5

a. N=200 (1-7 scale), b. N=97 (1-5 scale)

Descriptive analyses for the single home visitor-rated item, however, revealed little variability and a strong positive skew (see Figure 3).

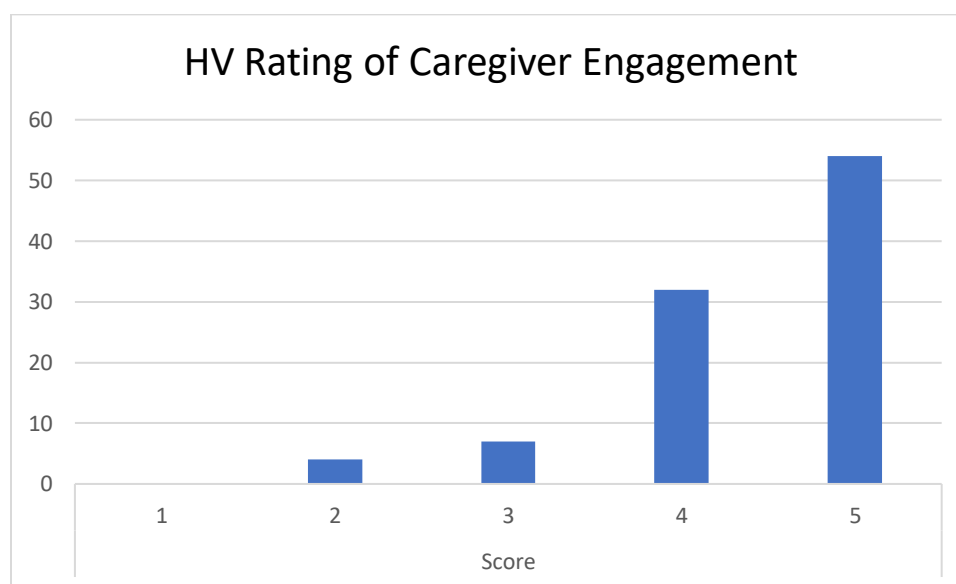


Figure 3. Distribution of Home Visitor Ratings of Caregiver Engagement

HVORS ratings of caregiver engagement showed more variability and a somewhat less skewed distribution, although still positively skewed (see Figure 4.). Additionally, HOVRS

engagement data were available for all recorded visits. Based on this information, the HOVRS Parent Engagement score was used as the sole measure of engagement for subsequent analyses. Average scores were in the good range (good=5) for with individual scores ranging from needs improvement (1-2) to excellent (6-7) (see Figure 4).

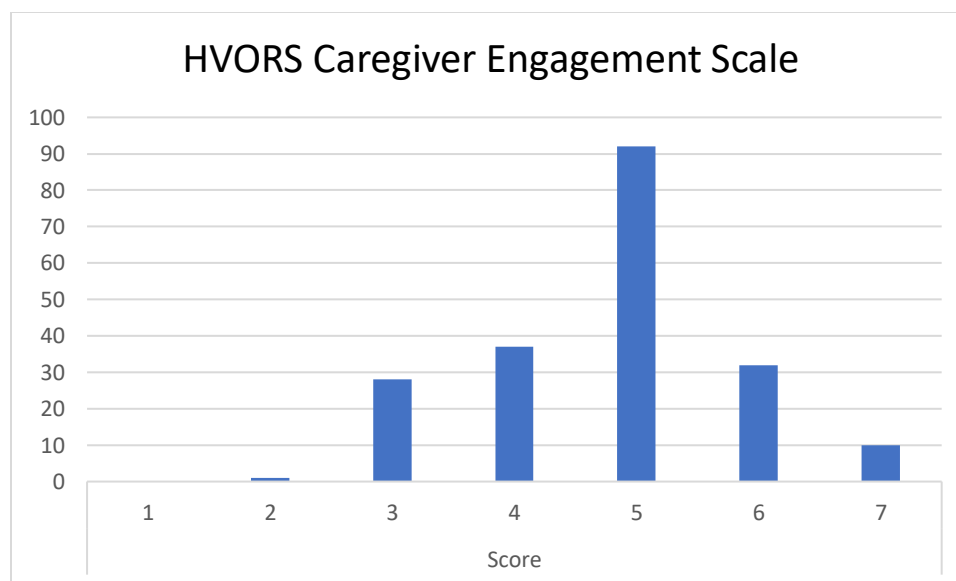


Figure 4. Distribution of HVORS Caregiver Engagement Scales

Relationships between Variables

Bivariate correlations were run to explore base relationships between dependent and independent variables (see Table 12). Several notable relationships emerged. First, caregiver and child-*focused* content were strongly and negatively correlated ($r = -.82, p < .01$), while caregiver-*directed* and child-*directed* behavior showed a moderate negative relationship ($r = -.61, p < .01$). This was to be expected as these variables represent proportions of time spent in visits activities that naturally compete with one another for “floor time.” Caregiver-*focused* content was also negatively related to caregiver child interaction quality ($r = -.2, p < .05$), and caregiver supportive behavior ($r = -.53, p < .01$), while child-*focused* content was positively related to these outcomes

($r=.30$, $p<.01$ and $r=.46$, $p<.01$ respectively). Caregiver-*directed* home visitor behaviors were strongly and negatively related to caregiver supportive behaviors ($r=-.80$, $p<.01$) but were positively related to caregiver use of responsive ($r=.17$, $p<.05$), and partnership building ($r=.35$, $p<.01$), statements with their children. On the other hand, child-*directed* home visitor behaviors were negatively related to caregiver engagement ($r=-.27^{**}$, $p<.01$), caregiver child interaction quality ($r=-.15$, $p<.05$), and caregiver use of positive communication strategies ($r_{\text{respond}} = -.16^*$, $p<.05$ and $r_{\text{partner}} = -.20^{**}$, $p<.01$). Conversely, child-*directed* behaviors were positively related to caregiver use of supportive behaviors with their children ($r=.51$, $p<.01$). Finally, home visitor use of both responsive and partnership building statements were positively related to caregiver use of corresponding statements with their children $r_{\text{respond}} = -.17^*$, $p<.05$ and $r_{\text{partner}} = -.58^{**}$, $p<.01$).

Table 12. Bivariate Correlations between Independent and Dependent Variables

Measure	1	2	3	4	5	6	7	8	9	10	11
1. Engagement	1										
2. CGCI	.61	1									
3. CG Support	-.93	.10	1								
4. CG Respon	.14	.09	-	1							
			.26**								
5. CG Partner		.27**	-	.06	1						
	.23**		.29**								
6. CG Focus	.05	-	-	.16*	.16*	1					
		.23**	.53**								
7. C Focus	.04	.30**	.46**	-.09	-.11	-.82*	1				
8. CG-directed	.12	-.28	-	.17*	.35**	.48**	-	1			
			.80**				.34**				
9. C-directed	-	-.15*	.51**	-	-	-	.19**	-	1		
	.27**			.16*	.20**	.22**		.61**			
10. HV Partner	.14	.11	-	.07	.58**	.11	-.10	.35**	-	1	
			.32**						.20**		
11. HV Respon	.03	-.17*	-.04	.17*	.05	.09	-.12	-.02	-.04	.03	1

*= p<.05, ** = p<.01

Study Question 2a: Does home visitor use of child-focused and family-focused content predict caregiver visit engagement?

This question was addressed using a 3-level HLM analysis with caregiver engagement as the outcome variable, home visitors' use of child-focused and family-focused content as predictors, and caregiver and home visitor background characteristics as covariates.

Model 1. This question was addressed using a 3-level HLM analysis using the background variables established in Question 2A as a base model:

$$CGENGAGE_{ij} = \gamma_{000} + \gamma_{010} * CGED_{ij} + \gamma_{020} * CGCHILDR_{ij} + r_{0ij} + u_{00j} + e_{i.j}$$

Summative totals for child and family-focused content were then entered as predictor variables.

Model 2: Both *child-focused* and *family-focused* content were used as predictors:

$$CGENGAGE_{ij} = \gamma_{000} + \gamma_{010} * CGRACE_{ij} + \gamma_{020} * CGED_{ij} + \gamma_{100} * CFCONTEN_{ij} + \gamma_{200} * FFCONTEN_{ij} + r_{0ij} + u_{00j} + e_{ij}.$$

The addition of these variables was a marginally significant improvement in overall model fit ($X^2=5.57$, $p=.06$) and predicted an additional 7.7% of variance in engagement scores beyond background demographics (Table 13). Contrary to previous findings by Peterson and Roggman (2019), both child focused ($\beta=1.5$; $p=.05$) and family focused ($\beta=2.1$; $p=.02$) content positively predicted caregiver engagement in visits.

Table 13. Predictability of Caregiver Engagement from Home Visit Content Focus

Fixed Effects	Model 1	Model 2
Intercept, γ_{000}	4.7850**	4.7850**
Caregiver Education	.2086**	.2169**
Caregiver # of Children	-.1589*	-.1514**
Child Focused Content		1.51*
Family Focused Content		2.09**
Random Effects		
Intercept 1, r_0	.1738**	.1604**
Level-1, e	.6136	.6068
Intercept2, u_{00}	.3163*	.0848
Deviance	450.18 (6)	444.60 (8)

N=183

Study Question 2b: Does home visitor use of *child-directed* and *caregiver-directed* behaviors predict caregiver visit engagement?

This question was addressed using a 3-level HLM analysis with caregiver engagement as the outcome variable, home visitors' use of *child-directed* and *caregiver-directed* content as

predictors, and caregiver and home visitor background characteristics as covariates.

Model 1: The same base model was used as a point of comparison:

$$CGENGAGE_{ij} = \gamma_{000} + \gamma_{010} * CGED_{ij} + \gamma_{020} * CGCHILDR_{ij} + r_{0ij} + u_{00j} + e_{i.j.}$$

Model 2: Summative totals for caregiver-*directed* and child-*directed* home visitor activities were then entered as predictors:

$$CGENGAGE_{ij} = \gamma_{000} + \gamma_{010} * CGED_{ij} + \gamma_{020} * CGCHILDR_{ij} + \gamma_{100} * CDIRBEHAV_{ij} + \gamma_{200} * CGDIRBEHAV_{ij} + r_{0ij} + u_{00j} + e_{ij}.$$

The addition of these variables resulted in a better model fit when compared to the standard model ($X^2=6.38$, $p=.04$) and accounted for an additional 4.5% of variance beyond control variables. Caregiver-*directed* behaviors did not predict caregiver engagement; however, child-*directed* ($\beta=-1.3$; $p<.01$) behaviors were associated with statistically significant decreases in caregiver engagement (see Table 14).

Table 14. Predictability of Caregiver Engagement from Caregiver and Child-directed Behaviors

Fixed Effects	Model 1	Model 2
Intercept, γ_{000}	4.7850**	4.787**
Caregiver Education	.2086**	.215**
Caregiver # of Children	-.1589*	-.122
Caregiver- <i>directed</i> HV Behaviors		.38
Child- <i>directed</i> HV behaviors		-1.28**
Random Effects		
Intercept 1, r_0	.1738**	.1660**
Level-1, e	.6136	.6020
Intercept2, u_{00}	.3163*	.0780
Deviance	450.18 (6)	443.78 (8)

N=183

To better understand the relationship between home visitor behaviors and caregiver engagement, of direct instruction, modeling and coaching were entered as predictor variables in an additional set of analyses.

Model 1: The established base model for caregiver engagement was used as the null:

$$CGENGAGE_{ij} = \gamma_{000} + \gamma_{010} * CGED_{ij} + \gamma_{020} * CGCHILDR_{ij} + r_{0ij} + u_{00j} + e_{ij}.$$

Model 2: Home visitor modeling, coaching and direct instruction were added to the model as predictors:

$$CGENGAGE_{ij} = \gamma_{000} + \gamma_{010} * CGED_{ij} + \gamma_{020} * CGCHILDR_{ij} + \gamma_{100} * HVDIRECT_{ij} + \gamma_{200} * HVMODEL_{ij} + \gamma_{300} * HVCOACH_{ij} + r_{0ij} + u_{00j} + e_{ij}.$$

The addition of these predictors led to a significant increase in model fit ($X^2=8.58$, $p=.03$). Hypothesized predictors accounted for an additional 5.8% of variance. Direct instruction (a child-directed HV behavior) was not significantly related to caregiver engagement. Home visitor modeling, also child-directed ($\beta=-1.2$; $p<.05$) was significantly associated with *decreases* in caregiver engagement, while the triadic activity coaching ($\beta=1.3$; $p<.05$) was positively related to caregiver engagement. This finding is aligned with previous reports by Roggman et al. (2016), suggesting that interactions between the caregiver and child are more engaging to adult participants than home visitors' direct interactions with children. The addition of more specific home visitor behaviors with children such as cueing and affirming the caregiver were not significant predictors of engagement (see Table 15).

Table 15. Predictability of Caregiver Engagement from Home Visitors' Child-focused Behaviors

Fixed Effects	Model 2	Model 3
Intercept, γ_{000}	4.7850**	4.786**
Caregiver Education	.2086**	.2133**
Caregiver # of Children	-.1589*	-.1408*
Direct Instruction		-1.521
Modeling		-1.193*
Coaching		1.317*
Random Effects		
Intercept 1, r_0	.1738**	.1638**
Level-1, e	.6136	.6220
Intercept2, u_{00}	.1001*	.0377
Deviance	450.18 (6)	441.60 (9)

N=183

Study Question 2c: Does home visitors' use of emotionally responsive and partnership building communication techniques predict caregiver engagement in visits?

This question was addressed using a 3-level HLM analysis with caregiver engagement as the outcome variable, home visitors' use of responsive and partnership building statements as predictors and caregiver and home visitor background characteristics as covariates.

Model 1. The null model for caregiver engagement was:

$$CGENGAGE_{ij} = \gamma_{000} + r_{0ij} + u_{00j} + e_{ij}$$

Examination of this model indicated significant variation at level 1 that could be attributed to level 2 variables (ICC=.27) and significant variation at level 2 could be attributed to level 3 variables (ICC=.20). These estimates confirmed the necessity of considering the nested

nature of the data at both levels 2 and 3 when analyzing relationships among variables. As such, a 3-level model was retained for subsequent analyses.

Model 2. A second model was run to explore the influence of caregiver level predictors on engagement:

$$CGENGAGE_{ij} = \gamma_{000} + \gamma_{010} * AGE_{CG_{ij}} + \gamma_{020} * CGRACE_{ij} + \gamma_{030} * CGED_{ij} \\ + \gamma_{040} * CGCHILDR_{ij} + r_{0ij} + u_{00j} + e_{ij}.$$

This model was a significant improvement from the null model ($X^2=13.59$, $p<.01$); however, caregiver age and race were not significant predictors; consequently, only caregiver education and number of children were retained for additional models.

Model 3. A third model was run adding home visitor level predictors to the existing model:

$$CGENGAGE_{ij} = \gamma_{000} + \gamma_{001} * HVRACE_j + \gamma_{002} * HVED_j + \gamma_{003} * HVEXPERI_j \\ + \gamma_{004} * HVCASEOL_j + \gamma_{010} * CGED_{ij} + \gamma_{020} * CGCHILDR_{ij} + \gamma_{030} * MODEL + r_{0ij} + u_{00j} + e_{ij}.$$

This model did not result in overall model improvement ($X^2=6.15$, $p=.29$) and none of the individual predictors were significantly related to the outcome variable. Thus, home visitor race, education, experience and case load were not retained in the model.

Model 4. To test the effects of home visitor's overall use of positive communication techniques on caregiver visit engagement, Total RIAS scores for responsiveness and partnership were entered as predictors. The final model was: $CGENGAGE_{ij} =$

$$\gamma_{000} + \gamma_{010} * CGED_{ij} + \gamma_{020} * CGCHILDR_{ij} + \gamma_{100} * HVRESPON_{ij} \\ + \gamma_{200} * HVPARTTO_{ij} + r_{0ij} + u_{00j} + e_{i.j}.$$

The addition of these variables resulted in a significantly better fit than previous models ($X^2=8.02$, $p=.03$). Collectively, responsiveness and partnership building techniques accounted for an additional 9.2% of unexplained variance; however, neither of the predictor variables alone predicted caregiver engagement (see Table 16).

Table 16. Predictability of Caregiver Engagement from RIAS

Fixed Effects	Model 1 (Null)	Model 2	Model 4
Intercept, Y_{000}	4.79**	4.78**	4.77**
Caregiver Education		.21**	.20**
Caregiver # of Children		-.16*	-.15
Responsiveness RIAS			.0003
Partnership RIAS			.0007
Random Effects			
Intercept 1, r_0	.22 59*	.1738**	.1577**
Level-1, e	.6160	.6136	.6174
Intercept2, u_{00}	.1499*	.1007*	.1112*
Deviance	463.77 (4)	450.18 (6)	442.15(8)

N=183. Model 3 parameters were non-significant and are not reported here.

Study Question 2d. Does the influence of emotionally responsive and partnership building communication on caregiver engagement differ based on whether communication techniques are child-directed or adult-directed?

This question was addressed using a 3-level HLM analysis with caregiver engagement as the outcome variable, home visitors' use of responsive and partnership building statements as predictors and caregiver and home visitor background characteristics as covariates.

Although the combination of HV total use of responsiveness and partnership building

behaviors significantly predicted caregiver engagement (see Table 15), subsequent HLM analyses revealed no individual effects of HV use of either of these communication strategies on caregiver engagement regardless of whether they were caregiver-*directed* or child-*directed* statements (see Tables 17 & 18).

Table 17. Predictability of Caregiver Engagement from Caregiver-directed and Child-directed Responsiveness Behaviors

Fixed Effects	Model 1 (Null)	Model 2	Model 3
Intercept, Y_{000}	4.79**	4.78**	4.78**
Caregiver Education		.21**	.20**
Caregiver # of Children		-.16*	-.14
CG- <i>directed</i> Responsiveness			-.0001
Child- <i>directed</i> Responsiveness			.0047
<hr/>			
Random Effects			
Intercept 1, r_0	.2259*	.1738**	.1793**
Level-1, e	.6160	.6136	.6209
Intercept2, u_{00}	.1499*	.1007*	.0950
Deviance	463.77 (4)	450.18 (6)	444.05(8)

N=183

Table 18. Predictability of Caregiver Engagement from Caregiver-directed and Child-directed Partnership Behaviors

Fixed Effects	Model 1 (Null)	Model 2	Model 3
Intercept, Y_{000}	4.79**	4.78**	4.78**
Caregiver Education		.21**	.20**
Caregiver # of Children		-.16*	-.14
CG-directed Partnership			.0003
Child-directed Partnership			.0008
Random Effects			
Intercept 1, r_0	.2259*	.1738**	.1631**
Level-1, e	.6160	.6136	.6130
Intercept2, u_{00}	.1499*	.1007*	.1076**
Deviance	463.77 (4)	450.18 (6)	444.18(8)

N=183

Predicting Parent-Child Interaction

Study Question 3 addresses how home visitor communication, content and activities predict parent-child interaction as assessed by the HOVRS during visits (see Table 19). Average HOVRS interaction scores were in the good range (good=5), with individual scores ranging from needs improvement (2) to excellent (6-7). Scores were positively skewed (see Figure 5).

Table 19. Descriptives for Caregiver-Child Interaction Quality

	Mean	SD	Range
HVORS Interaction Qual	4.4	1.1	2-7

N=185 (1-7 scale)

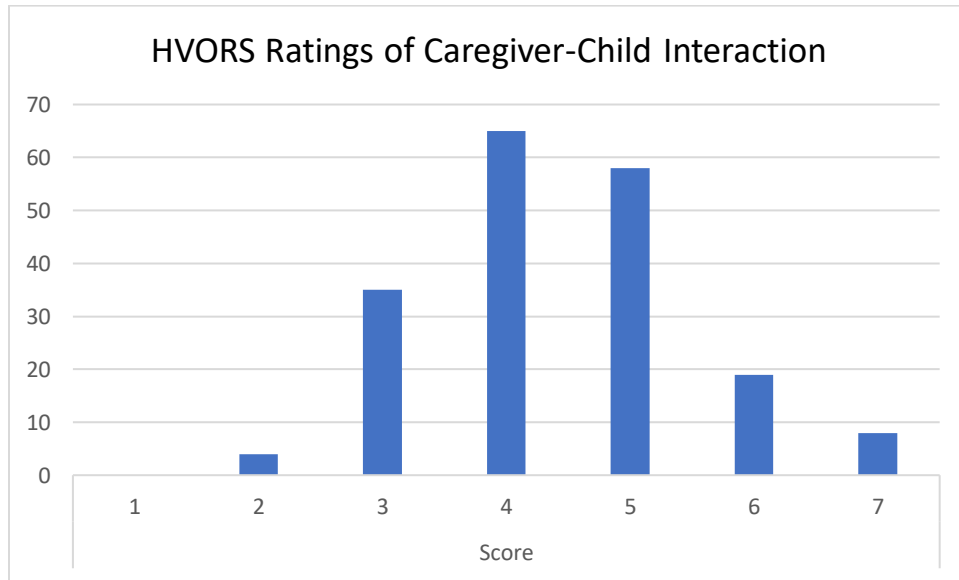


Figure 5. Distribution of Caregiver-Child Interaction Scores

Study Question 3a. Does home visitor use of *child-focused* and *family-focused* content predict caregiver-child interactions during visits?

This question was addressed using a 3-level HLM analysis with caregiver-child interaction quality as the outcome variable, home visitors' use of *child-focused* and caregiver-*focused* behaviors as predictors and caregiver and home visitor background characteristics as covariates.

Model 1. The baseline model established in study question 4a was used to address this question: $PCI_{ij} = \gamma_{000} + \gamma_{010} * CGCHILDR_{ij} + \gamma_{001} * HVRACE_j + \gamma_{003} * r_{0ij} + u_{00j} + e_{ij}$.

Model 2. *Child-focused* and caregiver-*focused* content were entered to explore the effects of home visitor communication techniques on caregiver-child interactions:

$$PCI_{ij} = \gamma_{000} + \gamma_{001} * HVRACE_j + \gamma_{020} * CGCHILDR_{ij} + \gamma_{100} * CFCONTEN_{ij} + \gamma_{200} * FFCONTEN_{ij} + r_{0ij} + u_{00j} + e_{ij}$$

The addition of these predictors led to an overall increase in model fit ($X^2=8.12$, $p=.02$). Caregiver-*focused* content was negatively related to PCI scores, while child-*focused* content was positively related to PCI; however, neither of these predictors contributed significantly to the model (see Table 20).

Table 20. Predictability of Caregiver-Child Interaction Quality from Content Focus

Fixed Effects	Model 1	Model 2
Intercept, γ_{000}	4.43**	4.28**
Caregiver Race		
Caregiver # Children	-.23*	.022**
HV Race	.17*	.15**
Caregiver- <i>focused</i> Content		-.35
Child- <i>focused</i> Content		1.10
Random Effects		
Intercept 1, r_0	.23**	.15**
Level-1, e	.69	.72
Intercept2, u_{00}	.002	.0000
Deviance	443.39(6)	435.27(8)

N=164

Study Question 3b: Does home visitor use of child-*directed* and adult-*direct* behaviors influence the caregiver-child interactions during visits

This question was addressed using a 3-level HLM analysis with caregiver-child interaction quality as the outcome variable, home visitors' use of child-*directed* and caregiver-*directed* behaviors as predictors and caregiver and home visitor background characteristics as covariates.

Model 1. The established baseline model for PCI was used as the null:

$$PCI_{ij} = \gamma_{000} + \gamma_{001} * HVRACE_j + \gamma_{010} * CGCHILDR_{ij} + r_{0ij} + u_{00j} + e_{ij}.$$

Model 2. Caregiver-*directed* and child-*directed* home visitor behaviors were entered into the model: $PCI_{ij} = \gamma_{000} + \gamma_{001} * HVRACE_j + \gamma_{010} * CGCHILDR_{ij} + \gamma_{100} * CDIRBEHA_{ij} + \gamma_{200} * CGDBEHAV_{ij} + r_{0ij} + u_{00j} + e_{ij}$.

The addition of these predictors resulted in a non-significant increase in fit from the base model. Examination of predictors revealed that neither caregiver-*directed* behaviors nor child-*directed* home visitor behaviors were significantly related to PCI scores (see Table 21).

Table 21. Predictability of Caregiver Child Interaction Quality from Child and Caregiver Directed Home Visitor Behavior

Fixed Effects	Model 1	Model 2
Intercept, γ_{000}	4.43**	4.43**
CG # Children	-.23*	-.28*
HV Race	.15**	.15**
Child- <i>directed</i> HV Behavior		-.25
Caregiver- <i>directed</i> HV Behavior		-.36
Random Effects		
Intercept 1, r_0	.23**	.18**
Level-1, e	.69	.69
Intercept2, u_{00}	.002	.000
Deviance	443.39(6)	436.37(9)
N=164		

To better understand these results, the impact of specific home visitor behaviors was explored.

Model 1. The established baseline model for PCI was used as the initial model:

$$PCI_{ij} = \gamma_{000} + \gamma_{001} * HVRACE_j + \gamma_{010} * CGCHILDR_{ij} + r_{0ij} + u_{00j} + e_{ij}$$

Model 2. Home visitor modeling, coaching and direct instruction were added to the model:

$$PCI_{ij} = \gamma_{000} + \gamma_{001} * HVRACE_j + \gamma_{010} * CGCHILDR_{ij} + \gamma_{100} * HVDIRECT_{ij} + \gamma_{200} * HVMODELP_{ij} + \gamma_{300} * HVCOACHP_{ij} + r_{0ij} + u_{00j} + e_{ij}.$$

This analysis led to a marginally significant increase in model fit over the base model ($X^2=7.02$, $p=.07$) and accounted for an additional 2% of variance in initial PCI scores. Examination of individual contributions to the model revealed that coaching ($\beta=2.08$, $p=.04$) was positively related to the observed quality of caregiver-child interactions during visits. Modeling and direct instruction were not significantly related to PCI scores.

Model 3. The addition of more specific home visitor-child interactions including cueing and affirming the caregiver through the child did not significantly impact the model. Home visitors' use of social conventions was a marginally significant predictor ($\beta=2.17$, $p=.06$) (see Table 22).

Table 22. Predictability of Caregiver-Child Interaction Quality from Visitor Behavior

Fixed Effects	Model 1	Model 2
Intercept, γ_{000}	4.43**	4.34**
CG # Children	-.23*	-.22*
HV Race	.15**	.13**
HV Direct Instruction		1.8
HV Modeling		-.48
HV Coaching		2.08*
Random Effects		
Intercept 1, r_0	.23**	.18**
Level-1, e	.69	.69
Intercept2, u_{00}	.002	.000
Deviance	443.39(6)	436.37(9)

N=164

Study Question 3c. Does home visitor use of partnership building and emotionally responsive communication techniques predict caregiver-child interactions during visits?

This question was addressed using a 3-level HLM analysis with caregiver-child interaction quality as the outcome variable, home visitors' use of responsive and partnership building statements as predictors and caregiver and home visitor background characteristics as covariates.

Model 1. $PCI_{ij} = \gamma_{000} + r_{0ij} + u_{00j} + e_{ij}$ served as the null model

Examination of the null model revealed significant variation at level 1 that could be attributed to level-2 (ICC=.31) however, estimates of variation at level three were non-significant ($X^2=60.48, p=.09$) and yielded an ICC of only .012. These observations indicated that a 2-level model was sufficient for these data; however, a 3-level model was retained to honor the significant nesting in the model design and to retain consistency across study analyses.

Model 2. Caregiver background characteristics were then added to the model:

$$PCI_{ij} = \gamma_{000} + \gamma_{010} * CGAGE_{ij} + \gamma_{020} * CGRACE_{ij} + \gamma_{030} * CGED_i + \gamma_{040} * CGCHILDR_{ij} \\ + r_{0ij} + u_{00j} + e_{ij}$$

The addition of caregiver level predictors collectively yielded a significant increase in model fit ($X^2=11.88$, $p<.01$); however, only caregiver race and number of children contributed to the model and were retained.

Model 3. Next, home visitor background characteristics were added to the model:

$$PCI_{ij} = \gamma_{000} + \gamma_{010} * CGRACE_j + \gamma_{020} * CGCHILDR_{ij} + \gamma_{100} * CFCONTEN_{ij} + \gamma_{200} * FFCONTEN_{ii} \\ + \gamma_{001} * MODEL_j + \gamma_{002} * HVRACE_j + \gamma_{003} * HVED_j + \gamma_{004} * HVEXPERI_j + \\ \gamma_{005} * HVCASELO_j + r_{0ij} + u_{00j} + e_{ij}.$$

The addition of program model and home visitor background characteristics did not increase the model fit compared to the previous model; however, home visitor race was a significant predictor of interaction quality and was added to subsequent models. Additionally, caregiver race fell to non-significance after home visitor characteristics were considered and was removed from subsequent models.

Model 4. Partnership and responsiveness techniques were entered as predictors.

$$PCI_{ij} = \gamma_{000} + \gamma_{001} * HVRACE_j + \gamma_{020} * CGCHILDR_{ij} + \gamma_{100} * HVPartership_{ij} + \gamma_{200} * HVResponsiven \\ ess_{ii} + r_{0ij} + u_{00j} + e_{ij}.$$

The addition of home visitor communication techniques did not result in a significant model improvement, and neither predictor was significant (see Tables 23 and 24).

Table 23. Predictability Caregiver-Child Interaction Quality Home Visitor Partnership Statements

Fixed Effects	Model 1 (Null)	Model 2	Model 3	Model 4
Intercept, Y_{000}	4.43**	4.43**	4.43**	4.28**
Caregiver Race		.12*		
Caregiver # Children		-.18*	-.23*	-.022**
HV Race			.17*	.15**
HV Partnership w CG				-.018
HV Partnership w Child				.008
Random Effects				
Intercept 1, r_0	.31**	.29**	.23**	.17**
Level-1, e	.69	.69	.69	.73
Intercept2, u_{00}	.1	.002	.002	.000
Deviance	462.22 (4)	450.33(6)	443.39(6)	438.85(8)

N=164

Table 24. Predictability of Caregiver Child Interaction Quality from Home Visitor Responsive Statements

Fixed Effects	Model 1 (Null)	Model 2	Model 3	Model 4
Intercept, Y_{000}	4.43**	4.43**	4.43**	4.28**
Caregiver Race		.12*		
Caregiver # Children		-.18*	-.23*	-.023**
HV Race			.17*	.14**
HV Responsiveness w CG				.003
HV Responsiveness w Child				-.008
Random Effects				
Intercept 1, r_0	.31**	.29**	.23**	.17**
Level-1, e	.69	.69	.69	.73
Intercept2, u_{00}	.1	.002	.002	.0000
Deviance	462.22 (4)	450.33(6)	443.39(6)	438.01(8)

N=164

3d) Does the relationship between emotionally responsive and partnership building communication on caregiver-child interactions during visits differ based on whether communication strategies are child-directed or adult-directed?

Because analyses for study question 3c indicated that use of communication strategies are not related to ratings of caregiver-child interaction quality, further analyses were not explored for this question.

Predicting Caregiver Supportive Behaviors

Study Question 4 addresses how home visitor communication, content and activities predict the caregiver's use of supportive behaviors toward the child as measured by the revised

HVOF. A summary variable was created by combining caregiver direct instruction, modeling, and coaching (see Table 25).

Table 25. Descriptives for Caregiver Supportive Behaviors

	Mean	SD	Range
Caregiver Support Behavior	23.3	21.5	0-91

N=189

The distribution of caregiver behaviors was negatively skewed with the modal score of zero and a large standard deviation (see Figure 6).

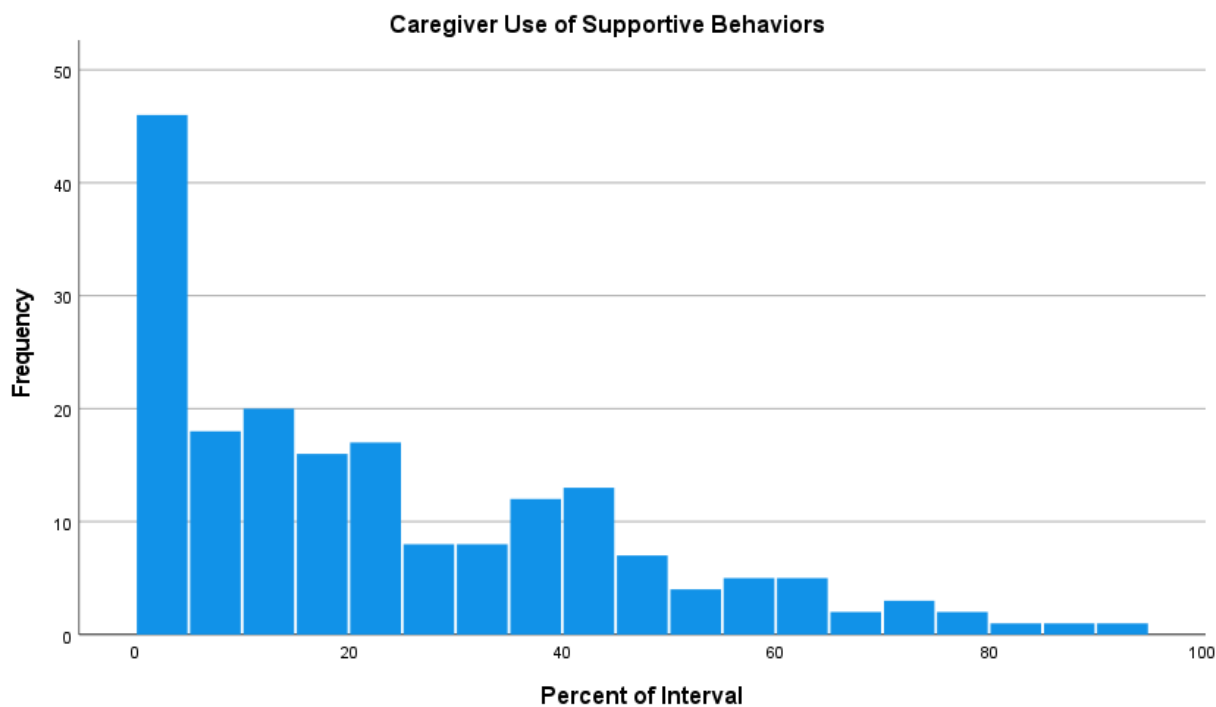


Figure 6. Distribution of Caregiver Supportive Behaviors

Study Questions 4a & 4b Does home visitor use of child-focused and caregiver-focused content predict caregiver use of supportive behaviors, during visits? Does home visitor use of child-directed and caregiver-directed content influence caregiver use of supportive behaviors, during visits?

These study questions could not be addressed using HLM due to restricted variation in the outcome variable. Use of ordinary least squares regression indicated that caregiver age ($B=.19$, $p=.02$) and home visitor caseload size ($B=-.29$; $p<.01$) significantly predicted in-visit caregiver use of coaching and modeling with their children. These variables were used as covariates in subsequent analyses. Inclusion of caregiver-*focused* and child-*focused* visit content after controlling for these variables indicated that child-*focused* content significantly predicted supportive caregiver behavior with their children (see Table 26). Caregiver-*focused* content did not predict caregiver behavior. Further investigation indicated that both child-*directed* and caregiver-*directed* home visitor behaviors negatively predicted supportive caregiver behaviors with their children. Finally, examining the predictive nature of individual child-*directed* behaviors revealed that both home visitor modeling and coaching were positively related to supportive caregiver behaviors during visits, while direct instruction by the home visitor was negatively, but not significantly, related to caregiver use of these behaviors. Results of these analyses should be interpreted with caution given large variability and inherent nesting of the outcome variable that was not accounted for by OLS regression analyses.

Table 26. Influence of Visit Content and HV Behavior on Caregiver Supportive Behaviors with Children

Fixed Effects	Regression 1	Regression 2	Regression 3	Regression 4
Constant	.14*	.14*	.19 **	-.01
CG Age	.17**	.17*	.11 *	.20**
HV Caseload	-.27**	-.27**	-.11*	-.3**
Child Focused Content		.32*		
Family Focused Content		-.09		
Child Directed HV			-.17**	
Caregiver Directed HV			-.81**	
HV Direct Instruct				-.44
HV Modeling				.33**
HV Coaching				.52**
Adjusted R-Square	.10**	.24**	.55**	.46**

N=183

Predicting Caregiver Supportive Language

Study Question 5 address how home visitor communication, content and activities predict caregiver use of responsive and partnership building communication strategies as assessed by the RIAS. Descriptives for these caregiver communication variables are reported on Table 10 on page 46. As depicted on Figures 7 and 8 caregiver use of both responsiveness and partnership behaviors were relatively infrequent and had a strong negative skew.

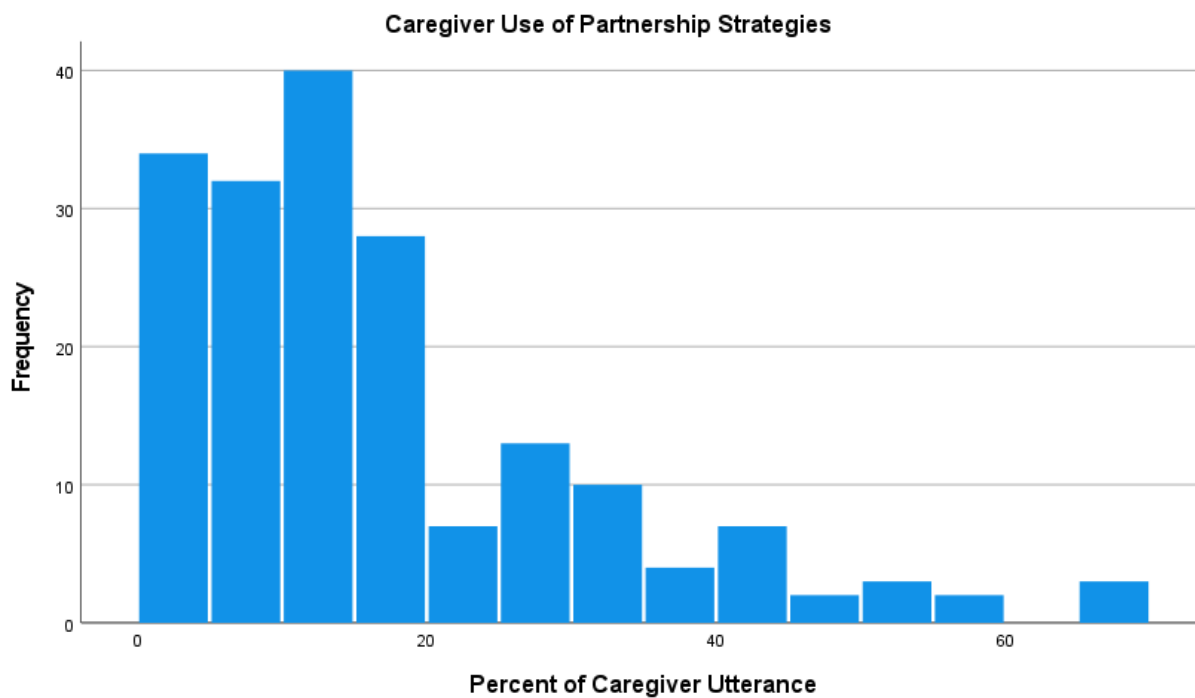


Figure 7. Caregiver Use of Child-directed Partnership Techniques

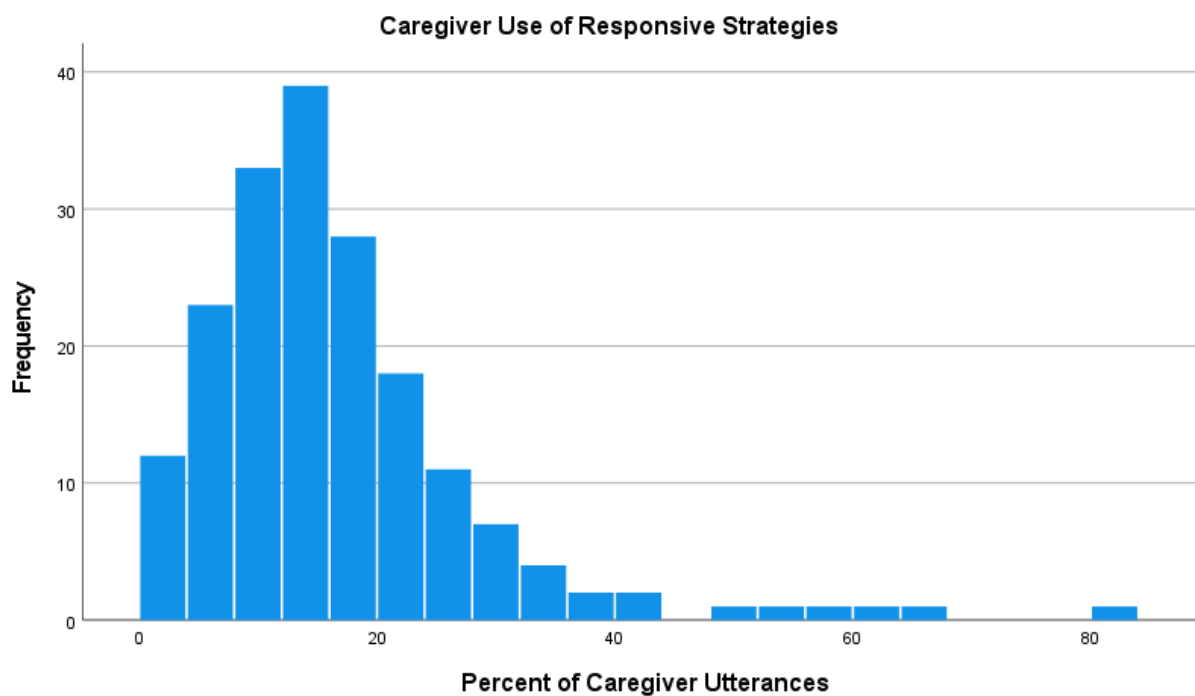


Figure 8. Caregiver Use of Child-directed Responsive Techniques

Study Question 5a. Does home visitors' use of responsive communication techniques predict caregiver use of these techniques with their children?

This question was addressed using a 3-level HLM analysis with caregiver use of responsiveness techniques as the outcome, home visitors' total use of responsiveness strategies as the predictor variable, and caregiver and home visitor background characteristics as covariates.

Model 1. $RESPOND_{CG_{ij}} = \gamma_{000} + r_{0ij} + u_{00j} + e_{tij}$ served as the null model for caregiver use of responsive communication techniques.

Examination of the model indicated that there was significant variance at level 1 that could be attributed to level 2 variation (ICC=.54); however, estimates of variation at level three were non-significant ($X^2=48.09$, $p=.428$) and yielded an ICC of only .011. These observations indicated that a 2-level model was sufficient for these data; however, a 3-level model was retained to honor the significant nesting in the model design and to retain consistency with other project analyses.

Model 2. Caregiver level predictors were entered into the model as potential covariates:
 $RESPOND_{CG_{ij}} = \gamma_{000} + \gamma_{010} * CGAGE_{ij} + \gamma_{020} * CGRACE_{ij} + \gamma_{030} * CGED_i + \gamma_{040} * CGCHILDR_{ij}$
 $+ r_{0ij} + u_{00j} + e_{ij}$

The addition of these predictors did not result in a significant increase in overall model fit. None of the individual predictors were significantly related to the outcome. Consequently, they were removed from subsequent models.

Model 3. Home visitor level predictors were entered into the model:

$$RESPOND_{CG_{ij}} = \gamma_{000} + \gamma_{001} * MODEL_{-j} + \gamma_{002} * HVRACE_j + \gamma_{003} * HVED_j + \gamma_{004} * HVEXPERI_j + \gamma_{005} * HVCASELO_j + r_{0ij} + u_{00j} + e_{ij}.$$

The addition of these predictors did not result in a better overall model fit ($X^2=3.32$, $p>.5$); however, one predictor, home visitor caseload size did contribute significantly to the model and was retained for subsequent analyses.

Model 4. Home visitors' total use of responsiveness techniques was entered into the model:

$$RESPOND_{CG_{ij}} = \gamma_{000} + \gamma_{001} * HVCASELO_j + \gamma_{100} * HVRESPON_{ij} + r_{0ij} + u_{00j} + e_{ij}.$$

The addition of this variable resulted in a significant increase in model fit ($X^2=6.65$, $p<.01$). Home visitors' overall use of responsiveness techniques ($\beta = .16$, $p<.01$) significantly predicted caregiver use of these techniques with their children, and the model explained an additional 6% of model variance (see Table 27).

Table 27. Predictability of Caregiver Use of Responsive Statements from Home Visitor Use of Responsive Statements

Fixed Effects	Model 1 (Null)	Model 2	Model 3
Intercept, γ_{000}	17.19**	17.08**	17.07**
HV Caseload		.27*	.27*
HV Responsiveness			.16*
Random Effects			
Intercept 1, r_0	94.82**	86.9**	91.65**
Level-1, e	81.54	83.20	76.02
Intercept2, u_{00}	.91	.32	.28
Deviance	1319.00 (4)	1315.68(5)	1309.03(6)

N=183

Study Question 5b: Does the influence of home visitors' use of responsive techniques on caregiver use of these techniques with their children differ based on whether they are child-directed or adult-directed?

This question was addressed using a 3-level HLM analysis with caregivers' use of child-directed responsive techniques as the outcome variable, home visitors' use of child-directed and caregiver-directed responsive techniques as predictors and caregiver and home visitor background characteristics as covariates.

Model 1. The baseline model established in study question 3c was used to address this question:

$$RESPOND_{CG_{ij}} = \gamma_{000} + \gamma_{001} * HVCASELO_j + r_{0ij} + u_{00j} + e_{ij}.$$

Model 2. To understand the differential effects of caregiver-directed versus child-directed communication, home visitors' use of responsiveness techniques with caregivers and children were entered as separate predictors:

$$RESPOND_{CG_{ij}} = \gamma_{000} + \gamma_{001} * HVCASELO_j + \gamma_{100} * RESPOND_{HVC_{ij}} + \gamma_{200} * RESPOND_{HVC_{ij}} + r_{0ij} + u_{00j} + e_{ij}.$$

This model had better explanatory power than the model that included only the home visitors' total responsiveness score ($X^2=14.1$, $p<.01$), explaining an additional 9% of overall model variance. Further examination of the model revealed that home visitors' use of child-directed responsiveness techniques ($\beta= .40$, $p<.01$) predicted caregiver use of these techniques with their children, but caregiver-directed techniques ($\beta= -.11$, $p=.25$) did not (see Table 28).

Table 28. Predictability of Home Visitor Use of Responsiveness Techniques on Caregiver Use of Responsiveness Techniques (Child-directed v Caregiver-directed)

Fixed Effects	Model 1 (Null)	Model 2	Model 3	Model 4
Intercept, γ_{000}	17.19**	17.08**	17.07**	17.06**
HV Caseload		.27*	.27*	.23*
HV Responsiveness			.16*	
Child-directed Responsiveness				.41**
Caregiver-directed Responsiveness				-.11
<hr/>				
Random Effects				
Intercept 1, r_0	94.82**	86.9**	91.65**	86.16**
Level-1, e	81.54	83.20	76.02	69.00
Intercept2, u_{00}	.91	.32	.28	.24
Deviance	1319.00 (4)	1315.68(5)	1309.03(6)	1294.9(7)

N=183

Study Question 5c: Does home visitors' use of partnership building communication techniques influence caregiver use of these techniques with their children?

This question was addressed using a 3-level HLM analysis with caregiver's use of child-directed partnership building techniques as the outcome variable, home visitors' total use of partnership building statements as a predictor and caregiver and home visitor background characteristics as covariates.

Model 1. The null model for caregiver use of partnership building strategies was:

$$PARTCGC_{ij} = \gamma_{000} + r_{0ij} + u_{00j} + e_{ij}.$$

Examination of the model indicated there was significant variance at level 1 that could be explained by clustering at level 2 (ICC=.35) and level 3 (ICC=.24). These observations

confirmed the necessity of using multi-level modeling to explore the influence of home visitor level effects on use of communication techniques.

Model 2. A second model was run using caregiver background characteristics as predictors:

$$PARTCGC_{ij} = \gamma_{000} + \gamma_{010} * AGE_{ij} + \gamma_{020} * CGRACE_{ij} + \gamma_{030} * CGED_{ij} + \gamma_{040} * CGCHILDR_{ij} + r_{0ij} + u_{00j} + e_{ij}.$$

Overall, this model was a significant improvement from the null model ($X^2 = 6.16$, $p = .04$); however, only number of children significantly predicted caregiver use of communication techniques. In the interest of parsimony, only this variable was retained as a covariate for subsequent models.

Model 3. Next, home visitor level predictors were added as covariates:

$$PARTCGC_{ijk} = \gamma_{000} + \gamma_{001} * HVRACE_j + \gamma_{002} * HVED_j + \gamma_{003} * HVEXPERI_j + \gamma_{004} * HVCASEOL_j + \gamma_{010} * CGED_{ij} + \gamma_{020} * CGCHILDR_{ij} + \gamma_{030} * MODEL_j + \gamma_{010} * CGCHILDR_{jk} + r_{0jk} + u_{00k} + e_{ijk}.$$

The addition of these predictors did not result in an improved model fit ($X^2 = 1.50$, $p = .217$); however, program model was a significant predictor and was retained in subsequent models to account for nesting at Level-3. All other Level-3 predictors were dropped from subsequent models.

Model 4: Next, home visitors' total use of partnership building strategies was entered into the model:

$$PARTCGC_{ij} = \gamma_{000} + \gamma_{001} * MODEL_j + \gamma_{010} * CGCHILDR_{ij} + \gamma_{100} * HVPARTTO_{ij} + r_{0ij} + u_{00j} + e_{ij}.$$

This model was a significant improvement ($X^2 = 43.20$, $p < .001$) with home visitor's overall use of partnership building strategies significantly predicting caregiver use of these

strategies with their children ($\beta = .42, p < .001$). The addition of this variable explained an additional 3% of the overall model variance (see Table 29).

Table 29. Predictability of Caregiver Use of Partnership Statements from Home Visitor Use of Partnership Statements

Fixed Effects	Model 1 (Null)	Model 2	Model 3	Model 4
Intercept, γ_{000}	16.92**	16.91**	16.66**	16.79**
Caregiver # of Children		-3.03**	-2.58*	-2.09*
Program Model			-2.53**	-1.55*
HV Total Partnership				.42**
Random Effects				
Intercept 1, r_0	61.33**	67.49**	72.05**	25.45**
Level-1, e	112.28	111.66	111.46	108.27
Intercept2, u_{00}	35.47*	18.97*	.08	.07
Deviance	1352.94 (4)	1347.71(5)	1339.09(6)	1295.88(7)

N=180

Study Question 5d: Does the influence of home visitors' use of partnership techniques on caregiver use of these techniques with their children differ based on whether they are child-directed or adult-directed?

This question was addressed using a 3-level HLM analysis with caregiver use of child-directed partnership techniques as the outcome variable, home visitors' use of child-directed and caregiver-directed partnership techniques as predictors, and caregiver and home visitor background characteristic as covariates.

Model 1. The baseline model established in 3a was used to explore this question:

$$PARTCGC_{ij} = \gamma_{000} + \gamma_{001} * MODEL_j + \gamma_{010} * CGCHILDR_{ij} + r_{0ij} + u_{00j} + e_{ij}.$$

Model 2. To understand the differential effects of caregiver-directed versus child-

directed communication, home visitors' use of partnership building techniques with caregivers and children were entered as separate predictors. $PARTCGC_{ij} = \gamma_{000} +$

$\gamma_{001} * MODEL_j + \gamma_{010} * CGCHILDR_{ij} +$

$\gamma_{100} * HVPARTCG_{ij} + \gamma_{200} * HVPARTC_{ij} r_{0ij} + u_{00j} + e_{ij}.$

This was a significant improvement in model fit from using total use of partnership techniques without distinguishing between caregiver-*directed* and child-*directed* techniques ($X^2=11.43, p<.01$). Analyses of individual predictors revealed that home visitors' child-*directed* techniques significantly predicted caregiver use of these techniques with their children ($\beta= .50, p<.001$). On the other hand, home visitors' use of caregiver-*directed* techniques was not significantly related to caregiver use of these techniques with their children, indicating that caregivers may struggle to translate positive communicative utterances to participants not directly involved in conversations. Thus, the direct modeling of home visitors' use of positive communication techniques with children was more effective for this outcome than using these techniques with the caregiver themselves (see Table 30).

Table 30. Predictability of Caregiver Use Partnership Statements from Home Visitor Use of Partnership Statements (Child-directed v Caregiver-directed)

Fixed Effects	Model 1	Model 2	Model 3
Intercept, Y_{000}	16.66**	16.79**	16.96**
Caregiver # of Children	-2.58*	-2.09*	-1.81*
Program Model	-2.53**	-1.55*	-1.80**
HV Total Partnership		.42**	
HV Child- <i>directed</i> Partnership			.50**
HV Caregiver- <i>directed</i> Partnership			.01
<hr/>			
Random Effects			
Intercept 1, r_0	72.05**	25.45**	14.92**
Level-1, e	111.46	108.27	108.30
Intercept2, u_{00}	.08	.07	.08
Deviance	1339.09(6)	1295.88(7)	1284.44(8)
<hr/>			
N=180			

Study Question 6: Do the relationships in hypotheses 2-5 differ based on the caregiver's reasons for seeking services?

It was predicted that the caregiver's reported reasons for enrollment might moderate the effects of relationships explored in previous hypotheses. Specifically, caregivers who sought home visiting services to enhance their child's development may have a more positive response to home visitors' direct interactions with their children than those who sought services for more holistic, family-focused reasons. Analyses revealed this was not the case. Caregiver reasons for enrollment were not significantly related to any of the study outcomes, and the addition of this variable into existing models did not alter any of the relationships between predictors and outcomes.

This question was addressed using 3-level HLM analyses with reasons for enrollment X behavior interaction term (see Tables 31-34).

Table 31. Predictability of Reasons for Enrolling on the Effect of HV Child-directed Partnership Behaviors on Caregiver Engagement

Fixed Effects	Model 1 (Null)	Model 2	Model 3
Intercept, Y_{000}	4.79**	4.78**	4.78**
Caregiver Education		.21**	.21**
Caregiver # of Children		-.16*	-.17*
Reason Enroll*Partnership			.001
Random Effects			
Intercept 1, r_0	.2259*	.1738**	.1940**
Level-1, e	.6160	.6136	.6232
Intercept2, u_{00}	.1499*	.1007*	.0860**
Deviance	463.77 (4)	450.18 (6)	477.64(7)

N=183

Table 32. Predictability of Reasons for Enrolling on the Effect of HV Child-directed Responsiveness Behaviors on Caregiver Engagement

Fixed Effects	Model 1 (Null)	Model 2	Model 3
Intercept, Y_{000}	4.79**	4.78**	4.78**
Caregiver Education		.21**	.21**
Caregiver # of Children		-.16*	-.19*
Reason Enroll*			.0003
Responsiveness			
Random Effects			
Intercept 1, r_0	.2259*	.1738**	.1949**
Level-1, e	.6160	.6136	.6370
Intercept2, u_{00}	.1499*	.1007*	.0805**
Deviance	463.77 (4)	450.18 (6)	480.03(7)

N=183

Table 33. Predictability of Reasons for Enrolling on the Effect of HVOF Child-focused Content on Caregiver Engagement

Fixed Effects	Model 1 (Null)	Model 2	Model 3
Intercept, Y_{000}	4.79**	4.78**	4.79**
Caregiver Education		.21**	.21**
Caregiver # of Children		-.16*	-.19**
Reason Enroll*CF Content			.0080
Random Effects			
Intercept 1, r_0	.2259*	.1738**	.2175**
Level-1, e	.6160	.6136	.6107
Intercept2, u_{00}	.1499*	.1007*	.0692
Deviance	463.77 (4)	450.18 (6)	489.45(7)

N=183

Table 34. Predictability of Reasons for Enrolling on the Effect of HVOF Child-directed Behaviors on Caregiver Engagement

Fixed Effects	Model 1 (Null)	Model 2	Model 3
Intercept, Y_{000}	4.79**	4.78**	4.79**
Caregiver Education		.21**	.21**
Caregiver # of Children		-.16*	-.19**
Reason Enroll*CD Behavior			-.07
Random Effects			
Intercept 1, r_0	.2259*	.1738**	.2210**
Level-1, e	.6160	.6136	.6015
Intercept2, u_{00}	.1499*	.1007*	.0590
Deviance	463.77 (4)	450.18 (6)	486.41(7)

N=183

CHAPTER FIVE

DISCUSSION

The current study sought to examine the influence of home visitor content selections and communication patterns on caregiver visit engagement and caregiver-child interactions within visits. The central aim was to investigate potential differences in caregivers' response to caregiver-*directed* versus child-*directed* behaviors and communication strategies. While previous investigations have examined the differential effects of caregiver-*focused* and child-*focused* visit activities (Peterson et al., 2018; Roggman et al., 2016), these studies have not considered the intended recipient of behaviors as a variable of interest. Home visitors' use of specific communication strategies has rarely been addressed in the literature (Michalopoulos et al., 2018), and specific differences in the application of caregiver-*directed* and child-*directed* techniques had not been addressed in any capacity prior to this study.

Overview of Key Findings

Results indicated that home visits were largely caregiver-*directed* even though content was heavily focused on child relevant topics. Moreover, even home visitors' child-*directed* interactions tended to be executed with the caregiver in mind. Specifically, the bulk of home visitors' direct interactions with the child were spent modeling behaviors for the caregiver or directing the caregiver's attention towards a child's cues. One on one interactions, including direct instruction and orientation to an activity that did not include the caregiver in some capacities were rarely observed. Often these interactions were brief statements and were only

initiated after the child had made a direct bid for the home visitor's attention. Overall, this pattern suggests that while home visitors attempt to convey pertinent child development information and support both child and caregiver skill development, they do not see themselves as direct service providers for children. Rather, they act as indirect supports for children through the facilitation of caregiver knowledge and skills around parenting and child development. Data examining the purposes of communicative utterances supports this position in that home visitor communication with caregivers was most often aimed at education and counseling. This finding also suggests that while home visiting has become more caregiver focused, practitioners are still quite didactic in their approach as home visitors are still doing more educating and counseling than responding and partnership combined. Home visitor communication with children was much less frequent and more evenly distributed across communicative tasks perhaps indicating that these interactions were context driven and tended to be done on an as needed basis rather than as a planned visit component.

Effects on Engagement

Examination of the relationships between these behaviors and caregiver engagement yielded a mixed pattern of results. Although it has been previously reported that *child-focused*, but not *caregiver-focused* content is related to greater levels of caregiver engagement (Peterson & Roggman, 2019) the current study suggests that both *caregiver-focused* and *child-focused* content were positively related to caregiver engagement. However, *caregiver-directed* content was unrelated to caregiver visit engagement, while *child-directed* content was negatively related to caregiver visit engagement. This finding indicates that topics related to both child and caregiver/family well-being can be engaging to parents. However, directing this content towards

the child rather than the caregiver may have negative consequences. Supporting this assertion is the finding that specific child-*directed* modeling was related to lower ratings of caregiver visit engagement; however, caregiver-*directed* coaching activities were associated with increases in caregiver engagement. On the other hand, a different pattern of results emerged for home visitors' use of specific communicative utterances. While home visitors' overall use of positive communication techniques was positively related to caregiver visit engagement, neither child-*directed* nor caregiver-*directed* communication was related to engagement (see Table 35).

Table 35. Summary of Engagement Effects

<i>Visit Content</i>	Caregiver-focused	Positive Relationship
	Child-focused	Positive Relationship
<i>HV Behaviors</i>	Caregiver-directed	No Relationship
	• Coaching	Positive Relationship
	Child-directed	Positive Relationship
	• Modeling	Negative Relationship
	• Direct Instruction	Negative Relationship
<i>HV Communication</i>	Overall	Positive Relationship
	Caregiver-directed	No Relationship
	Child-directed	No Relationship

Effects on Caregiver-child Interactions and Caregiver Supportive Behaviors

A small number of relationships emerged for ratings of caregiver-child interactions and caregiver use of child-*directed* supportive behaviors. Caregiver-*directed* coaching was the only

variable associated with ratings of caregiver-child interaction quality with more frequent coaching relating to higher quality ratings. This finding coincides with previous reports indicating that triadic interactions like coaching are linked to more positive visit outcomes (Hughes-Belding et al., 2019; Peterson et al., 2018). However, the current finding provides greater specificity by differentiating coaching behaviors from other triadic interactions (modeling and observing).

Unexpectedly, there was a negative relationship between both *child-directed* and *caregiver-directed* home visitor behaviors and caregiver use of supportive behaviors. While overall, it makes sense that home visitor behaviors might be negatively correlated with caregiver behaviors based on the mere allocation of “floor time” within a visit, sometimes referred to as conversational dominance, this finding was not consistent with the overall pattern of findings for other outcomes. Investigation of individual behaviors within these categories raised further questions. Specifically, home visitor use of modeling and coaching behaviors with the child were related to positive increases in caregivers’ own use of supportive behaviors (modeling, coaching, and instructing) with their children despite the fact that the overall constructs (*child-directed* and *caregiver-directed* behaviors) were negatively related to the outcome. It was noted that a few individual items within these categories were negatively, but not-significantly related to the outcome (e.g., direct instructions); however, it is odd that these variables should weigh so heavily on the overall results given that the individual effects were non-significant. It is important to remember that the outcome variable had very little base variance and only occurred for brief instances throughout visits. This knowledge combined with a relatively small sample size indicates that results from this particular outcome should be interpreted with caution and

results should be replicated with a larger sample before further exploring their implications for home visiting practice (see Table 36).

Table 36. Summary of Caregiver Supportive Behaviors Effects

<i>Visit Content</i>	Caregiver-focused	No Relationship
	Child-focused	Positive Relationship
<i>HV Behaviors</i>	Caregiver-directed	Negative Relationship
	• Coaching	
	Child-directed	Positive Relationship
	• Modeling	
	• Direct Instruction	Negative Relationship
		Positive Relationship
		No Relationship
<i>HV Communication</i>	Overall	No Relationship
	Caregiver-directed	No Relationship
	Child-directed	No Relationship

Note. As detailed in above text, the only finding for Caregiver-Child Interaction was a positive relationship with coaching.

Effects on Caregiver Use of Positive Communication Techniques

Overall use of positive communication strategies by home visitors was associated with greater caregiver use of these strategies with their children. However, further analyses revealed that this effect was driven by home visitors' child-*directed* communication. Conversely, use of responsive partnership techniques with caregivers did not seem to prompt caregivers to use these strategies with their children. In other words, direct modeling of positive communication strategies with children was necessary to increase caregivers' use of responsive and partnership building utterances with their children. Interestingly, this finding is inconsistent with results

suggesting that caregiver-*directed* behaviors may be more beneficial for promoting visit engagement and caregiver's interactions with their children (see Table 37).

Table 37. Summary of Influence on Caregiver Use of Communication Techniques with Children

<i>HV Communication</i>	Overall	Positive Relationship
	• Partnership	Positive Relationship
	• Responsiveness	Positive Relationship
	Caregiver-directed	
	• Partnership	No Relationship
	• Responsiveness	No Relationship
	Child-directed	Positive Relationship
	• Partnership	Positive Relationship
	• Responsiveness	

It is unclear why this outcome seems to operate differently from others reported above; however, it is important to note that both caregiver engagement and caregiver-child interaction quality were measured using global ratings, while communication strategies were measured using discrete behavioral coding. It could be that discrete behaviors like use of communicative utterances are influenced by in the moment modeling, while global visit qualities like engagement are influenced by more complex constructs such as the home visitor-caregiver relationship dynamics that are reflected in caregiver-*directed* behaviors such as listening and affirming.

Lack of Effects

The lack of significant effects in some study areas are also noteworthy. For instance, items included in the novel taxonomy of home visitor behaviors with children (e.g., social

convention, cueing, or affirming the caregiver through speaking to the child, and orienting the child to an activity) did not predict study outcomes. One possible explanation is that these behaviors were highly variable and rather brief when they did arise. Consequently, these behaviors may not have occurred with enough consistency to influence outcome variables. It should also be noted that this study is the first known attempt to measure such minute *child-directed* behaviors during home visits. Measurement indices for these behaviors may need refinement for future studies. Specially, it may be necessary to combine similar constructs to create more stable predictor variables. Finally, it was predicted that caregivers' reasons for enrollment in home visiting may interact with other predictors with respect to their influence on outcomes of interest; however, this was not the case. In fact, caregivers' reported reasons for enrollment were not related to examined outcomes either individually or in interaction with visit content and home visitor behaviors. Again, reasons for enrollment were measured using a brief novel and retrospective survey that has not been validated and may not accurately reflect the intended underlying construct. It may be more beneficial to examine caregivers' satisfaction with the services they are currently receiving rather than asking caregivers to report retrospectively on their initial intentions. The relatively small sample size was also an impediment to finding interaction effects. To fully address this study question, further investigation with a larger sample is warranted.

Implications

Frequency of Content and Behaviors

In line with current suggestions for best practice, home visitor use of content, behaviors and communication techniques suggest that home visitors view themselves as facilitators of

caregivers' skills and knowledge rather than direct child-service providers. This is a definite shift from past conceptions of home visitors as teachers who direct visits. This new orientation is evident in that the majority of visit content and interactions are caregiver-*directed* with substantially fewer interactions aimed directly at the child. Further, even though support for the child's development is an explicit goal of many home visiting models (U.S. Department of Health and Human Services, 2022), child skill building activities are typically implemented through triadic interactions during which home visitors model, observe, and coach the caregiver and child through the activity with very little evidence of direct instruction from the home visitor.

Similarly, data revealed that most interactions between the home visitor and child were brief exchanges. Specifically, while home visitors spoke to children during about 42% of visit intervals, over half of those interactions lasted less than 15 seconds. This again, suggests that home visitors keep their one-on-one interactions with children brief while opting to focus most of their attention on supporting caregivers. This is not to say that visits are primarily focused on caregiver wellbeing rather than child focused issues. In fact, on average, almost 70% of visits are focused on child related content. Rather, child focused content is primarily being filtered through the caregiver rather than presenting program materials and activities directly to the child participant.

These findings align with current recommendations for best practice recommendations which view home visitors as collaborative partners rather than expert problem solvers. Roggman et al. (2008) for example suggest that caregivers should take the lead during visits while the home visitor coaches or facilitates. This position is evident in the following quote from Klass,

2008): “Parents are experts in their children’s development, active participants in home visiting, and the final decision makers regarding their children. Home visiting is a helping relationship defined by collaboration between the home visitor and the parents” (p. 9). It is worth noting that home visiting has historically been *child-directed* and movement towards a more caregiver-*directed* model is relatively new (Boller et al., 2010). Broadly speaking, the current study indicates that home visitors seem to be implementing this principle by choosing to target child development indirectly through caregiver-*directed* behaviors.

Further, more nuanced results suggest that despite including the caregiver in didactic interactions, home visitors still rely primarily on modeling to convey positive caregiving strategies and support children’s skill development rather than coaching the caregiver to guide these interactions. In fact, modeling occurred over three times more often than coaching during observed visits. These data are similar to previous findings reported by Peterson as early as 2007, indicating that the overall frequency of coaching across home visiting models has not increased significantly since that time. This sentiment is also clear in a more recent study of early intervention home visit processes that concludes “although home visitors intended to provide parents with opportunities for full participation, this was not consistently realized during home visits” (Hancock & Cheatham, 2021, p. 68). Coaching is a complex skill that is rarely the subject of explicit home visitor training. Often professional development is focused on visit content rather than practicing and receiving feedback on implementation skills (Schultz et al., 2018). Consequently, home visitors may lack direct experience with coaching skills. Thus, notwithstanding the desire to provide coaching for caregivers, home visitors may feel unprepared to do so in practice. Although there is a growing interest in providing more practice-based

coaching (i.e., “coaching the coach”) (Walsh et al., 2021), there is very little empirical evidence regarding its implementation or efficacy (McLeod et al., 2011). More work is necessary to better understand how to effectively support home visitors in their attempts to facilitate caregiver-child interactions through coaching.

Predictive Value of Content and Behavior

The ways in which home visitors convey program curricula through content selection, helping behaviors, and communication strategies are widely assumed to affect visit outcomes such as caregiver engagement (Korfmacher et al., 2008; Paulsell et al., 2010); however, there has been little direct exploration of these relationships in the literature. For example, Roggman et al. (2008) suggest that *child-directed* behaviors may serve to undermine the caregiver and send an implicit message that they are deficient in comparison to the expert home visitor, yet this assumption has never been tested using empirical data. The current study sought to examine these relationships across two outcome categories: caregiver engagement in visits and caregiver behaviors with the child. Based on previously reported findings (Hughes-Belding et al., 2019; Peterson et al., 2018; Roggman et al., 2016), it was hypothesized that *child-focused*, but *caregiver-directed* practices were more likely to promote positive outcomes than *caregiver-focused* or *child-directed* practices. Results uncovered a complex set of predictive relationships that only partially supported this hypothesis.

Overall, support for prioritizing specific types of content, behaviors, or communication techniques to enhance home visiting outcomes was mixed. While evidence favoring the use of *child-focused*, *caregiver-directed* content and behaviors was evident for achieving strong caregiver engagement, the opposite pattern emerged for caregiver use of responsiveness and

partnership language with their children. Most notably, while child-*directed* home visitor behaviors were negatively related to caregiver engagement, use of child-*directed* communication strategies was positively related to caregiver use of similar communication strategies with their children. Caregiver-child interactions and caregiver use of supportive behaviors yielded a diverse pattern of results whereby both modeling (child-*directed*) and coaching (caregiver-*directed*) behaviors influenced caregiver use of supportive behaviors, while only coaching (caregiver-*directed*) affected ratings of caregiver-child interaction quality.

It may be that caregivers need to have direct involvement in activities to fully engage in visits and conduct high quality interactions with their children, in which case caregiver-*directed* behaviors may well support positive outcomes over the course of the visit. Conversely, succinct communication utterances may require direct modeling with the intended recipient to obtain results over the course of a relatively brief visit; while it may require longer periods of exposure for home visitor use of positive communication strategies with caregivers themselves to transfer to caregiver child-*directed* speech. In other words, in the short term, modeling and imitation may be more powerful in achieving discrete behavioral outcomes than more indirect forms of guidance; however, to achieve more global, sustained behaviors like engagement over the course of the entire visit may require more caregiver-*directed* opportunities to guide visit activities and practice skills. It is also unknown if the short-term effects of modeling positive communication strategies will transfer to environments beyond the immediate visit in which the modeling occurs. It is possible that processing these modeled behaviors through caregiver-*directed* practice and reflection may be necessary to sustain these effects over time.

Conclusion

Overall, the study suggests that home visitors may need more explicit training in how to provide caregivers with active opportunities to practice skills while observing and offering feedback, as home visitors spend only a small fraction of visit time engaged in these activities. While the current study provides some hints of specificity regarding the efficacy of behavioral strategies, it also highlights the complex relationships between processes and outcomes within home visiting. Beyond that, it is evident that home visitors employ many effective techniques over the course of visits and that the efficacy of those techniques are likely to be dependent on many factors including the target outcome. Although there were some suggestive findings, there was no clear pattern of results supporting the use of one type of content, behavior, or communication strategy that held across caregiver engagement and program outcomes studied. Further investigation is required to determine if the results that emerged in the current study holds across studies. Longitudinal studies that examine behaviors across visits, rather than within visits, will be particularly important in validating these results.

Limitations and Future Directions

Like all empirical investigations, the current study had several notable limitations. First and foremost, this study was exploratory in nature. Given the intensive resources required to analyze verbal communication, previous studies have not attempted to measure within visit communication at the micro-level. Consequently, some of the measures employed have not been validated for use in home visits. The Rotter Interaction Analysis System (RAIS), despite having strong psychometric properties when used during brief medical visits, has not been used within any home visiting studies beyond contemporaneous studies using the same data set as the current

study. Further, although measures of caregiver behaviors were adapted from the existing Home Visit Observation Form (HVOF) with the support the original author, this is a novel way of measuring caregiver behaviors. One particular concern with the use of the revised HVOF to measure caregiver behaviors (e.g., modeling, coaching) is whether these behaviors occur with enough frequency and duration to accurately capture the concepts they are intended to represent. This challenge was evident in the restricted variability seen in caregiver helping behaviors.

Restricted sample size was another significant limitation of the present study. Given the complexity of home visiting, many variables are likely to influence the outcomes measured here. A small set of factors, such as home visitor education and caseload size, was chosen to represent these background variables as covariates; however, interactions between predictors and significant covariates were not explored due to small cell sizes in some subgroups of participants. Thus, the lack of findings in some areas may be due to fact that predictors impact some subgroups differentially, and examining these relationships were beyond the limits of our current sample size. Exploring the interactions between home visitor behaviors and caregiver reason for enrollment failed to produce any significant results; however, this also was likely due, at least in part, to restricted sample sizes in some cells. Interest in more nuanced relationships such as these require further investigation with larger or more targeted samples.

Finally, it is important to note that both predictors and outcomes were measured within the same visit. Although measures were coded independently by different members of the study staff and estimates of statistical independence were adequate for all analyses conducted, it is preferable to measure predictors and outcomes at separate time points. More definitive evidence of reported relationships would require a larger number of observations which allowed for

measurement of predictors at a time point prior to the collection of outcome data. Specifically, given that activities compete for space within a visit, it is possible that findings from the current study are artifactual. Thus, removing this possibility in future studies is essential. As the field continues its efforts to determine what works for whom, this will be an on-going challenge and will require unique methodological solutions.

Conclusions

In conclusion, the current study indicates that both *child-focused* and *family-focused* content can be beneficial for engaging caregivers. In addition, while *caregiver-directed* behaviors may provide a greater benefit for engagement and caregiver-child interactions, (i.e., sustained activities), modeling *child-directed* behaviors may be preferable when it comes to promoting brief events such as positive verbal utterances. This study is the first to attempt to analyze verbal interactions between home visitors and children, and these newly emerging results call for further investigation to confirm present findings and extend our knowledge of when specific home visitor behaviors are most likely to be advantageous. In any case, it is important that training and professional development efforts move toward providing home visitors with concrete practicable skills rather than relying on the work force to translate broad theoretical ideas such as “follow the family’s lead” into practical strategies that can be used within home visits. Attempts to provide this type of high-quality training will require further examination of home visit content and process variables that include specific interactions between home visitors, caregivers, and children and focus on developing innovative ways to measure these processes and to examine subgroup effects to provide more targeted interventions. This study represents one important early step of many needed to better understand the task of home visiting.

APPENDIX A

RIAS-HV: MODIFIED FOR PROGRAMS

Responding Strategies

Approve: Compliments, expressions of approval, gratitude, praise, reward, respect, or admiration directed to the other person present. Includes such statements as “Thank you,” “You’re welcome,” and “Nice to have met you” when stated at or near the end of the interview. When the home visitor responds in an approving manner to something that the parent says but for which the parent is not directly responsible, this is coded as Reassures/Optimism, not Approval. If the home visitor instructs the parent or child during an assessment, the home visitor’s response of “Good” may indicate approval that the parent or child has responded correctly. Exclamations that convey positive feeling in response to something the other said. A compliment of something attributed specifically to the other.

Examples:

- *You’re so good, you got your notebook out.*
- *Kudos to you!*
- *Good, that’s awesome.*
- *That’s so cute – you are very crafty.*
- *Yeah, you have so much knowledge.*
- *Mom: I finally was able to fill out that application, so I think I’ll get it in on time.*
 - *HV: Good for you!*
- *Wow! / Oh Really! / Wow that’s great!*
- *I like the way you have him dressed today.*
- *I’m so proud of you guys for actually writing down what you’re eating!*
- *That’s a healthy craving.*
- *It’s good that you told me.*
- *That’s a good question.*

Compliments Others: Compliments, expressions of approval, gratitude, praise, reward, respect, or admiration directed to another not present during the exchange. A compliment of something attributed specifically to another.

Examples:

- *It’s awesome that he knew to get help.*
- *That’s so nice of him.*
- *Mom: Even my mom got involved with reading to the baby.*
 - *HV: Oh good.*
- *It’s great that he [the father] even recognizes it.*

Empathy/Legitimizing: Statements that paraphrase, interpret, name, or recognize the emotional state of the other person present during the visit – or—state that the other’s emotional situation, actions, or thoughts are understandable and normal. Includes statements that normalize the other’s actions, emotions, or thoughts by making them universal.

Examples:

- *I understand that it can get stressful sometimes.*
- *Yeah, because it’s frustrating to have to make changes.*

- *That's irritating because I know you were upset at them the last time that you were talking about your daycare.*
- *I don't mean to overwhelm you.*
- *Seems like kind of a lot right now.*
- *Yeah, anybody would find juggling two kids to be quite difficult.*
- *Yes, that's a concern of parents that someone will come in and take the baby.*
- *I know that parents are worried that their baby getting blood drawn might be painful.*
- *A lot of new moms feel overwhelmed and it's definitely a big change in your life.*
- *A lot of people go through that.*
- *You're not the first mom to have these concerns.*
- *Well still, it is your first time having surgery. (** context??)*

Concern: A statement or non-verbal expression indicating that a condition or event is serious, worrisome, distressing or deserving special attention (such as comforting or other special consideration) and is of particular concern at this point in time. These statements have a *strong and immediate* emotional or psychosocial component, and do not refer to a more general frame of mind or past issues. Voice tone, intonation or verbal content may disclose worries, concerns, stress, nervousness, personal preferences, or uncertainties that are of immediate concern. Includes negative emotional descriptions of a situation or discussions of non-specific feelings, even if describing a physical state. Includes statements that ask for pardon and indicate concern for the other's feelings (but does not include routine social amenities). Includes self-criticism.

Examples:

- *I feel kind of funny about that.*
- *Yes, it makes me nervous.*
- *I wanted to make sure because you know things happen.*
- *I'm already stressed about that.*
- *He was really screaming after the first shot.*
- *Sorry to keep you waiting. / Sorry about that.*
- *I'm sorry I missed your call yesterday.*
- *That is helpful because I am starting to panic.*
- *Yeah, it scares me.*

Reassures/Optimism: Includes statements indicating optimism, encouragement, relief of worry or reassurance. Reassures statements are differentiated from Approvals or Compliments in that they are more intensely personal, intimate, or immediate (in other words, reflecting how the parent or home visitor feels at this point in time). Also includes prognostic statements that are related to physical or emotional consequences. More positive than Concern/Worry statements. Includes positive emotional descriptions of oneself, their situation, or discussions of somewhat non-specific feelings. Includes statements that show an awareness of the other's feelings in a positive upbeat way or respond to a request for reassurance.

Examples:

- *That's a first step within itself. (**but could be Approve/ context)*
- *Mom: We have tons of new recipes.*

- HV: Aw, that's so good! (**could be Approve)
- Of course, don't worry, he'll be alright.
- Totally up to you, though.
- Trust me, she will be getting bigger.
- I know you can do it! (**Approve)

Partnering Strategies

Partnership: Statements that convey the home visitor's alliance with the parent in terms of help and support, decision-making, or the development of plans.

Examples:

- Yes, I brought these so we can look at it together.
- I'll bring the forms so that I can help you fill them out.
- I can follow up with you in a month and we can talk about it.
- We'll work on her fine-motor skills together.
- If there's anything I can do to help, let me know.

Checks for Understanding: Mechanisms by which the speaker restates or reflects back information he or she has just been told by the other for the purpose of checking for accuracy of information, or for confirming a shared understanding of the facts or issues being discussed. These re-statements may be in either question or statement form, but the function of the speaker's utterance is to clarify, or ask for clarification of, the other's communication (i.e., in essence asking, "Do I understand what you are saying?", "Do I have it right?", or "Am I on the right track?"). Includes paraphrases or repetitions of the other's communication in either declarative or interrogative form. Includes re-statements that label a contextual fact the other has expressed but did not explicitly label, feeds back the essence of a verbal message, or finishes the other's statement to confirm a shared understanding. Includes re-statements of information given by the other person earlier in the visit when there is reference to the earlier statement. Includes statements made during chart review that are a clear review of common knowledge. In these situations, the review is of obviously shared information and does not include any new information.

Examples:

- And they didn't measure him, correct?
- So last time we talked, we'd gone over the Happiest Baby on the Block.
- Mom: We put him in a walker, and he can move a little bit.
 - HV: In the walker?
- HV: Is he eating the food?
 - Mom: Yeah, at school.
 - HV: At school.... [writes note]
- Mom: He might just take the bottle...
 - HV: ...And then hold it?

Ask Opinion: Questions that ask for the parent's opinion, point of view or perspective relating to visit. Includes questions that invite the parent's judgment or ask for the parent's preferences or choice when

presented with options (what the parent wants or would like), expectations, or survey of the problem. Also includes very broad probes for information or questions.

Examples:

- *So how was everything since the last time I was here?*
- *Do you want to bring her over here or keep her there? (**offers choice)*
- *What did you notice about her when she did that activity?*
- *Are you thinking of putting her in Head Start?*
- *Any other goals you've been thinking about?*
- *How do you think your stress levels are affecting your parenting?*
- *Okay so anything else? / Any questions?*
- *How did this visit go for you?*
- *Anything you want to cover next time? (**but could be open question if context clearly specifies content)*

Ask Permission: Questions that specifically ask for permission to give information or to proceed.

Examples:

- *Can I make a suggestion?*
- *Mind if I say something?*

Ask for Understanding: Mechanism by which the home visitor or parent quickly checks with the other to see if information that was just said has been followed or understood (i.e., in essence asking, "Do you understand what I'm saying?"). Includes asking for agreement.

Examples:

- *Do you follow? / Do you understand? / Do you have it right?*
- *Can you repeat what I just told you? / Do you remember what I said?*
- *Okay?*
- *Are you with me?*

Asks Open Ended Questions

Examples:

- *How is work going?*
- *What kinds of things have you been doing to get the house ready for her to start crawling?*
- *Is he doing anything new? (** context is development)*
- *What are some of the foods she likes?*

APPENDIX B

HOVRS A+

Home Visit Rating Scales—Adapted and Extended to Excellence (HOVRS- A+) v2.1

Lori A. Roggman, Gina A. Cook, Mark S. Innocenti, Vonda K. Jump,
Katie Christiansen, Lisa K. Boyce
Utah State University

Nikki Aikens, Kim Boller, Diane Paulsell, Kristin Hallgren
Mathematic Policy Research

Program: _____

Home Visit Date/Time: _____

Practitioner: _____

HOVRS Scoring Date: _____

Client: _____

Notes regarding visit: _____

HOVRS Ratings		Rating						
	Item	1	2	3	4	5	6	7
HV	Responsiveness to family	1	2	3	4	5	6	7
	Relationship with family	1	2	3	4	5	6	7
	Facilitation of parent-child interaction	1	2	3	4	5	6	7
	Non-intrusiveness and collaboration	1	2	3	4	5	6	7
HV Practices Score: _____								
Engagemen	Parent-child interaction	1	2	3	4	5	6	7
	Parent engagement	1	2	3	4	5	6	7
	Child engagement	1	2	3	4	5	6	7

Family Engagement Score: _____

What did you like?

What would you add/change?

Home Visit Rating Scales—Adapted and Extended to Excellence (HOVRS-A+) v2.1

Lori A. Roggman, Gina A. Cook, Mark S. Innocenti, Vonda K. Jump, Katie Christiansen, Lisa K. Boyce, Utah State University Nikki Aikens, Kim Boller, Diane Paulsell, & Kristin Hallgren, Mathematica Policy Research

RESPONSIVENESS TO FAMILY: Plans with parent input, identifies family strengths to support child development

Overall: 1 2 3 4 5 6 7

1. To plan activities and topics of this or a future home visit with the parent, the home visitor

1 = shows no evidence of planning for this home visit or future home visits. 3 = shows evidence of planning but no evidence of parent input. 5 = shows evidence of planning with parent input. 7 = shows evidence of planning with parent input **and** evidence of parent deciding activity, materials, or who provides them.

(1) Needs training (3) Adequate (5) Good (7) Excellent

2. To prepare for the home visit using parent-selected activities, the home visitor

1 = does not appear prepared for the visit. 3 = is prepared for activities of the home visit. 5 = is prepared for activities that were selected by parents. 7 = emphasizes parent-selected activities **and** organizes home visit around them.

(1) Needs training (3) Adequate (5) Good (7) Excellent

3. To get information about the family's strengths and child's development, the home visitor

1 = rarely asks questions to get information about family's strengths or child's development. 3 = occasionally gets more information by asking open-ended or follow-up questions. 5 = frequently gets more information by asking open-ended or follow-up questions. 7 = gets information from open-ended or follow-up questions **and** uses the information to increase effectiveness of home visit.

(1) Needs training (3) Adequate (5) Good (7) Excellent

4. To provide feedback to the parent on family strengths for supporting child development, the home visitor

1 = rarely observes parent or child strengths.
 3 = observes parent or child strengths but rarely gives feedback about what the parent and child are doing.
 5 = observes parent or child strengths and occasionally gives feedback by making comments, providing information, or suggesting related activities to support the child's development.
 7 = observes, frequently gives feedback about strengths, **and** describes observations of parent-child interactions **or** observations of the child's development.

- (1) Needs training - (3) Adequate - (5) Good -
 (7) Excellent

5. To adapt activities to the family's interests and needs, the home visitor

1 = persists with or changes activity in a way that does not meet parent's or child's interests or needs. 3 = occasionally follows parent's and child's lead in activities.
 5 = frequently follows the parent's and child's lead in activities by changing pace or activities to meet family interests or needs. 7 = follows the parent's and child's lead in activities and acknowledges these interests or needs.

- (1) Needs training - (3) Adequate - (5) Good -
 (7) Excellent

6. To respond to family input for the agenda and activities of this home visit, the home visitor

1 = directs agenda and activities of home visit **OR** does not set or follow an agenda. 3 = allows some input from the parent on agenda and activities of the home visit.
 5 = sets the agenda and activities for the home visit after getting input from family.
 7 = follows the parent-suggested agenda and activities **and** provides additional related information to supplement activities.

- (1) Needs training - (3) Adequate - (5) Good - (7) Excellent

RELATIONSHIP WITH FAMILY: Interacts with family members with warmth, positive emotions, and respect

Overall: 1 2 3 4 5 6 7

1. To interact sociably with parent(s), focusing on child development, the home visitor

1 = appears uncomfortable interacting with parent(s). 3 = occasionally interacts sociably with parent(s). 5 = seems relaxed and obviously enjoying interacting with parent(s). 7 = appears at ease, enjoys interacting, **and** readily engages parents in discussions of child development and parenting.

development and parenting

- (1) Needs training - (3) Adequate - (5) Good - (7) Excellent

2. To set the tone for positive interactions, the home visitor

1 = seems tense, critical, or detached with parent(s).

3 = interacts with little to no tension but is not overly warm with parent(s). 5 = is warm and respectful of the parent(s). 7 = shows warmth, respect, **and** appreciation to parent(s).

- (1) Needs training - (3) Adequate - (5) Good - (7) Excellent

3. To express positive emotions about the home visit, the home visitor

1 = does not appear to enjoy the home visit.

3 = occasionally appears to enjoy the home visit (positive emotions & statements). 5 = frequently appears to enjoy the home visit (positive emotions & statements).

7 = consistently appears to enjoy the home visit **and** shows understanding, humor, or familiarity with the family.

- (1) Needs training - (3) Adequate - (5) Good - (7) Excellent

4. There is no item 4 on this scale, proceed to item 5

5. To engage other family members if present during the home visit, the home visitor

NA = no other family members present.

1 = does not engage family members other than parent and child. 3 = interacts with family members other than parent and child but

does not involve them in activities. 5 = attempts to involve everyone in the room in activities.

7 = involves everyone in the room in activities **and** with each other.
 - (1) Needs training - (3) Adequate - (5) Good
 (7) Excellent

6. There is no item 6 on this scale, proceed to item 7

7. To reflect with family about their life and activities in relation to child's development, the home visitor

1 = shows little to no familiarity with what is happening with family beyond this visit.
 3 = shows some familiarity with what is happening with family but does not ask questions beyond those dictated by home visit. 5 = shows familiarity and interest in what is happening with the family by asking relevant questions.
 7 = asks relevant questions **and** asks how family situations affect child.

- (1) Needs training - (3) Adequate - (5) Good
 (7) Excellent

8. To show respect and acceptance of the family, home, culture, and lifestyle, the home visitor

1 = does not show respect or acceptance of the family system. 3 = appears to be accepting of the family system.

5 = shows clear respect and acceptance of the family system.

7 = shows respect, acceptance, **and** talks about these characteristics as family strengths.

- (1) Needs training - (3) Adequate - (5) Good
 (7) Excellent

9. To discuss potentially sensitive issues respectfully and reflectively, the home visitor

1 = brings up issues in an insensitive or disrespectful manner **or** avoids sensitive issues. 3 = tries to bring up issues in a sensitive or respectful manner but not always effectively. 5 = home visitor brings up issues in a sensitive or respectful manner.

7 = brings up issues respectfully **and** asks questions to help parent reflect on parenting.

- (1) Needs training - (3) Adequate - (5) Good
 (7) Excellent

FACILITATION OF PARENT-CHILD INTERACTION: Elicits positive developmentally supportive parent-child interactions

Overall: 1 2 3 4 5 6 7

1. To elicit ongoing parent-child interactions during this home visit, the home visitor

1 = rarely tries to facilitate parent-child interactions.
 3 = tries to facilitate interactions, even if not always effectively. 5 = frequently facilitates parent-child interactions.

7 = frequently facilitates parent-child interaction **and** supports ongoing interaction as needed without interrupting.

- (1) Needs training - (3) Adequate - (5) Good -
 (7) Excellent

2. To promote developmentally supportive interactions during this home visit, the home visitor

1 = rarely encourages developmentally supportive parent-child interactions.
 3 = occasionally encourages parent's developmentally supportive interactions with the child, by commenting on observed parent-child interactions.

5 = frequently encourages parent's developmentally supportive interactions with child by describing how observed interactions support child's development.
 7 = frequently encourages developmentally supportive interactions **and** expands to other ways and places to do something similar.

- (1) Needs training - (3) Adequate - (5) Good -
 (7) Excellent

3. To engage parent and child together, the home visitor

1 = interacts with either the parent or the child but not both.
 3 = interacts with both parent & child but occasionally directs attention to only parent or child when there are opportunities to interact with both.
 5 = frequently interacts with both parent & child, excluding neither.
 7 = frequently interacts with both parent & child **and** helps sustain engagement of child with parent.

- (1) Needs training - (3) Adequate - (5) Good -
 (7) Excellent

4. To support parent responsiveness to child cues, the home visitor

1 = rarely comments on child cues or on parent responsiveness.

3 = observes and occasionally comments on child's cues or gives feedback about responsiveness.
 5 = observes and comments on child's cues and makes suggestions, offers feedback, or asks questions to promote responsive interactions.
 7 = uses comments, suggestions, feedback, or questions to promote responsive interactions

and describes child's response to parent (e.g., "speaking for the child") OR links responsiveness to child's development.

- (1) Needs training - (3) Adequate - (5) Good -
 (7) Excellent

5. To directly encourage generally positive parent-child interactions during this home visit, the home visitor

1 = rarely provides encouragement or reinforcement for positive parent-child interactions.
 3 = occasionally provides encouragement or reinforcement for positive parent-child interactions. 5 = frequently provides encouragement or reinforcement for positive parent-child interactions.

7 = frequently encourages or reinforces **and** prompts similar positive parent-child interactions for this or other contexts.

- (1) Needs training - (3) Adequate - (5) Good -
 (7) Excellent

6. To help parents use available resources to support child development during this home visit, the home visitor

1 = brings expensive or hard-to-find materials to the home for home visit activities OR does not use routines/activities/materials in the home to support child development.

3 = brings common inexpensive materials or activities to the home to promote parent-child interactions OR only occasionally uses routines/activities/materials in the home to support child development.

5 = uses materials already in the home and/or family routines to promote parent-child interactions that support child development.

7 = uses home's materials and routines **and** guides parents to identify new ways to use what the family already has or does to support the child's development.

- (1) Needs training - (3) Adequate - (5) Good -
 (7) Excellent

NON-INTRUSIVENESS/COLLABORATION: Fully supports parent(s) in primary teaching role without interrupting

Overall: 1 2 3 4 5 6 7

1. To encourage the parent's ideas and interests for interactions with child during this home visit, the home visitor

1 = often tells parent what to do.
3 = occasionally makes suggestions for what parent could do, but not excessively. 5 = asks about and responds to parent ideas & interests for interactions.

7 = asks about and responds to parent interests for interactions **and** encourages those interactions during home visit.

- (1) Needs training - (3) Adequate - (5) Good -
(7) Excellent

2. To avoid intruding on or ignoring parent-child interactions during this home visit, the home visitor

1 = leads the activities, interacting mostly with the child
3 = occasionally guides aspects of parent-child interaction (e.g., provides reinforcement to child). 5 = sits back and actively observes when parent-child interaction is ongoing.

7 = actively observes when parent-child interaction is ongoing **and** makes reflective comments afterwards.

- (1) Needs training - (3) Adequate - (5) Good -
(7) Excellent

3. To keep parent in the "teacher" role, the home visitor

1 = plays with or teaches the child directly.
3 = occasionally gives toys/materials or suggestions to the parent for an activity with child. 5 = frequently gives toys/materials or suggestions to the parent.

7 = consistently gives toys/materials or suggestions to the parent **and** asks how the parent wants to use to support the child's development.

- (1) Needs training - (3) Adequate - (5) Good -
(7) Excellent

4. To follow the lead of parent and child in pace and activities, the home visitor

1 = persists with activity that are too hard or not interesting to the parent or child
3 = occasionally responds to the parent's or child's cues (e.g., lack of interest, difficulty with task) by changing pace or activities.
5 = frequently responds to the parent's or child's cues (e.g., lack of interest, difficulty with task) by changing pace or activities when needed.
7 = adapts pace or activities to the parent's or child's cues **and** asks questions to help

the parent adapt or enrich interactions or activities with child.

- (1) Needs training - (3) Adequate - (5) Good -
 (7) Excellent

5. To allow parent-child interactions to continue uninterrupted, the home visitor

1 = frequently intrudes on parent-child interactions **OR** interrupts their interactions. 3 = occasionally intrudes on or interrupts parent-child interactions.

5 = rarely intrudes on or interrupts parent-child interactions. 7 = never intrudes on or interrupts parent-child interactions.

- (1) Needs training - (3) Adequate - (5) Good -
 (7) Excellent

PARENT-CHILD INTERACTION: Parent and child interact in positive developmentally supportive ways

Overall: 1 2 3 4 5 6 7

1. To engage in interactions, parent, and child

1 = interact minimally, negatively, or nonresponsively.
 3 = interact with some warmth (e.g., positive expressions or tone, smiling).
 5 = interact with a great deal of warmth (e.g., positive expressions or tone, smiling). 7 = interact with warmth

~~and show appreciation to each other.~~

- (1) Needs support - (3) Adequate - (5) Good -

(7) Excellent

2. To make contact with each other, the parent and child

1 = have little to no positive physical contact.

3 = occasionally make positive physical contact, but touch is often instrumental (i.e., moving child or wiping child's nose). 5 = frequently make positive physical contact.

7 = make positive physical contact during home visit activities **and** contact is helpful or affectionate without being intrusive.

(1) Needs support (3) Adequate (5) Good

(7) Excellent

3. To be available to engage in interactions, the parent and child

1 = are positioned out of reach of each other during activities and rarely in close proximity. 3 = are occasionally in close physical proximity during activities.

5 = frequently remain in close physical proximity during activities.

7 = remain in close physical proximity during activities **and** readily engage in positive interactions during activities.

(1) Needs support (3) Adequate (5) Good

(7) Excellent

4. To observe and be ready to respond to the child's behavior, the parent

1 = is rarely attentive to what child is doing.
 3 = occasionally attends to what child is doing. 5 = frequently attends to what child is doing.
 7 = consistently attends to what child is doing **and** occasionally describes child's behavior

(1) Needs support (3) Adequate (5) Good

(7) Excellent

5. To respond to child and support child development, the parent

1 = is not responsive or responds negatively to child's behavior, vocalizations, or emotional expressions. 3 = occasionally responds positively to child's behavior, vocalizations, or emotional expressions. 5 = frequently responds positively to child's behavior, vocalizations, or emotional expressions. 7 = typically responds positively to child's behavior, vocalizations, or expressions **and** encourages or supports child's learning and development.

- (1) Needs support - (3) Adequate - (5) Good -
 (7) Excellent

6. To adapt activities to child's interests and needs and encourage child engagement, the parent

1 = persists in activities in which child is not interested, changes activity in which child is interested and engaged, **or** does not engage child. 3 = occasionally changes pace or activity to meet child's interest or needs based on where child looks, what child reaches for, emotions child expresses. 5 = frequently changes pace or activity to meet child's interest or need based on where child looks, what child reaches for, emotions child expresses. 7 = adapts activities to child's interest or need **and** shows enthusiasm about what child is doing.

- (1) Needs support - (3) Adequate - (5) Good -
 (7) Excellent

7. To sustain positive interactions, the parent and child

1 = are rarely engaged in activities together during the home visit. 3 = are engaged in activities together on and off during the home visit. 5 = are frequently engaged in activities together during the home visit. 7 = are engaged together in all the parent-child home visit activities **and** consistently enjoy the interactions.

- (1) Needs support - (3) Adequate - (5) Good -
 (7) Excellent

PARENT ENGAGEMENT: Parent is interested, participates, and initiates interactions, discussions, and activities

Overall: 1 2 3 4 5 6 7

1. To show interest in materials and activities, the parent

1 = does not indicate interest in material or activities.
 3 = indicates occasional interest in home visit material or activities.
 5 = frequently appears interested in home visit activities or materials.
 7 = is consistently interested in visit activities and materials **and** identifies other relevant activities and materials to support child's development.

(1) Needs support (3) Adequate (5) Good (7) Excellent

2. To participate and focus on home visit topics and activities, the parent

1 = does not participate in home visit activities or topic discussions; is distracted or involved in another activity. 3 = occasionally participates in activities or topic discussions.
 5 = is an active participant in activities or topic discussions.
 7 = is an active participant **and** maintains focus on home visit topics OR activities.

(1) Needs support (3) Adequate (5) Good (7) Excellent

3. To engage in play and activities with child, the parent
 Note: Omit reference to child if child is not present

1 = leaves the room. 3 = is more passive than active when participating in activities.
 5 = engages in play and learning activities with child and/or home visitor whenever opportunity is available. 7 = actively engages in play and activities **and** shows enthusiasm about doing activities.

(1) Needs support (3) Adequate (5) Good (7) Excellent

4. To initiate activities and conversations, the parent

1 = rarely initiates activities or conversations with child or home visitor; home visitor must prompt parent to engage in activities or interactions.
 3 = occasionally initiates activities or conversations.

5 = frequently initiates activities or conversations.
 7 = initiates activities or conversations **and** bases activities or conversations on child's interests, behavior, or development.

- (1) Needs support - (3) Adequate - (5) Good -
 (7) Excellent

5. To discuss questions and topics relevant to child and family, the parent

1 = rarely asks or answers questions.
 3 = occasionally asks or answers questions but does not elaborate.
 5 = frequently asks questions, initiates discussions, or provides information related to topic of discussion.
 7 = initiates conversations and offers information **and** the topics are related to child's development or family well-being.

- (1) Needs support - (3) Adequate - (5) Good -
 (7) Excellent

6. To be ready to interact with both child and home visitor, the parent Note: Omit reference to child if child is not present

1 = positions self away from home visitor and child.
 3 = is in proximity to home visitor and child during most of the home visit.
 5 = remains in close proximity to child and home visitor throughout the home visit.
 7 = is in close proximity to child and home visitor throughout visit **and** readily interacts with home visitor and child.

- (1) Needs support - (3) Adequate - (5) Good -
 (7) Excellent

CHILD ENGAGEMENT: Child is interested, participates, and initiates interactionsOverall: 1 2 3 4 5 6 7**1. To participate in home visit activities, the child**

1 = rarely participates in home visit activities.

3 = occasionally participates

in home visit activities. 5 =

frequently participates in

home visit activities.

7 = participates in all the child/parent-child home visit activities **and** actively engages with both

<input type="checkbox"/>	materials and parent.	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
	- (1) Needs support			- (3) Adequate		- (5) Good	-
	(7) Excellent						

2. To initiate successful activities or interactions, the child

NA = infant is under 12 months.

<input type="checkbox"/>	1 = cries when coaxed to participate in activities or interactions during home visit. 3 = requires coaxing to participate in activities or interactions during home visit.	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
--------------------------	--	--------------------------	--	--------------------------	--	--------------------------	--

5 = tries to initiate activities or interactions during home visit.

7 = initiates activities or interactions **and** initiations are successful and appropriate.

<input type="checkbox"/>	(1) Needs support	<input type="checkbox"/>		(3) Adequate	<input type="checkbox"/>		(5) Good	<input type="checkbox"/>	
	(7) Excellent								

3. To sustain interactions with parent or home visitor, the child

1 = does not interact with parent or home visitor.

3 = occasionally interacts with the parent or home visitor, including through body

<input type="checkbox"/>	language, gaze, gestures, or vocalizations. 5 = frequently interacts with the parent or home visitor, including through body language, gaze, gestures, or vocalizations. 7 = frequently interacts with parent or home visitor and sustains positive interactions.	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	
--------------------------	--	--------------------------	--	--------------------------	--	--------------------------	--

- (1) Needs support

- (3) Adequate

- (5) Good

(7) Excellent

4. To show interest and enthusiasm about home visit activities, the child

1 = rarely shows interest in the home visit activities, such as through gaze or body language.

3 = occasionally shows interest in home visit activities, such as

through gaze or body language. 5 = frequently shows interest

in home visit activities, such as through gaze or body language.

7 = consistently shows interest in child/parent-child home visit activities **and** shows enthusiasm

when doing activities.

- (1) Needs support

- (3) Adequate

- (5) Good

(7) Excellent

Additional Information

**Home Visit Rating Scales—Adapted and Extended to Excellence
(HOVRS-A+) v2.1**

Lori A. Roggman, Gina A. Cook, Mark S. Innocenti, Vonda K. Jump, Katie Christiansen, & Lisa K. Boyce, Utah State University with Nikki Aikens, Kim Boller, Diane Paulsell, & Kristin Hallgren, Mathematica Policy Research

The *Home Visit Rating Scales-Adapted & Extended* (HOVRS-A+) measure is designed for practitioners and supervisors seeking *excellence* in home visiting in programs aiming to help parents support the early development of their infants and young children. As an extension of HOVRS-A (Roggman, et al., 2010), which was an adaptation of the original HOVRS (Roggman et al., 2008), HOVRS-A+ v2.1 has the improved clarity of HOVRS-A, the full range of rating scores of the original HOVRS, and revised formatting for easier use. The measure was developed with input from practitioners and supervisors in home visiting programs and rates aspects of home visiting quality supported by research on various home-visiting programs. HOVRS emphasizes a developmental parenting support approach that respects each family's strengths and culture. HOVRS can be used to provide feedback to practitioners and supervisors for program improvement. Psychometric data show good inter-rater reliability (agreement $\geq .85$), internal consistency (alpha $\geq .70$), and predictive validity (significant correlations with parenting and child development outcomes).

The Home Visit Rating Scales:**SCALE 1—HOME VISITOR RESPONSIVENESS TO FAMILY**

This scale assesses the extent to which the home visitor is (1) prepared for the home visit, (2) attempts to get needed information from the parent, (3) observes and responds to the parent and child during the home visit, and (4) elicits input on the content and activities of the home visit from the parent. A high rating on this scale suggests that the home visitor is frequently engaging in responsive behaviors during the home visit.

SCALE 2—HOME VISITOR-FAMILY RELATIONSHIP

This scale examines the nature of the relationship between the home visitor and the family, as observed during the home visit. It focuses on (1) warmth shown by the home visitor (2) positive interactions of the home visitor with the child and other members of the family, and (3) the home visitor's respect and understanding of the family as a whole. A high rating on this scale suggests that the home visitor is engaging the family in warm, positive behaviors during the home visit.

SCALE 3—HOME VISITOR FACILITATION OF PARENT-CHILD INTERACTION

This scale assesses the effectiveness of the home visitor at facilitating and promoting positive parent-child interactions during the home visit. It reflects how much the home visitor (1) encourages the parent's leadership when guiding parent-child interactions, (2) involves and responds to both the parent and the child during interactions, and (3) uses materials available in the home for promoting parent-child interactions. A high rating on this scale suggests that the home visitor is frequently engaging in facilitative behaviors during the home visit.

SCALE 4—HOME VISITOR NON-INTRUSIVENESS/COLLABORATION WITH FAMILY

This scale focuses on the lack of intrusiveness by the home visitor on parent behavior and parent-child interactions during the visit. It assesses (1) home visitor control and (2) home visitor flexibility and responsiveness. A high rating on this scale suggests that the home visitor rarely

engages in intrusive behaviors during the home visit and that he or she uses effective strategies to collaborate with the parent. A high rating on this scale means the home visitor is non-intrusive in a manner that promotes collaboration with the parent as a partner in supporting the child's development.

SCALE 5—PARENT-CHILD INTERACTION DURING HOME VISIT

This scale examines the nature of the parent-child relationship, as observed during the home visit. It assesses (1) parent-child warmth and physical closeness, (2) parent attentiveness to the child, (3) parent responsiveness to the child, and (4) parent-child joint attention. A high rating on this scale suggests that the parent and child are frequently engaging in warm, positive behaviors during the home visit.

SCALE 6—PARENT ENGAGEMENT DURING HOME VISIT

This scale examines the engagement of the parent and the activities of the home visit. It focuses on (1) parent interest, (2) parent involvement and initiative, and (3) the parent's physical closeness to the home visitor and child. A high rating on this scale suggests that the parent is frequently displaying behaviors that indicate interest and engagement in the home visit activities and discussions.

SCALE 7—CHILD ENGAGEMENT DURING HOME VISIT

This scale focuses on the child's engagement in the activities of the home visit. It focuses on (1) child involvement and (2) child interest. A high rating on this scale suggests that the child is frequently displaying behaviors that indicate engagement and interest in the home visit.

Instructions:

Each HOVRS-A+ scale has a series of items with a set of indicators at different levels of quality for a particular home visit practice. For each set of indicators, check at least one indicator (1, 3, 5, or 7). Observing either live or from video, read each item and check the indicator that comes closest to describing the observation even if not an exact match.

Rarely: almost never observed, maybe once or a couple minor questionable times, and missed opportunities.

Occasionally: observed occasionally, 2-3 times, and also missed opportunities.

Frequently: almost always observed; opportunities are almost never missed.

When observing long home visits, it is helpful to check whatever is observed, even at a low level. Then if a higher quality indicator is observed, simply cross out the previously checked item.

If child is sleeping for over 75% of the visit, mark N/A ("not applicable") on any item related to parent-child interactions or observations involving the child.

If there are multiple children, rate the first 4 Scales in terms of involving any or all children and Scales 5 and 7 in terms of the children in general (a sort of mental average).

If videorecording, home visitors may self-record a 30-45 minute "core" of the home visit that includes the primary activities and practices implemented in a typical home visit.

When observing, note that "activities" may include discussions.

Scoring:

At the end of the observation, decide on an overall rating, from 1 to 7, for each Scale, using the full range of values: 1, 2, 3, 4, 5, 6, or 7, based on the pattern of item indicators. For example, if most items were

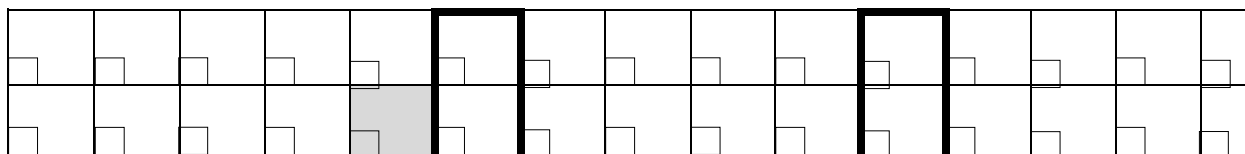
rated as 5 or "Good," then the rating would most likely be a 5. If, however, some of the items are a 5 and some are a 3 or "Adequate," then the overall scale rating would most likely be a 4. If some items are a 7 or "Excellent," and some are a 5, then the rating would likely be a 6. Items rated as 1 carry more weight (estimate as -1). To make the final scale rating, the observer may use informed judgment about the weight of specific items, considering the situation and individuals involved.

Sum the ratings from Scales 1-4 to provide an index of the quality of *Home Visiting Practices*. Sum the ratings from Scales 5-7 to provide an index of home visit effectiveness on *Family Engagement*.

APPENDIX C
HOME VISIT OBSERVATION FORM REVISED

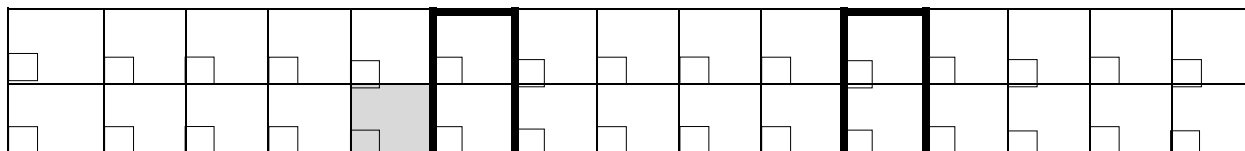
1. PRIMARY INTERACTION FOR INTERVAL

- | | | | |
|-------------------|-------------------|----------------------|-------------------------------|
| 0= No interactors | 3= HV-Child | 6= Joint HV – Child | 8= Joint adult or other child |
| 1= Parent – Child | 4= HV- Other | 7= Other Joint-Child | 9=Parent-Parent |
| 2= Parent – HV | 5= Parent – Other | | 10=HV-child/Parent-child |



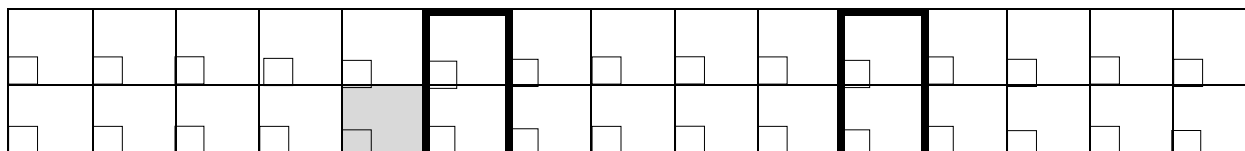
2. CONTENT OF INTERACTION

- | | | |
|--------------------------------------|----------------------------------|--|
| 0= No content | 5= Family member physical health | 10= General conversation |
| 1= Child development (support child) | 6= Basic need | 11= Child development (support parent) |
| 2= Child's health/safety | 7= Community resource/referral | 12=Transition/Orientation |
| 3= Parenting issues | 8= Employment/education | |
| 4= Functioning of family members | 9= Administration/ other | |



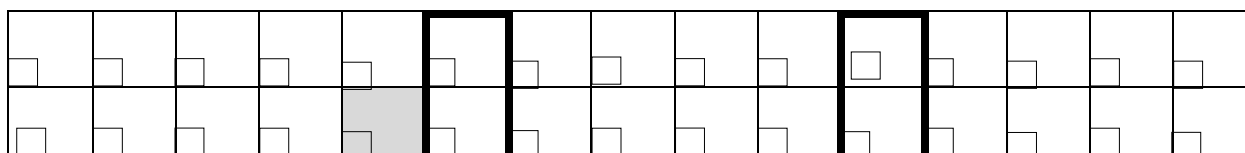
3. NATURE OF HV ACTIVITY OR BEHAVIOR with Parent

- | | | |
|---|---------------------------------|-------------------------------|
| 0= No interaction | 5=Asks for information | 10= Effort to engage |
| 1= Direct teaching/child | 6= Listening | 12= Paperwork |
| 2= Modeling for parent | 7= Observing interaction | 13= Other |
| 3= Coaching/supporting p-c interaction | 8= Provide positive affirmation | 14= Interacts non-focal child |
| 4= Provide information/comments/suggestions | 9= Self-disclosure | |



4. Nature of HV Interactions with Child – in reference to parent

- | | | |
|-----------------------|----------------------------------|--------------------------------------|
| 0= No interaction | 3 =Passive Modeling for Parent | 6= Affirm caregiver |
| 1= Direct instruction | 4 =Active Modeling for Parent | 7 = Social convention/respond to bid |
| 2= Orient/Command | 5 = Draw attention to child cues | |



Category: Who is Present:

Note who is present during each interval

Category: Primary Interaction

Code	Label	Definition	Examples
No Interaction	0	Nothing is occurring, must also code 0 for content and nature of interaction	Participants leave the room
Caregiver-child	1	Parent is interacting directly with child or children, HV is not actively participating	HV is doing paperwork
Caregiver-HV	2	HV is interacting with caregiver, child can be present but is not involved	Parent and caregiver discussing toilet training
HV-child	3	HV interacts with child or children, caregiver does not say or do anything to indicate attention/ participation	Parent is doing paperwork or interacting with other child/adult
HV-other	4	HV interacts with others present, caregiver does not interact during this period	HV talking to extended family while mom is out of the room
Caregiver-other	5	Caregiver interacts with others in the room but not child or caregiver	Caregiver talks to grandparent who
Joint HV-Child-Adult	6	Both caregiver and HV are directly interacting with the child	Both watching child play, One is interacting with child while other is observing actively and commenting
Other Joint Interaction	7	Two or more adults are interacting jointly with child	Mom and Grandma are playing with child together
Adult-adult	9	Two adults other than the HV interact and do not include the child or HV	Caregivers discuss assessment items
HV-Adult Split	10	Multiple children are present. HV is working with one or more and parent is working with one or more separately (note code direct instruction for these instances)	Mom is reading a book with one child while the HV is playing blocks with another

Category: Content of Interaction

Code	Label	Definition	Examples
No content	0	No content	Caregiver leaves the room
Child development (support child)	1	Child is an active participant in interaction and is engaged in an activity intended to support developing skills	HV and caregiver build a puzzle with the child
Child development (support parent)	11	HV discusses developmental expectations, suggests activities to support development, or discusses goals for development	HV explains developmental milestones to caregiver
Child health and safety	2	Focuses on prevention and treatment of issues, includes discussions on nutrition, sleep, well checks, babyproofing, car safety, etc.	HV provides information about toy sanitation
Parenting issues	3	Focuses on parenting issues unique to focal child or sibs, includes caregiver concerns and HV advice	Caregiver asks how to deal with throwing food
Functioning of family members	4	Relationships within the family or within the community and the way caregivers or dealing with or viewing the world	Developmental goals School Family planning
Family physical health	5	Focuses on prevention and treatment of health issues of family members (not child)	Mental health Substance use
Basic needs	6	Family management of material resources	Paying bills Obtaining food Child support
Community resource and referral	7	HV gives referral, or community resources are discussed	Application processes Community events
Caregiver employment/education	8	Conversation around job or school	Salary, hours School applications
Administration/Scheduling	9	Discussion of program policies or scheduling	Paperwork Scheduling visit
General Conversation	10	Non-developmental conversation, small talk, telling stories that do not fit other categories	Mom explains a TV show her child likes to the HV.
Orientation/Transition	12	Non-developmental orientation to visit activity that does not provide learning opportunity	HV describes activity that is going to occur

Category: Nature of Home Visitor Behavior

Code	Label	Definition	Examples
No Interaction	0	Nothing is occurring, must also code 0 for primary interaction and content	Participants leave the room
Direct teaching child	1	HV is interacting with child, caregiver is not involved	Caregiver is on the phone or caring for another child
Model for Caregiver	2	HV is working directly with the child, but caregiver is actively observing and commenting	HV demonstrates activity, uses materials to show parent techniques
Coach/support parent's interaction with child	3	Parent is interacting with child directly, HV interprets behavior, gives suggestions, reinforces, and supports interaction, or follows caregiver lead	Suggests different way to interact, hands materials to parent, caregiver tells child to tell HV story
Provides Information	4	Gives written or verbal information to caregiver, includes suggestions, handouts, explaining how to do an activity, orienting to next segment of visit	HV provides caregiving suggestions, gives assessment results
Asks for information	5	Asks for verbal or written information. If caregiver spends interval responding to question code asks for information.	"Have you thought about going back to school?"
Listens	6	HV listens to caregiver. The caregiver initiates topic, or caregiver has been responding to a question for more than two intervals. Conversation is directed to the HV.	Parent brings up topic of concern
Observes interaction	7	HV watches others interact but is not a part of the interaction.	HV watches caregiver play with child
Self-disclosure	9	HV shares personal stories or experiences.	HV tells caregiver about her parenting techniques
Effort to Encourage Engagement	10	HV invites family members to join an activity	"Dad, do you want to come play?"
General Conversation	11		
Paperwork	12	HV is filling out paperwork not interacting with anyone	Fills out visit record
Transition/Other	13	Often used at beginning or end of visit when nothing significant is occurring yet or visit has already wrapped up	Setting up materials
Interactions with other child	14	Interacts with sibling, only used when obvious focal child is not involved	HV does an activity with sib to keep them busy

Category: Nature of Caregiver Behavior with Child

Code	Label	Definition	Examples
No Interaction	0	Caregiver is not interacting	Caregiver leaves the room
Direct teaching child	1	Caregiver is interacting with the child, HV is not involved	HV is filling out paperwork
Model for child	2	Caregiver models how to use a toy or do activity but HV not actively involved	Caregiver demonstrates activity, uses materials to show child technique
Supporting coaching child	3	Caregiver is observing the child, interpreting behavior, giving suggestions, or following the child's lead	Suggests different way to play with materials
Provides Information	4	Gives verbal information to child or explains upcoming activity	Caregiver tells child what broccoli is
Asks for information	5	Caregiver asks child for information	"What color is this"
Listens	6	Caregiver listens to child. Topic is initiated by the child	Child tells caregiver about school
Observes interaction	7	Caregiver attentively watches HV's interactions with child	Caregiver observes HV and child doing activity
Effort to Encourage Engagement	10	Caregiver tries to persuade child to engage in visit activities	"Come read the book"
General Conversation/Answer Bid	11	Small talk not significant to visit. Positive interaction with vocalization	Talk about weather
Paperwork	12	Caregiver is filling out paperwork not interacting with anyone	Fills out assessment
Transition/Other	13	Often used at beginning or end of visit when nothing significant is occurring yet or visit has already wrapped up	Setting up materials
Interactions with other child	14	Interacts with sibling, only used when obvious focal child is not involved	Caregiver does an activity with sib to keep them busy
Affirm	8	Caregiver praises child's efforts	

Category: Nature of HV Behavior with Child

Code	Label	Definition	Examples
No Interaction	0		
Direct Instruction	1	HV teaches child directly, typically excludes caregiver from interaction	“Here, hold the scissors in this hand”
Orient/give command	2	HV tells child what to do or explains activity	“Come sit down, we are going to read a book”
Passive Modeling	3	HV interacts with child with the intention of demonstrating strategies for interacting. Mom is observing but not interacting	HV says, “what if you tried this?” and then interacts with the child.
Active Modeling	4	HV interacts with child with the intention of demonstrating strategies for interacting, caregiver is engaged and participating	HV says “Wow that is a really shiny ball. Do you want to play with it?”
Speaks to child to draw attention to child cue	5	Home visitor speaks to the child to make the caregiver aware of the child’s cues or needs	“You are getting fussy because you are hungry”
Speaks to child to affirm caregiver	6	Home visitor talks to the child in order to give the caregiver praise or reassurance	“Your mommy is doing a great job”
Social convention or respond to bid for attention	7	Child bids for attention and HV briefly responds	Child: “Look at my book” HV: “Oh do you like that story?”

APPENDIX D
SURVEY ITEMS

Thank you for taking part in this study. The purpose of this study is to learn more about how home visitors communicate with families. This survey asks questions about your family and your expectations, preferences, and experiences in home visiting.

A. BASIC QUESTIONS ABOUT YOURSELF

This section will ask questions about your personal background and experiences.

1. **FB_A1** What is your age (in years)? _____
2. **FB_A2** Are you of Hispanic, Latino or Spanish origin?
 - ⁰ No, not of Hispanic, Latino or Spanish origin
 - ¹ Yes, of Hispanic, Latino or Spanish origin
 - ⁸⁸ Prefer not to answer
3. **FB_A3** What is your race (check all that apply)?
 - ⁰ White **FB_A3A**
 - ¹ Black or African American **FB_A3B**
 - ² Asian **FB_A3C**
 - ³ Native Hawaiian/other Pacific Islander **FB_A3D**
 - ⁴ American Indian or Alaska Native **FB_A3E**
 - ⁵ Unknown **FB_A3F**
 - ⁶ Prefer not to answer **FB_A3G**
 - ⁷ Other **FB_A3H**
4. **FB_A4** What is the highest grade or year of school that you have completed?
 - ⁰ No regular/formal school or education
 - ¹ K – 8th grade
 - ² 9th -12th grade
 - ³ High school diploma / GED
 - ⁴ Some college but no degree
 - ⁵ Associates degree
 - ⁶ BA/BS degree
 - ⁷ Master's degree or more education
 - ⁸ **FB_A4OTHER** Other (Specify) _____
 - ⁸⁸ Don't know
5. **FB_A5** What is your relationship status?
 - ⁰ Single (no current partner)
 - ¹ Dating
 - ² Engaged to be married
 - ³ Living with partner
 - ⁴ Married
 - ⁵ Separated
 - ⁶ Divorced
 - ⁷ Widowed
 - ⁸ Other
 - ⁸⁸ Don't know

6. **FB_A8** How many children do you have?
¹ One
² Two
³ Three
⁴ More than three
7. **FB_A9** What is the PRIMARY language that you speak at home?
⁰ English
¹ Spanish
² **FB_A9OTHER** Other _____
8. **FB_A10** What language do you prefer for visits?
⁰ English
¹ Spanish

B. REASONS FOR ENROLLING & EXPECTATIONS IN HOME VISITING

1. **FB_B1** How long have you been enrolled in home visiting?
⁰ 3 – 6 months
¹ More than 6 months

Below is a list of common reasons why families enroll in home visiting. Show the reasons that you enrolled in this program. Did you enroll to get help to...

	Not a Reason I Enrolled	Somewhat Important Reason	Important Reason	Very Important Reason
a. Have a healthy pregnancy FB_B3A	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
b. Stay healthy after I have my baby FB_B3B	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
c. Have my baby be healthy FB_B3C	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
d. Have my baby learn and develop good social and emotional skills FB_B3D	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
e. Manage my child's behavior FB_B3E	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
f. Use family planning, space my births FB_B3F	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
g. Quit smoking FB_B3G	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
h. Quit using alcohol or drugs FB_B3H	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
i. Deal with stress or sadness FB_B3I	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
j. Get more education, a job, or a better job FB_B3J	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
k. Deal with partner or family violence FB_B3K	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
l. Cope with my own past abuse or trauma FB_B3L	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
m. Meet basic needs such as food, utilities, and housing FB_B3M	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³
n. Connect with others to talk to as supportive friends FB_B3N	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³

4. **FB_B10** Think back to when important things were explained before you agreed to enroll. How close are the services you receive to what you expected?
- ³ Exactly what I expected
 - ² Mostly what I expected
 - ¹ A little what I expected
 - ⁰ Not at all what I expected

D. WHAT HAPPENS IN VISITS

2. Thinking of the reasons you enrolled in home visiting, tell us about how **satisfied** you are with your home visitor's efforts so far to meet your needs.

How satisfied are you so far with your home visitor's efforts to meet this need?	Not a reason I enrolled	Not at all satisfied	Somewhat satisfied	Satisfied	Very satisfied
a. Have a healthy pregnancy FB_E2A	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
b. Stay healthy after I have my baby FB_E2B	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
c. Have my baby be healthy FB_E2C	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
d. Have my baby learn and develop good social and emotional skills FB_E2D	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
e. Manage my child's behavior FB_E2E	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
f. Use family planning, space my births FB_E2F	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
g. Quit smoking FB_E2G	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
h. Quit using alcohol or drugs FB_E2H	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
i. Deal with stress or sadness FB_E2I	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
j. Get more education, a job, or a better job FB_E2J	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
k. Deal with partner or family violence FB_E2K	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
l. Cope with my own past abuse or trauma FB_E2L	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
m. Meet basic needs such as food, utilities, and housing FB_E2M	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
n. Connect with others to talk to as supportive friends FB_E2N	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

Home Visitor Survey

Thank you for taking this survey about your program, your role as a home visitor, and how your program supports you to carry out your role.

We have asked home visitors from several HARC member sites in the US to take the survey.

Before you start, four important points about the survey's language and scope.

- **We use the female pronoun for home visitors because this is simpler than "he or she".** In answering questions, consider ALL home visitors, not just female home visitors.
- **We use "mother" instead of "caregiver", "parent" or "mother or father" because all programs serve mothers and because the services programs offer are sometimes different for mothers than for fathers and other family members.** In answering questions, unless directed otherwise, consider JUST THE MOTHER.
- **We use "visitor" interchangeably with "home visitor".**

Please write your name here: _____

The last few sections are about your background and your feelings in general and about work in particular.

AA. BACKGROUND

1. What is your age in years? **HVB_AA01**

2. With which racial and ethnic groups do you identify? CHECK ALL THAT APPLY.
 - ¹ Black/African-American **HVB_AA02_1**
 - ² Asian/ Pacific Islander **HVB_AA02_2**
 - ³ White, non-Hispanic **HVB_AA02_3**
 - ⁴ American Indian/Native American **HVB_AA02_4**
 - ⁵ Hispanic/Latina **HVB_AA02_5**
 - ⁶ Other (specify) **HVB_AA02_6**_____ **HVB_AA02_6a**_____

3. What is the highest level of education or degree you have completed? **HVB_AA03**
 - ¹ High School/GED [SKIP TO 6]
 - ² Vocational/technical training program
 - ³ Some college, no degree
 - ⁴ Associate's degree
 - ⁵ Bachelor's degree
 - ⁶ Master's degree
 - ⁷ Doctoral degree

4. What fields did you study in college or graduate school? CHECK ALL THAT APPLY.
 - ¹ Child Development **HVB_AA04_1**
 - ² Early childhood education **HVB_AA04_2**
 - ³ Elementary or secondary education **HVB_AA04_3**
 - ⁴ Psychology **HVB_AA04_4**
 - ⁵ Social work/Social welfare **HVB_AA04_5**
 - ⁶ Nursing **HVB_AA04_6**
 - ⁷ Other (SPECIFY) **HVB_AA04_7**_____ **HVB_AA04_7a**_____

5. In which field did you earn your highest degree? **HVB_AA05**

- ¹ Child development
² Early childhood education
³ Elementary or secondary education
⁴ Psychology
⁵ Social work or social welfare
⁶ Nursing
⁷ Other (SPECIFY) _____

HVB_AA05a _____

6. How many years have you been a home visitor? CHECK THE FIRST BOX IF LESS THAN 6 MONTHS. OTHERWISE, ROUND TO THE NEAREST WHOLE NUMBER OF YEARS.

HVB_AA06

- ¹ Less than 6 months
 ____ ____ years

Home Visitor Post-Video Survey

Thinking of your **recorded home visit** with [NAME OF MOTHER], please answer the following.

1. **HV_PV01** How would you rate the mother's level of interest and engagement during the visit?

Not very interested or engaged ¹ ² ³ ⁴ ⁵ Very interested and engaged

2. **HV_PV02** How would you rate your effectiveness in this visit?

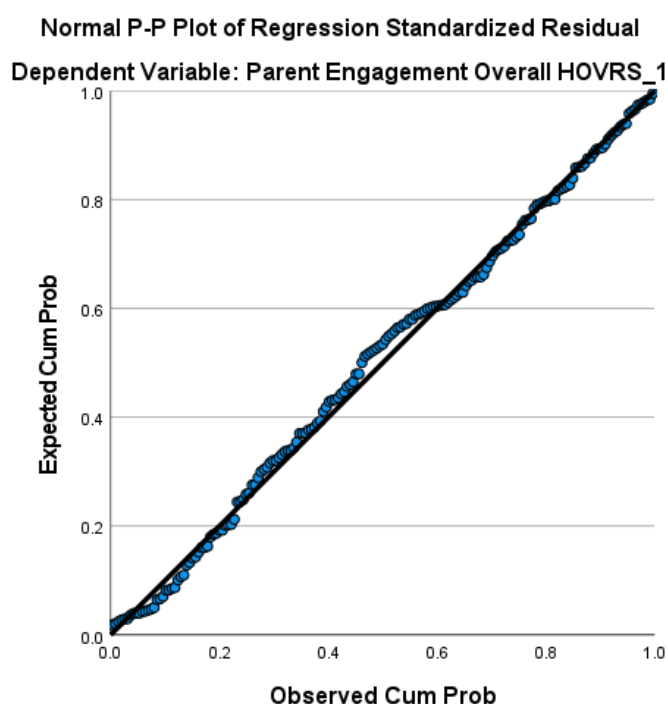
- ¹ I felt very effective in my role in this visit
² I felt somewhat effective in my role in this visit
³ I did not feel effective in my role in this visit

APPENDIX E
TESTS OF MODEL ASSUMPTIONS

Tests of Model Assumptions for Study Question 2

Home Visit Content Selection and Caregiver Engagement

The final model was checked to ensure that all statistical assumptions were met. Residuals appeared to be normally distributed. A Durbin-Watson estimate of 1.86 indicated independence of residuals, and tests of multicollinearity were well within suggested bounds of above .2 for tolerance and lower than 5 for VIP estimates (Ringle, 2015)



Residual plot for home visit content on caregiver engagement

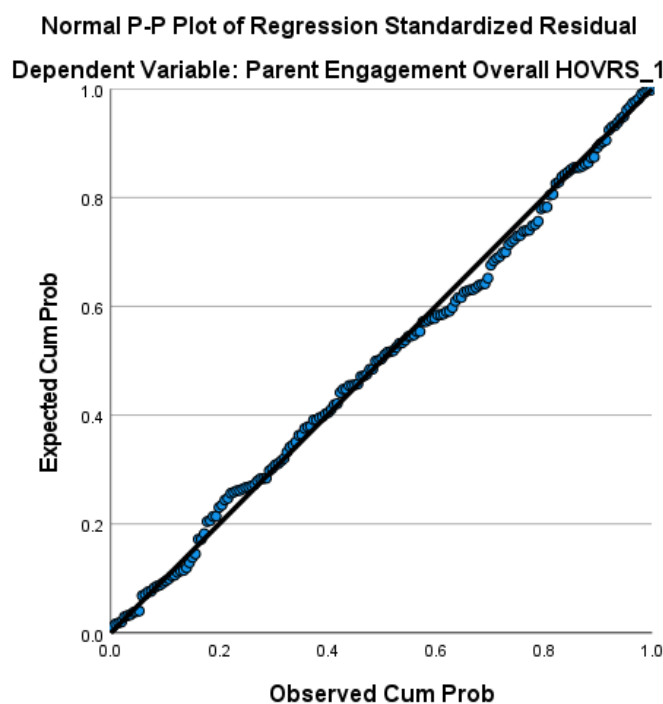
Collinearity Diagnostics for Home Visit Content on Caregiver Engagement

Variable	Tolerance	VIF
CG Education	1	1.00
Caregiver # of Children	1	1.00
Child Focused Content	.99	2.64
Family Focused Content	.99	2.98

N=183

Caregiver-directed and Child-directed Behaviors on Caregiver Engagement

The final model was checked to ensure that all model assumptions were met. Residuals appeared to be normally distributed (Figure 6). A Durbin-Watson estimate of 1.87 indicated independence of residuals, and tests of multicollinearity were well within the suggested bounds of above .2 for tolerance and lower than 5 for VIP estimates (Ringle, 2015).



Residual plot for home visitor behavior on caregiver engagement

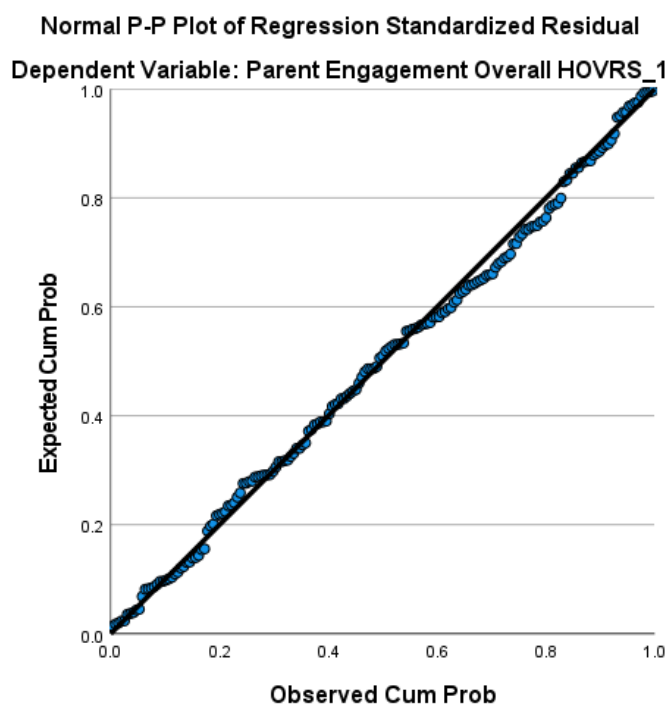
Collinearity Diagnostics for Home Visitor Behavior on Caregiver Engagement

Variable	Tolerance	VIF
CG Education	.98	1.02
Caregiver # of Children	.96	1.04
Child Directed HV Behavior	.56	1.77
Caregiver Directed HV Behavior	.57	1.76

N=183

Home Visitors' Child-focused Behaviors on Caregiver Engagement

The final model was checked to ensure that all assumptions were met. Residuals appeared to be normally distributed (Figure 7). A Durbin-Watson estimate of 1.91 indicated independence of residuals, and tests of multicollinearity were well within the suggested of above .2 for tolerance and lower than 5 for VIP estimates (Ringle, 2015).



Residual plot for child-*directed* behaviors on caregiver engagement
Collinearity Diagnostics for Home Visitor Behavior on Caregiver Engagement

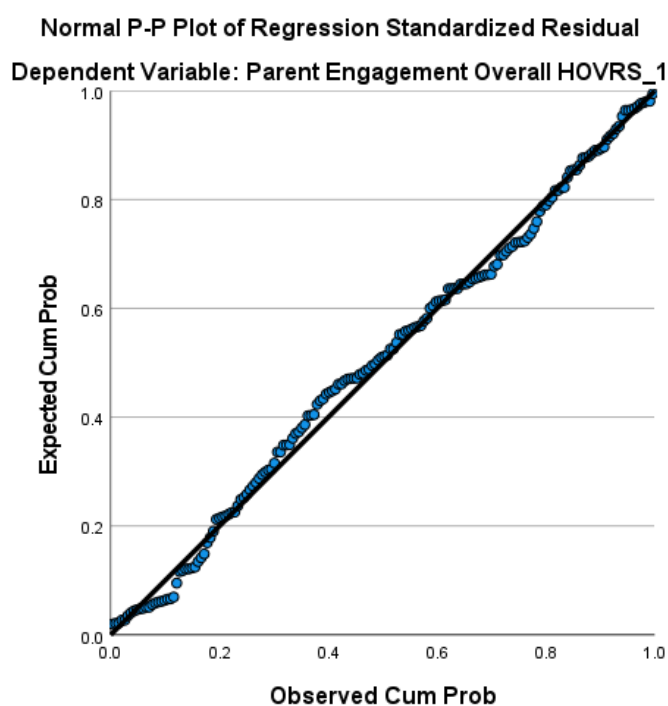
Variable	Tolerance	VIF
CG Education	.99	1.00
Caregiver # of Children	.95	1.06
HV Direct Instruct	.97	1.03
HV Model	.92	1.09
HV Coach	.99	1.00

N=183

Tests of Model Assumptions Study Question 3

RAIS on Caregiver Engagement

The final model was checked to ensure that all requisite statistical assumptions were met. Residuals appeared to be normally distributed (Figure 8). A Durbin-Watson estimate of 1.8 indicated independence of residuals, and tests of multicollinearity were well within the suggested bounds of above .2 for tolerance and lower than 5 for VIP estimates (Ringle, 2015)



Residual plot Home Visitor Use of Communication Strategies on Caregiver Engagement

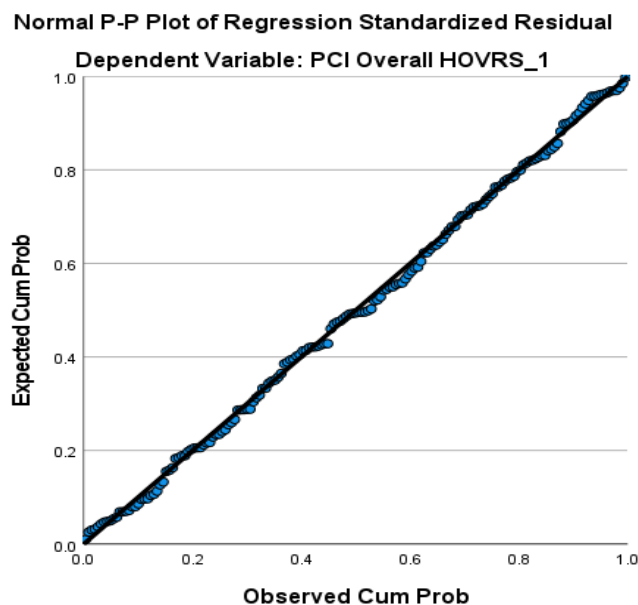
Collinearity Diagnostics for HV Communication on Caregiver Engagement

Variable	Tolerance	VIF
CG Education	.98	1.02
Caregiver # of Children	.98	1.02
Responsiveness RIAS	.97	1.03
Partnership RIAS	.98	1.02

N=178

Visit Content Selection on Caregiver-Child Interaction Quality

The final model was checked to ensure that all model assumptions were met. Residuals appeared to be normally distributed. A Durbin-Watson estimate of 1.90 indicated independence of residuals, and tests of multicollinearity were well within suggested bounds the suggested bounds of above .2 for tolerance and lower than 5 for VIP estimates (Ringle, 2015).



Residual plot for content selection on PCI

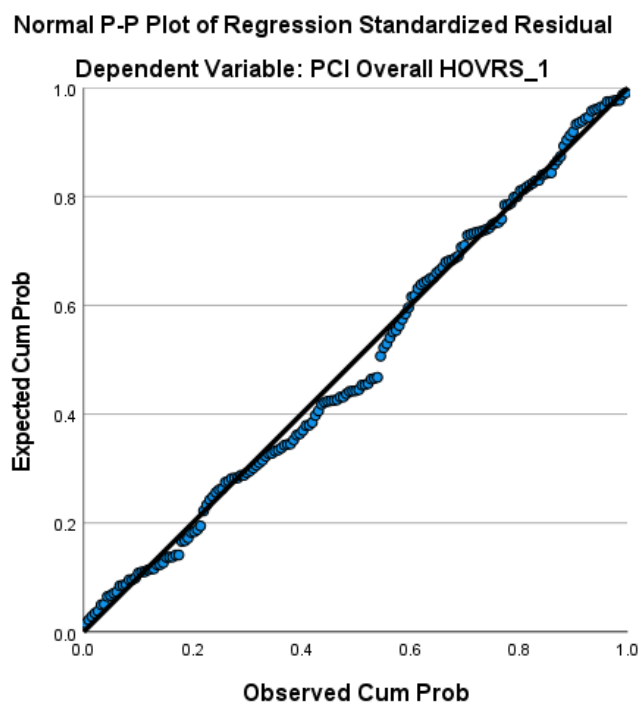
Collinearity Diagnostics for Visit Content on PCI

Variable	Tolerance	VIF
CG Number of Children	.99	1.03
HV Race/Ethnicity	.95	1.05
Child- <i>focused</i> Content	.34	2.9
Family- <i>focused</i> Content	.35	2.8

N=164

Home Visitor Behavior on Caregiver-Child Interaction Quality

The final model was checked to ensure that all model assumptions were met. Residuals appeared to be normally distributed. A Durbin-Watson estimate of 1.76 indicated independence of residuals, and tests of multicollinearity were well within suggested bounds the suggested bounds of above .2 for tolerance and lower than 5 for VIP estimates (Ringle, 2015).



Residual plot for HV activity on PCI

Collinearity Diagnostics for Home Visitor Behavior on PCI

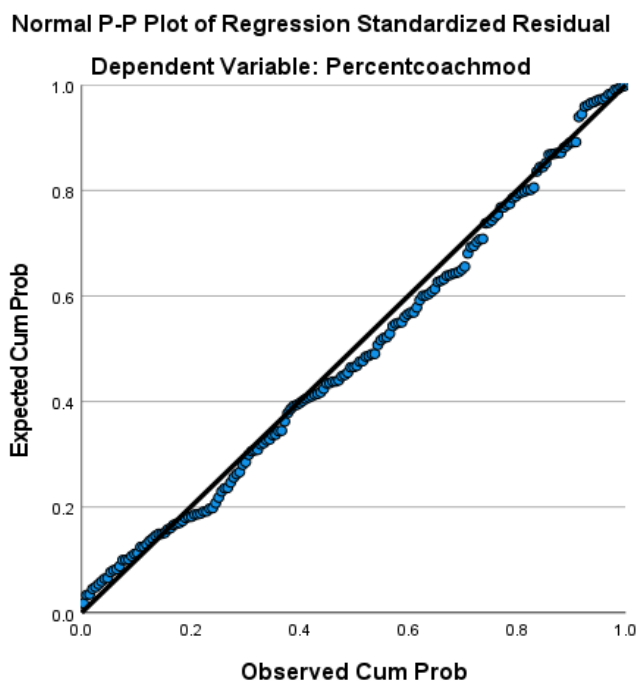
Variable	Tolerance	VIF
CG Number of Children	.92	1.08
HV Race/Ethnicity	.87	1.15
HV Direct Instruction	.97	1.03
HV Modeling	.85	1.18
HV Coaching	.92	1.09

N=164

Tests of Model Assumptions for Study Question 4

Visit Content on Caregiver Behavior

The final model was checked to ensure that all model assumptions were met. Residuals appeared to be normally distributed. A Durbin-Watson estimate of 1.14 indicated independence of residuals, and tests of multicollinearity were well within suggested bounds of above .2 for tolerance and lower than 5 for VIP estimates (Ringle, 2015).



Residual plot for visit content on GC behavior

Collinearity Estimates

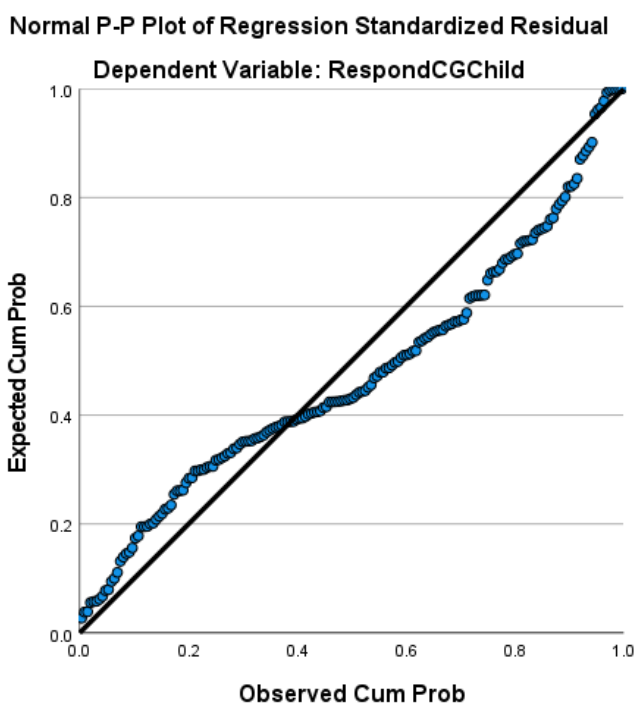
Variable	Tolerance	VIF
CG Age	.98	1.02
HV Caseload	.93	1.08
<i>Child-focused</i> Content	.33	3.05
<i>Family-focused</i> Content	.32	3.14
<i>Child-directed</i> Content	.52	1.94
<i>Caregiver-directed</i> Content	.54	1.87
HV Direct Instruction	.96	1.04
HV Modeling	.91	1.10
HV Coaching	.95	1.06

N=183

Tests of Model Assumptions for Study Question 5

Home Visitor Use of Responsiveness and Caregiver Use of Responsiveness

The final model was checked to ensure that all model assumptions were met. Residuals appeared to be normally distributed. A Durbin-Watson estimate of 1.74 indicated independence of residuals, and tests of multicollinearity were well within suggested bounds of above .2 for tolerance and lower than 5 for VIP estimates (Ringle, 2015).



Residual Plot for HV Responsiveness on Caregiver

Responsiveness

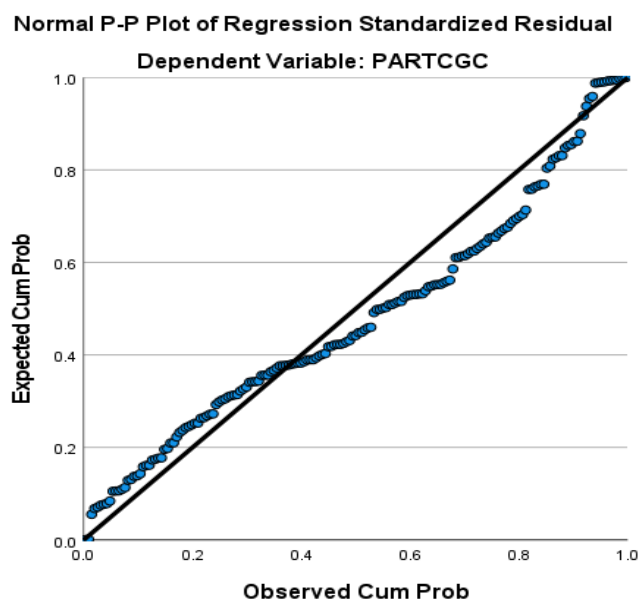
Collinearity Diagnostics for Home Visitor Responsiveness on Caregiver Responsiveness

Variable	Tolerance	VIF
HV Caseload	.97	1.03
HV Responsiveness w Child	.96	1.05
HV Responsiveness w CG	.95	1.04
HV Total Responsiveness	.99	1.00

N=183

Home Visitor Use of Partnership Building Techniques on Caregiver Use of the Techniques

The final model was checked to ensure that all model assumptions were met. Residuals appeared to be normally distributed. A Durbin-Watson estimate of 2.07 indicated independence of residuals, and tests of multicollinearity were well within suggested bounds of above .2 for tolerance and lower than 5 for VIP estimates (Ringle, 2015).



Residual plot of HV Partnership on Caregiver

Partnership

Collinearity Diagnostics for Home Visitor Partnership Behavior on Caregiver Partnership

Behavior

Variable	Tolerance	VIF
CG Education	.96	1.04
Program Model	.94	1.06
HV Partnership w Child	.96	1.04
HV Partnership w CG	.96	1.04
HV Total Partnership	.96	1.04

N=180

REFERENCE LIST

- Ackerman, S. J., & Hilsenroth, M. J. (2003). A review of therapist characteristics and techniques positively impacting the therapist alliance. *Clinical Psychology Review, 23*(1), 1-33.
- Alonso-Marsden, S., Dodge, K. A., O' Donnell, K. J., Murphy, R. A., Jeannine, & M. S., Christopoulos, C. (2014). Family risk as a predictor of initial engagement and follow-through in a universal nurse home visiting program to prevent child maltreatment. *Child Abuse and Neglect, 37*(8), 555-565.
- Astuto, J., & Allen, L. (2009). *Home visitation and young children: An approach worth investing in?* (Social Policy Report; Vol. 23, No. 4). Society for Research in Child Development.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.
- Bernard, K., Dozier, M., Bick, J., Lewis-Morrarty, E., Lindhiem, O., & Carlson, E. (2012). Enhancing attachment organization among maltreated children: Results of a randomized clinical trial. *Child Development, 83*(2), 623-636.
- Bidmead, C., & Davis, H. (2008). Partnership working: The key to public health. *Community Public Health in Policy and Practice, 28*-48.
- Bierman, K. L., Welsh, J., Heinrichs, B. S., Nix, R. L. (2018). Effect of preschool home visiting on school readiness and need for services in elementary school: A randomized clinical trial. *JAMA Pediatrics, 172*(8): e181029.
- Blue-Banning, M., Summers, J. A., Frankland, H. C., Nelson, L. L., & Beegle, G. (2004). Dimensions of family and professional partnerships: Constructive guidelines for collaboration. *Exceptional Children, 70*(2), 167-184.
- Boller, K., Strong, D. A., & Daro, D. (2010). Home visiting: Looking back and moving forward. *Zero to Three (J), 30*(6), 4-9.
- Boller, K., Vogel, C., Cohen, R., Aikens, N., & Hallgren, K. (2009). *Home visit characteristics and content form*. Mathematica Policy Research.
- Bordin, E. S. (1994). Theory and research on the therapeutic working alliance: New directions. *The Working Alliance: Theory, Research, and Practice, 173*, 13-37.

- Bornstein, M. H., & Bradley, R. H. (2014). *Socioeconomic status, parenting and child development*. Taylor and Francis.
- Borrego, J., Jr., & Urquiza, A. J. (1998). Importance of therapist use of social reinforcement with parents as a model for parent-child relationships: An example with parent-child interaction therapy. *Child and Family Behavior Therapy*, 20(4), 27-54.
- Braye, S., & Preston-Shoot, M. (1995). Power, partnership, and empowerment. *Empowering Practice in Social Care*. Open University Press, Buckingham, 98-122.
- Brookes, S. J., Summers, J. A., Thornburg, K. R., Ispa, J. M., & Lane, V. J. (2006). Building successful home visitor-mother relationships and reaching program goals in two Early Head Start programs: A qualitative look at. *Early Childhood Research Quarterly*, 21(1), 25-45.
- Bryk, A. S., & Raudenbush, S. W. (1992). *Hierarchical linear models (applications and data analysis methods)*. Sage Publications.
- Burrell, L., Crowne, S., Ojo, K., Snead, R., O'Neill, K., Cluxton-Keller, F., & Duggan, A. (2018). Mother and home visitor emotional well-being and alignment on goals for home visiting as factors for program engagement. *Maternal and child health journal*, 22(1), 43-51.
- Byrd, M. E. (2006). Social exchange as a framework for client-nurse interaction during public health nursing maternal-child home visits. *Public Health Nursing*, 23(3), 271-276.
- Canevello, A., & Crocker, J. (2010). Creating good relationships: responsiveness, relationship quality, and interpersonal goals. *Journal of Personality and Social Psychology*, 99(1), 78.
- Carter, S. L., Osofsky, J. D., & Hann, D. M. (1991). Speaking for the baby: A therapeutic intervention with adolescent mothers and their infants. *Infant Mental Health Journal*, 12(4), 291-301.
- Casady, A., & Van Egeren, L. (2002). *A meta-analysis of home visitor programs: Moderators of improvements in maternal behavior*.
- Castonguay, L. G., Constantino, M. J., & Holtforth, M. G. (2006). The working alliance: Where are we and where should we go? *Psychotherapy: Theory, Research, Practice, Training*, 43(3), 271.
- Chalmers, I. (2003). Trying to do more good than harm in policy and practice: The role of rigorous, transparent, up-to-date evaluations. *The Annals of the American Academy of Political and Social Science*, 589(1), 22-40.

- Charlton, C. R., Dearing, K. S., Berry, J. A., & Johnson, M. J. (2008). Nurse practitioners' communication styles and their impact on patient outcomes: An integrated literature review. *Journal of the American Academy of Nurse Practitioners*, 20(7), 382-388.
- Cho, J., Terris, D. D., Glisson, R. E., Bae, D., & Brown, A. (2017). Beyond family demographics, community risk influences maternal engagement in home visiting. *Journal of Child and Family Studies*, 26(11), 3203-3213.
- Cook, R. E., & Sparks, S. N. (2008). *The art and practice of home visiting: Early intervention for children with special needs and their families*. Paul H. Brookes Pub.
- Counts, J. M., Gillam, R. J., Perico, S., & Eggers, K. L. (2017). Lemonade for life—A pilot study on a hope-infused, trauma-informed approach to help families understand their past and focus on the future. *Children and Youth Services Review*, 79, 228-234.
- Coyne, I., & Gallagher, P. (2011). Participation in communication and decision-making: Children and young people's experiences in a hospital setting. *Journal of Clinical Nursing*, 20(15-16), 2334-2343.
- Cramm, J. M., & Nieboer, A. P. (2015). Chronically ill patients' self-management abilities to maintain overall well-being: What is needed to take the next step in the primary care setting? *BMC Family Practice*, 16(1), 123.
- Daro, D. (2000). Linking research to practice: Challenges and opportunities. *Journal of Aggression, Maltreatment and Trauma*, 4(1), 115-137.
- Daro, D. A., & Harding, K. A. (1999). Healthy families America: Using research to enhance practice. *Future of Children*, 9, 152-176.
- Daro, D., Hart, B., Boller, K., & Bradley, M. C. (2019) Replicating home visiting programs with fidelity: Baseline data and preliminary findings. *Mathematica Policy Research Reports*, b7e3bd7ae1d94302a8f3df437.
- Duggan, A., Berlin, L., Cassidy, J., Burrell, L., & Tandon, S. (2009, August). Maternal depression and attachment insecurity moderate human visiting impacts for at-risk mothers and infants. *Journal of Consulting and Clinical Psychology*, 77, 788-799.
- Duggan, A., Burrell, L., Crowne, S., Ojo, K., Cluxton-Keller, F., Latimore, A., & O'Neill, K. M. (2015). Evaluation of evidence-based home visiting in New Jersey: Early family engagement and services in home visiting. In *Division of family and community services: Early childhood services*. New Jersey Department of Children and Families.

- Duggan, A., Caldera, D., Rodriguez, K., Burrell, L., Rohde, C., & Crowne, S. S. (2007). Impact of a statewide home visiting program to prevent child abuse. *Child Abuse and Neglect*, *31*(8), 801-827. <https://doi.org/10.1016/j.chiabu.2006.06.011>
- Duggan, A., McFarlane, E., Windham, A., et al. (1999). Evaluation of Hawaii's healthy start program. *Future Child*, *9*, 66-90.
- Duncan, K. M., McGillivray, S., & Renfrew, M. J. (2017). Costs and saving of parenting interventions: results of a systematic review. *Child: Care, Health, and Development*, *43*(6), 797-811.
- Durlak, J. A., & Wells, A. M. (1997). Primary prevention mental health programs for children and adolescents: A meta-analytic review. *American Journal of Community Psychology*, *25*(2), 115-152.
- Emde, R. N., Korfmacher, J., & Kubicek, L. (2000). Towards a theory of early relationship-based intervention. In J. D. Osofsky, & H. I. Fitzgerald (Eds.), *World association of infant mental health handbook of infant mental health*. Vol. 2: Early Intervention, Evaluation, and Assessment (pp. 2-32). John Wiley & Sons.
- Emde, R. N., Everhart, K. D., & Wise, B. K. (2004). *Therapeutic relationships in infant mental health and the concept of leverage*. In A. J. Sameroff, S. C. McDonough, & K. L. Rosenblum (Eds.), *Treating parent-infant relationship problems: Strategies for intervention* (pp. 267-292). The Guilford Press.
- Filene, J. H., Kaminski, J. W., Valle, L. A., & Cachat, P. (2013). Components associated with home visiting program outcomes: A meta-analysis. *Pediatrics*, *132*(Supplement 2), S100-S109.
- Glaze, L. E., & Maruschak, L. M. (2020). *Incarcerated parents and their children*. Bureau of Justice Statistics. <http://www.bjs.gov/index.cfm?ty=pbdetail&iid=586>
- Hallgren, K., Boller, K., & Paulsell, D. (2010). Better beginnings: Partnering with families for early learning home visit observations (No. 2d67e4d7326945e5a3fba57ffc674118). *Mathematica Policy Research*.
- Hancock, C. L., & Cheatham, G. A. (2021). Decision-making during early intervention home visits: From minimal to meaningful parent participation. *Journal of Research in Childhood Education*, *35*(1), 68-90.
- Hans, S., & Korfmacher, J. (2002). The professional development of paraprofessionals. *Zero To Three*, *23*(2), 4-8.

- Holland, M. L., Olds, D. L., Dozier, A. M., & Kitzman, H. J. (2017). Visit attendance patterns in nurse-family partnership community sites. *Prevention Science*.
- Horvath, A. O., & Bedi, R. P. (2002). *The alliance: Psychotherapy relationships that work: Therapist contributions and responsiveness to patients*. Norcross JC.
- Howard, K. S., & Brooks-Gunn, J. (2009). The role of home-visiting programs in preventing child abuse and neglect. *The Future of Children*, 19(2), 119-146.
- Hughes-Belding, K., Peterson, C. A., Clucas Walter, M., Rowe, N., Fan, L., Dooley, L. J., ... & Goodman, K. (2019). Quality home visits: Activities to promote meaningful interactions. *Infant Mental Health Journal*, 40(3), 331-342.
- Jang, Y., & Koball, H. (2018). *Basic facts about low-income children: Children under 18 years, 2016*. National Center for Children in Poverty, Columbia University School of Public Health.
- Johnson, B. D., Huebner, C. E., Anderson, M. L., Tyll, L. T., & Thompson, R. S. (2006). Healthy steps in an integrated delivery system: Child and parent outcomes at 30 months. *Archives of Pediatrics and Adolescent Medicine*, 160(8), 793-800.
- Johnson, K. (2009). *State-based home visiting: Strengthening programs through state leadership*. National Center for Children in Poverty.
- Kazdin, A. E., & Durbin, K. A. (2012). Predictors of child–therapist alliance in cognitive-behavioral treatment of children referred for oppositional and antisocial behavior. *Psychotherapy*, 49(2), 202-217. <https://doi.org/10.1037/a0027933>
- Kempe, C. H. (1976). Approaches to preventing child abuse: The health visitor's concept. *American Journal of Diseases of Children*, 130(9), 941-947.
- Kendig, S., Keats, J. P., Hoffman, M. C., Kay, L. B., Miller, E. S., Moore Simas, T. A., Frieder, A., Hackley, B., Indman, P., Raines, C., Semenuk, K., Wisner, K. L., Lemieux, L. A. (2017). Consensus bundle on maternal mental health: Perinatal depression and anxiety. *Obstetrics Gynecology*, 29(3), 422-430.
- Kitzman, H. J., Olds, D. L., Cole, R. E. et al. (2010). Enduring effects of prenatal and infancy home visiting by nurses on children: Follow-up of a randomized trial among children at age 12 years. *Arch Pediatric Adolescent Medicine*, 164(5), 412-418.
- Klass, C. S. (2008). *The home visitor's guidebook: Promoting optimal parent and child development*. Paul H Brookes Publishing.

- Korfmacher, J., Frese, M., & Gowani, S. (2019). Examining program quality in early childhood home visiting: From infrastructure to relationships. *Infant Mental Health Journal, 40*(3), 380-394.
- Korfmacher, J., Green, B., Spellmann, M., Thornburg, K. R. (2007). The helping relationship and program participation in early childhood home visiting. *Infant Mental Health Journal, 28*, 459-480.
- Korfmacher, J., Green, B., Staerkel, F., Peterson, C., Cook, G., Roggman, L., et al. (2008). Parent involvement in early childhood home visiting. *Child Youth Care Forum, 37*, 171-196.
- Korfmacher, J., Sparr, M., Frese, M., West, A. & O'Neil. (2019). *Home visitor communication strategies toolkit*. Unpublished Manuscript.
- Landry, S. H., Swank, P. R., Anthony, J. L., & Assel, M. A. (2011). An experimental study evaluating professional development activities within a state funded pre-kindergarten program. *Reading and Writing, 24*(8), 971-1010.
- Lanier, P., Maguire-Jack, K., & Welch, H. (2015). A nationally representative study of early childhood home visiting service use in the United States. *Maternal Child and Health Journal, 19*(10), 2147-2158.
- Latimore, A., Burrell, L. D., Crowne, S., Ojo, K., Cluxton-Keller, F., Gustin, S., Duggan, A. K. (2017). Exploring multilevel factors for family engagement in home visiting across two national models. *Prevention Science, 1-13*.
- LeCroy, C. W. & Krysik, J. (2011). Randomized trial of the healthy families Arizona home visiting program. *Children and Youth Services Review, 33*(10), 1761-1766.
- Levetown, M. (2008). Communicating with children and families: From everyday interactions to skill in displaying distressing information. *Pediatrics, 121*(5), 1441-1460.
- Lewis-Morrarty, E., Dozier, M., Bernard, K., Terracciano, S. M. & Moore, S. V. (2012). Cognitive flexibility and theory of mind outcomes among foster children: Preschool follow-up results of a randomized clinical trial. *Journal of Adolescent Health, 51*(2), 17-22.
- Lindly, O. J., Zuckerman, K. E., & Misty, K. B. (2017). Clarifying the predictive value of family-centered care and shared decision making for pediatric health outcomes using medical expenditure panel survey. *Health Services Research, 52*(1), 313-345.

- Luborsky, L., Crits-Christoph, P., Alexander, L., Margolis, M., & Cohen, M. (1983). Two helping alliance methods for predicting outcomes of psychotherapy: A counting signs vs. a global rating method. *Journal of Nervous and Mental Disease*, 171(8), 480-491.
- Maccoby, E. E. (2000). Parenting and its effects on children: On reading and misreading behavior genetics. *Annual Review of Psychology*, 51, 1-27.
- Marsh, J., Angell, B., Andrews, C., & Curry, A. (2012). Client-provider relationship and treatment outcome: A systematic review of substance abuse, child welfare, and mental health services research. *Journal of the Society for Social Work and Research*, 3(4), 233-267.
- Marshall, T., Kinnard, E. N., Hancock, M., King-Jones, S., Olson, K., Abba-Aji, A., Rittenbach, K., Vohra, (2018). Patient engagement, treatment preferences and shared decision-making in the treatment of opioid use disorder in adults: A scoping review protocol. *BMJ Open*. <https://doi.org/10.1136/bmjopen-2018-022267>
- Martin, D. J., Garske, J. P., & Davis, M. K. (2000). Relation of the therapeutic alliance with outcome and other variables: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, 68(3), 438-450.
- Mc Bride, S. L., & Peterson, C. (1997). Home-based early intervention with families of children with disabilities: Who is doing what? *Topics in Early Childhood Special Education*, 17(2), 209-233.
- McBride, S. L., & Peterson, C.A. (1996). *Home visit observation form*. Unpublished manuscript, Iowa State University.
- McCurdy, K., & Daro, D. (2001). Parent involvement in family support programs: An integrated theory. *Family Relations*, 50(2), 113-121.
- McCurdy, K., Daro, D., Anisfeld, E., Katzev, A., Keime, A, LeCroy, C., McAfee, C., Nelson, C., Falconnier, C., McGuigan, W. M., Parke, J. K., Sandy, J. & Winje, C. (2006). Understanding maternal intentions to engage in home visiting programs. *Child Youth Services Review*, 28(10), 1995-1212.
- McKelvey, L. M., Fitzgerald, S., Connors, E., Nicola, A., & Whiteside-Mansell, L. (2018). *Maternal and Child Health Journal Supplement*, 22(1), 33-42.
- McLeod, J. (2011). Qualitative inquiry and the reconstruction of counselling and psychotherapy. In J. McLeod, *Qualitative research in counselling and psychotherapy* (pp. 2-20). SAGE Publications.

- Michalopoulos, C., Faucetta, K., Hill, C. J., Portilla, X. A., Burrell, L., Lee, H., Duggan, A., & Knox, V. (2019). *Impacts on family outcomes of evidence-based early childhood home visiting: Results from the mother and infant home visiting program evaluation*. OPRE Report 2019-07. Office of Planning, Research, and Evaluation, Administration for Children and Families, U.S. Department of Health, and Human Services.
- Moss, E., Dubois-Comtois, K., Cyr, C., Tarabulsky, G.M., St-Laurent, D. & Bernier, A. (2011). Efficacy of a home-visiting intervention aimed at improving maternal sensitivity, child attachment, and behavioral outcomes for maltreated children: a randomized control trial. *Developmental Psychopathology*, 23(1), 195-210.
- Moyers, T. B., Manuel, J. K., & Ernst, D. (2014). *Motivational interviewing treatment integrity coding manual 4.1*. Unpublished manual.
- Moyers, T. B., Rowell, L. N., Manuel, J. K., Ernst, D., & Houck, J, M, (2016). The Motivational Interviewing Treatment Integrity Code (MITI 4): Rationale, preliminary reliability and validity. *Journal of Substance Abuse Treatment*, 65, 36-42.
- National Home Visiting Resource Center. (2019). *2019 home visiting yearbook*. James Bell Associates and the Urban Institute.
- Nygren, P., Green, B., Winters, K. & Rockhill, A. (2018). What is happening in home visits? Exploring the relationship between content and dosage to parenting outcomes. *Maternal and Child Health Journal*, 2(1), 552-561.
- O'Malley, A. S., Forrest, C. B., & Mandelblatt, J. (2002). Adherence of low-income women to cancer screening recommendation. *Journal of General Internal Medicine*, 17(2), 144-153.
- Olds, D. L., Henderson, C. R., Phelps, C., Kitzman, H., & Hanks, C. (1993). Effect of prenatal and infancy home visiting on government spending. *Medical Care* 31(2) 155-174.
- Paulsell, D., Boller, K., Hallgren, K., & Esposito, A. M. (2010). Assessing home visiting quality: Dosage, content, and relationships. *Zero to Three*, 30(2), 16-21.
- Peterson, C. A., & Roggman, L. A. (2019). Observing home-visit quality with the home visit rating scales: Introduction to the special section. *Infant Mental Health Journal*, 40(3), 309-314.
- Peterson, C. A., Hughes-Belding, K., Rowe, N., Fan, L., Walter, M., Dooley, L., Wang, W., & Steffensmeier, C. (2018). Triadic interactions in MIECHV: Relations to home visit quality. *Maternal and Child Health Journal*, 22, 3-12.

- Peterson, C. A., Luze, G. J., Eshbaugh, E. M., Jeon, H. J., & Kantz, K. R. (2007). Enhancing parent-child interactions through home visiting: Promising practice or unfulfilled promise? *Journal of Early Intervention, 29*(2), 119-140.
- Peterson, C. A., Roggman, L. A., Green, B., Chazan-Cohen, R., Korfmacher, J., McKelvey, L., Zhang, D., & Atwater, J. (2013). Home visiting processes: Relations with family characteristics and outcomes. *Zero to Three Journal, 33* (3): 39-44.
- Pollak, K. I., Alexander, S. C., Tulsy, J. A., Coffman, C. J., Dolor, D. J., Gulbrandsen, P., & Ostbye, T. (2011). Physician empathy and listening: Associations with patient satisfaction and autonomy. *Journal of the American Board of Family Medicine, 24*(6), 665-672.
- Prevatt, F. F. (2003). The contribution of parenting practices in a risk and resiliency model of children's adjustment. *British Journal of Developmental Psychology, 21*(4), 469-480.
- Raikes, H., Green B., Atwater, J. Kisker, E., Constantine, J., & Chazan-Cohen, R. (2006). Involvement in early head start home visiting services: Demographic predictors and relations to child and parent outcomes. *Early Childhood Research Quarterly, 21*(1), 2-24.
- Raikes, H. H., Roggman, L. A., Peterson, C. A., Brooks-Gunn, J., Chazan-Cohen, R., Zhang, X., & Schiffman, R. F. (2014). Theories of change and outcomes in home-based early head start programs. *Early Childhood Research Quarterly, 29*(4), 574-585.
- Ramey, C. T., & Ramey, S. L. (2002). Center for Health and Education Research Georgetown University. *Early Childhood Education*.
- Raudenbush, S. W., Bryk, A. S., Cheong, Y. F., Congdon, R., & Du Toit, M. (2004). *HLM 6: Hierarchical linear and nonlinear modeling*. Scientific Software International.
- Reis, H. T., Clark, M. S., & Holmes, J. G. (2004). Perceived partner responsiveness as an organizing construct in the study of intimacy and closeness. In *Handbook of closeness and intimacy* (pp. 211-236). Psychology Press.
- Reis, H. T., & Shaver, P. (1988). Intimacy as an interpersonal process. In S. W. Duck (Ed.), *Handbook of personal relationships* (pp. 367-389). Wiley.
- Roggman, L. A., Boyce, L., Cook, G. A., & Jump Norman, V. (2001). Inside home visits: A collaborative look at process and quality. *Early Childhood Research Quarterly, 16*(1), 53-71.
- Roggman, L. A., Boyce, L., & Innocenti, M. S. (2008). *Developmental parenting: A guide for early childhood practitioners*.

- Roggman, L. A., Cook, G. A., Innocenti, M. S., Jump Norman, V., Boyce, L. K., Christiansen, K., & Peterson, C. A. (2016). Home visit quality variations in two early head start programs in relation to parenting and child vocabulary outcomes. *Infant Mental Health Journal, 37*(3), 193-207.
- Roggman, L. A., Cook, G. A., Innocenti, M. S., Jump Norman, V. K., Boyce, L. K., Olson, T. L., & Peterson, C. A. (2019). The Home Visit Rating Scales: Revised, restructured, and revalidated. *Infant Mental Health Journal, 40*(3), 315-330.
- Roggman, L. A., Cook, G. A., Jump Norman, V. K., Christiansen, K., Boyce, L., & Innocenti, M. S. (2008). *Home Visit Rating Scales (HOVRS)*.
- Roggman, L., Cook, G., Peterson, C., & Raikes, H. (2008). Who drops out of early head start? Home visiting programs? *Early Education and Development, 19*(4), 574-599.
- Roter, D. (1991). The Roter method of interaction process analysis. *RIAS Manual*.
- Roter, D. L., Hall, J. A., & Katz, N. R. (1988). Patient-physician communication: a descriptive summary of the literature. *Patient Education and Counseling, 12*(2), 99-119.
- Roter, D., & Larson, S. (2002). The Roter Interaction Analysis System (RIAS): Utility and flexibility for analysis of medical interactions. *Patient Education and Counseling, 46*(4), 243-251.
- Saiás, T., Lerner, E., Greacen, T., Emer, A., Guédeney, A., Dugravier, R., ... & Guedeney, N. (2016). Parent-provider relationship in home visiting interventions. *Children and Youth Services Review, 69*, 106-115.
- Schor, E. L. (2003). Family pediatrics: Report of the Task Force on the Family. *Pediatrics, 111*(6 Pt 2), 1541-1571.
- Schultz, D., Jones, S. S., Pinder, W. M., Wiprovnick, A. E., Groth, E. C., Shanty, L. M., & Duggan, A. (2018). Effective home visiting training: Key principles and findings to guide training developers and evaluators. *Maternal and Child Health Journal, 22*(11), 1563-1567.
- Shonkoff, J. P., & Phillips, D. A. (Eds.). (2000). *From neurons to neighborhoods: The science of early childhood development*. National Academy Press.
- Shanti, C. (2017). Engaging parents in Early Head Start home-based programs: How do home visitors do this? *Journal of Evidence Based Social Work, 14*(5), 311-328.

- Shirk, S. R., & Karver, M. (2003). Prediction of treatment outcome from relationship variables in child and adolescent therapy: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 71*(3), 452-464.
- Stern-Bruschweiler, N., & Stern, D. N. (1989). A model for conceptualizing the role of the mother's representational world in various mother-infant therapies. *Infant Mental Health Journal, 10*(3), 142-156.
- Supplee, L. H., & Duggan, A. (2019). Innovative research methods to advance precision in home visiting for more efficient and effective programs. *Child Development Perspectives, 13*(3), 173-179.
- Supplee, L. H., Parekh, J., & Johnson, M. (2018). Principles of precision prevention science for improving recruitment and retention of participants. *Prevention Science, 19*(5), 689-694.
- Sweet, M. A., & Appelbaum, M. I. (2004). Is home visiting an effective strategy? Meta-analytic review of home visiting programs for families with young children. *Child Development, 75*(5), 1435-1456.
- Tandon, D., Parillo, K., Jenkins, C., Jenkins, J., & Duggan, A. (2007). Promotion of service integration among home visiting programs and community coalitions working with low-income, pregnant, and parenting women. *Health Promotion Practice, 8*(1), 79-87.
- Tates, K., & Meeuwesen, L. (2001). Doctor-parent-child communication: A (re)view of the literature. *Social Science and Medicine, 52*(6), 839-851.
- Thomas, R., & Zimmer-Gembeck, M. J. (2007). Behavioral outcomes of parent-child interaction therapy and Triple P—Positive Parenting Program: A review and meta-analysis. *Journal of Abnormal Child Psychology, 35*(3), 475-495.
- Trivette, C. M., Dunst, C. J., & Hamby, D. W. (2010). Influences of family-systems intervention practices on parent-child interactions and child development. *Topics in Early Childhood Special Education, 30*(1), 3-19.
- Tronick, E. Z. (2003). "Of course, all relationships are unique": How co-creative processes generate unique mother-infant and patient-therapist relationships and change other relationships. *Psychoanalytic Inquiry, 23*(3), 473-491.
- U.S. Department of Justice. (2015). *Bureau of Justice Statistics: Prisoners Bulletin*.
- Vogel, C. A., Caronongan, P., Thomas, J., Bandel, E., Xue, Y., Henke, J., & Murphy, L. (2015). Toddlers in early head start: A portrait of 2-year-olds, Their Families, and the Programs Serving Them (Executive Summary) (No. aeb78516d8c64039a9afdbece7d63290). *Mathematica Policy Research*.

- Wagner, M., Iida, E., Spiker, D., Hernandez, F., & Song, J. (2001). *The multisite evaluation of the parents as teachers home visiting program*. Three-year findings from one community. SRI International.
- Walsh, B. A., Edwards, A. L., Cook, G. A., Hughes-Belding, K., & Rahn, E. (2021). Exploring Changes in Home Visitors' Perspectives in the Context of a Professional Development Activity. *Early Childhood Education Journal*, 1-13.
- Wasik, B. H., & Bryant, D. M. (2001). *Home visiting procedures for helping families* (2nd ed.). Sage.
- White, R. O., Eden, S., Wallston, K. A., Kripalani, S., Barto, S., Shintani, A., Rothman, R. L. (2015). Health communication, self-care, and treatment satisfaction among low-income diabetes patients in a public health setting. *Patient Education and Counseling*, 98(2), 144-149.
- Yarger, H. A., Hoye, J. R., & Dozier, M. (2016). Trajectories of change in attachment and biobehavioral catch-up among high-risk mothers: A randomized clinical trial. *Infant Mental Health Journal*, 37(5), 525-536.
- Zolnierok, K., & Dimatteo, M. (2009). Physician communication and patient adherence to treatment: A meta-analysis. *Medical Care*, 47, 826-834.

VITA

Dr. Mary Frese (she/her) received her M.A. in Developmental Psychology and Ph.D. in Child Development from Loyola University Chicago and Erikson Institute. Before attending Loyola, she received her B.S. in psychology and B.A. in philosophy at the University of Illinois Champaign Urbana. During her graduate training, Dr. Frese's research focused on enhancing parent engagement in family support programming with an emphasis on supporting parent-child interactions through home visitor coaching. She is a co-author of the Home Visitor Communications Toolkit, a relationship-based training resource for home visit facilitation.

Dr. Frese is currently working at the Institute for Innovations in Developmental Science at Northwestern University as a research associate involved in Neuro CORE and the When to Worry and Promoting Healthy Brains Projects. In addition, Dr. Frese is interested in parental influences on early emotion regulation processes as well as efforts to support parents in co-regulation efforts.