

## ABSTRACT

Title of Document:                   LOW-INCOME LATINO IMMIGRANT  
MOTHERS AND THEIR TODDLERS: HOW  
DOES SOCIALIZATION PROMOTE  
INHIBITORY CONTROL SKILLS?

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Executive function (EF), cognitive skills involved in planning and problem solving, includes inhibitory control as one of its major components. Inhibitory control skills and overall EF has been positively related to social, literacy, and math skills. Research on contextual factors has identified the quality of parenting and parental practices as important predictors of children's EF skills. An emerging line of studies suggests that parental beliefs may also influence children's EF. However, the literature has mostly focused on White middle-class children, so less is known about the way in which minority children living in low-income environments develop EF skills. Based on Bronfenbrenner's bioecological model, I examined how low-income Latino mothers' beliefs (familism and self-efficacy) relate to the quality of the mother-child interaction (scaffolding and intrusiveness) and practices (routines in the home) and how these, in turn, relate to their toddlers' inhibitory control skills. I also examined whether maternal warmth moderated

the association between the quality of the mother-child interaction and children's inhibitory control skills. I used a multi-method design to collect observational and self-reported data on 51 low-income Latino mothers and their toddlers. Using multiple regression analysis, I found that self-efficacy was positively related to having routines in the home. Familism was not related to the quality of the mother-child interaction or practices. Controlling for scaffolding, intrusiveness was negatively associated with children's inhibitory control skills. Warmth did not moderate this association, supporting the notion that intrusiveness, even in low levels, has negative consequences for toddlers regardless of whether their mothers are also warm. Findings from this study help to further the understanding of how the early experiences of Latino toddlers support the development of inhibitory control skills.

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DOES SOCIALIZATION PROMOTE INHIBITORY CONTROL SKILLS?

by

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## **Dedication**

To the loves of my life: José and Tomás.

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Table 1. *Descriptive*

Variable	<i>n</i>	%	<i>M (SD)</i>	Range
Mother age	51		30 (5.3)	19-40
Father age	21		33 (5.3)	24-46
Mother foreign born	48	96		
Father foreign born	21	97		
Mother age moved to the US	49		21 (6.2)	4-31
Father age moved to the US	21		22 (3.7)	16-27
Mother ethnicity	51			
Salvadorian		49		
Other		41		
Father ethnicity	21			
Salvadorian		50		
Other		50		
Mother education	51			
< than HS		47		
HS/ GED		36		
Some college		17		
Father education	21			
< than HS		46		
HS/ GED		38		
Some college		16		
Mother employed	51	53		
Father employed	21	95		
Marital status: Married	72	97		
<i>Maternal values and beliefs</i>				
Self-efficacy	50		3.9 (.7)	1-5
Familism	50		4 (.4)	1-5
<i>Maternal practices</i>				
Routines in the home	51		3.5 (.8)	0-4
<i>Quality of the mother-child interactions</i>				
Warmth	44		5.7 (1.3)	1-7
Scaffolding			6.0 (.8)	1-7
Intrusiveness			1.8 (.8)	1-7
Annual household income	45			
0-6000		5		
6000-12000		25		
12000-24000		32		
>24000		39		
<i>Child</i>				
Age in months	51		28 (3)	21-34
Male		51		
Receptive vocabulary (Mullen <i>t</i> -scores)	48		38 (10.4)	20-60
Tower task	41		15.76 (2.85)	10-20
Inhibitory control (average prop of seconds waited in the snack delay task)	46		.79 (.3)	0-1



Table 2. *List of measures*

<b>Constructs</b>	<b>Method of assessment /Scale</b>	<b># Items</b>	<b>Scale range</b>
<b>Dependent Variable</b>			
Children's Inhibitory control skills	Direct assessment/ Tower task	2	10-20
Children's Inhibitory control skills	Direct assessment /Snack delay	1	0-1
<b>Independent Variables</b>			
<i>Parent beliefs</i>			
Familism	Mother report- MACVS	16	1-5
Self-efficacy	Mother report	4	1-5
<i>Quality of parent-child interaction</i>			
Warmth	Mother-child free play- PARCHISY	N/A	1-7
Scaffolding	Mother-child free play- PARCHISY	N/A	1-7
Intrusiveness	Mother-child free play- PARCHISY	N/A	1-7
<i>Parenting practices</i>			
Routines in the home	Mother report	4	0-4
<b>Control Variables</b>			
Child gender	Mother report		0-1
Child receptive vocabulary	Direct assessment /Mullen Scale of Early Learning	7	0-3

Table 3. *Bivariate correlations*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Familism	--													
2. Self-efficacy	.21	--												
3. Warmth	-.27	.29	1											
4. Scaffolding	-.22	.24	.81**	1										
5. Intrusiveness	-.01	.10	-.16	-.21	1									
6. Routines	-.26	.34*	.05	.09	-.16	1								
7. Snack delay	-.27	-.05	.21	-.04	-.47**	-.04	--							
8. Tower task	-.03	.07	.04	.21	.23	.21	-.21	--						
9. Receptive vocab	-.22	-.13	.10	-.11	.29	-.02	-.19	.17	--					
10. Child age	.20	.19	.17	.37*	-.34*	-.04	.17	-.16	-.51	--				
11. Child gender	-.21	.31	.41*	.31	-.21	-.10	.11	-.02	.19	.21	--			
12. Household income	-.21	-.21	.34*	.14	-.05	.14	-.02	.03	.30*	-.22	.09	--		
13. Education	-.31*	.34	.15	.25	-.10	.39*	-.08	.76	.04	.09	-.14	.21	--	
14. Employment	.11	.06	.10	-.07	.20	-.23	-.19	.06	.01	-.23	-.11	-.11	.22	--
15. Years in the U.S.	-.29	-.44**	.41*	.29	.02	.19	.19	.07	0.1	-.20	.10	.43**	.20	.10

Note.  $p < .05$  \*  $p < .01$

Table 4. *Familism and self-efficacy beliefs as predictors of quality of the mother-child interaction and maternal practices*

	Scaffolding		Intrusiveness		Routines in the home	
	SE	$\beta$	SE	$\beta$	SE	$\beta$
Familism	.16	-.06	.1	-.03	.13	-.18
Self-efficacy	.18	-.25	.21	.12	.13	.28*

Note.  $p < .05^*$   $p < .07^{**}$   $R^2$  for scaffolding = .1;  $R^2$  for intrusiveness = .13 ;  $R^2$  for routines in the home =.15

Table 5. *Snack delay predicted by scaffolding, intrusiveness, and warmth as moderator*

	Inhibitory control skills: Snack delay							
	Step 1		Step 2		Step 3		Step 4	
	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$
Scaffolding	.17	.04	.17	-.12	.26	-.71**	.26	-.73
Intrusiveness			.16	-.44**	.15	-.49**	.15	-.48
Warmth					.24	.69**	.25	.71
Intrusiveness x warmth							.17	-.08

Note. Scaffolding, intrusiveness, and warmth were centered at their means.  $R^2$  for step 1= .03;  $R^2$  for step 2= .2;  $R^2$  for step 3= .35;  $R^2$  for step 4= .39  $p < .05^*$   $p < .01^{**}$

Table 6. *Tower task predicted by scaffolding, intrusiveness, and warmth as moderator*

	Inhibitory control: Tower task							
	Step 1		Step 2		Step 3		Step 4	
	SE	$\beta$	SE	$\beta$	SE	$\beta$	SE	$\beta$
Scaffolding	.17	.17	.17	.27	.3	.70	.30	.70
Intrusiveness			.17	.29	.17	.31	.17	.32
Warmth					.28	-.48	.29	-.48
Intrusiveness x warmth							.20	-.02

Note. Scaffolding, intrusiveness, and warmth were centered at their means.  $R^2$  for step 1= .04;  $R^2$  for step 2 = .13;  $R^2$  for step 3= .21;  $R^2$  for step 4= .21  $p < .05^*$   $p < .01^{**}$

## **Chapter 1: Introduction**

### **Statement of the Problem**

Executive function (EF), which includes inhibitory control as one of its major components, refers to higher order thought processes that are foundational for reasoning and problem solving (Blair, Raver, & Berry, 2014; Garon, Bryson, & Smith, 2008). The extensive literature on EF development shows that children with higher EF are more likely to outperform their peers on math and literacy skills (Blair, Granger, & Razza, 2005; Denham, Warren-Khot, Bassett, Wyatt, & Perna, 2012; Espy et al., 2004; Ponitz, McClelland, Matthews, & Morrison, 2009; Pritchard & Woodward, 2011; Raver, 2012; Raver et al., 2011; Thorell, 2007; Weiland, Barata, & Yoshikawa, 2014) and socio-emotional competencies (e.g., Bierman, Nix, Greenberg, Blair, & Domitrovich, 2008; Hughes, Dunn, & White, 1998; Razza & Blair, 2009). This literature has been primarily focused on middle-class children who grow up in environments that are relatively supportive of their development. Parents who have resources such as money and education engage with their children in responsive and nurturing ways (i.e., high quality interactions) and endorse parenting practices that promote development (e.g. routines). They therefore have children with higher inhibitory control skills (e.g., Kochanska, Murray, & Harlan, 2000; Martin, Razza, & Brooks-Gunn, 2012). However, children growing up in disadvantaged environments characterized by poverty and less supportive and nurturing parenting tend to exhibit lower inhibitory control skills and overall EF (e.g., Hughes & Ensor, 2009; Li-Grining, 2007).

Despite research by developmental scientists that suggests that contextual influences are of central consequence to children's development (Bronfenbrenner, 1979; McLoyd, Aikens, & Burton, 2006), the way in which children living in low-income environments develop EF skills is

not well understood. The importance of context in shaping development is salient given that the bulk of the extant research on child development has not consistently included ethnic minority and immigrant families (García Coll & Szalacha, 2004; García Coll et al., 1996; Quintana et al., 2006). As the diversity of the population of the United States increases, it becomes critical that the empirical and conceptual research reflects the complex diversity of the cultural contexts in which children grow and develop. Moreover, because minority and immigrant children – mostly from Latino backgrounds – are more likely than other groups to experience poverty and educational disparities (Crosnoe, 2007; KewalRamani, Gilbertson, Fox, & Provasnik, 2007), information on how children develop the skills they need to succeed in school is sorely needed. Such information can help efforts aimed at promoting the educational, economic, and health prospects of immigrant children, especially Latino children - the largest and fastest growing ethnic group in the United States.

### **Factors Influencing the Development of Executive Function**

According to ecological theories, processes proximal to the child, including interactions with caregivers, are of vital importance to the development of the child (Bronfenbrenner, 1986). Framed by ecological theories, research on contextual factors has identified three aspects of the family environment that promote EF in preschool children: (1) quality of parenting; (2) parenting practices, including having routines in the home; and (3) parents' beliefs.

Most of the research examining the links between parent-child relationships and children's EF has shown that parenting scaffolding (e.g., encouraging the child in the pursuit of the task) is an important predictor of children's EF (e.g., Bernier, Carlson, & Whipple, 2010; Hammond et al., 2012; Hughes & Ensor, 2009). Based on sociocultural theory, scaffolding provides children with the necessary support to accomplish goals that otherwise would be

beyond their ability level (Vygotsky, 1978). It is hypothesized that through scaffolding children gradually learn to take more regulatory responsibility for the task and ultimately internalize skills that will allow them to solve problems independently (i.e., self-regulation). Research has examined the scaffolding process mostly in the mother-child dyad by observing how mothers guide their children in the completion of a difficult task (e.g., organizing puzzle pieces).

A less developed area of study has linked negative aspects of parenting and children's regulatory skills or lack thereof. For example, a recent study has shown that maternal and paternal power assertion (use of threats, negative and angry control during parent-child interaction) at 38 months predicted lower inhibitory control skills at 52 months (Kochanska, Aksan, Prisco, & Adams, 2008). Power assertive parenting control and intrusiveness is likely to promote inappropriate regulatory behavior because it may direct children's attention to the power differential rather than reasoning, which does not provide children with opportunities to develop self-regulation (Scaramella & Leve, 2004; Talwar, Carlson, & Lee, 2011). Most of this research has been conducted with mothers, hence there is less understanding of whether these processes are the same for fathers alone and for fathers and mothers together.

Positive and negative parenting dimensions occur within a particular emotional climate, which can buffer or enhance the effects of parenting on children's development (Lansford et al., 2014). For example, McLoyd and Smith (2002) found that, in the context of low maternal support, but not high maternal support, negative control predicted an increase in mother-reported internalizing and externalizing problems in children from diverse ethnic backgrounds. Ispa et al. (2004) reported that maternal warmth moderated the impact of highly controlling parenting on child negativity, but only for African-American children. No study to date has examined the moderating role of warmth in the relationship between intrusiveness and children's inhibitory

control skills.

In terms of parenting practices, researchers have examined routines, including eating meals together and general home organization, which increase predictability and help children to self-regulate (e.g., Hofferth & Sandberg, 2001; Martin et al., 2012). Scholars have theorized that exposure to less structured home environments – such as those in which there are no routines – may lead children to shift their attention away from over-stimulating or unpredictable stimuli (Evans, 2006). This “turning out” strategy may be adaptive at first, but in the long term it reduces children’s exposure to key socialization experiences in the home, which, in turn, affects their development. Moreover, an unpredictable home environment may undermine children’s confidence in their ability to influence their environment and to predict consequences, thus making it more difficult for them to regulate their arousal and behavior (Martin et al., 2012; Zalewski et al., 2012). Empirical support for this view comes from studies showing that children living in organized households (i.e., with routines and predictability) exhibit better regulatory skills than children living in more chaotic environments (Brody & Flor, 1997; Hughes & Ensor, 2009; Martin et al., 2012). Other studies of Latino children have found that those who spend time with family and eat dinner together are more likely to exhibit appropriate social competence (Calderón et al., 2014; Griffin, Botvin, Scheier, Diaz, & Miller, 2000; Loukas & Prelow, 2004). The ways in which having routines in the home help Latino children regulate have been understudied.

In addition to considering parental behavior and practices, research has also focused on how parents’ beliefs, values, goals, and attitudes influence child development (e.g., Izzo, Weiss, Shanahan, & Rodriguez-Brown, 2000; NICHD, 2002). Self-efficacy theory states that adults who evaluate themselves as competent, who know what they can do, and who understand the likely

effects of their actions will engage in positive interactions with their children, which is associated with positive child functioning (Bandura, 1997; Coleman & Karraker, 2003). Parents' beliefs about parental self-efficacy affect the ways in which parents interact with their children and thus affect children's general social functioning indirectly (for a review see Jones & Prinz, 2005).

Support for the idea that maternal self-efficacy has a direct effect on children's development comes from studies examining toddlers' behaviors (e.g., compliance) in a mother-child interaction (Coleman & Karraker, 2003) and middle school children's self-regulatory skills (Murry & Brody, 1999). Support for an indirect link is based on studies of European and Latino parents finding that mothers' self-efficacy is related to the quality of parent-child interactions, acceptance and warmth, consistent discipline, and more effective child rearing strategies, which are, in turn, associated with children's regulatory skills (Izzo et al., 2000; Shumow & Lomax, 2002). Maternal self-efficacy has also been found to influence children's regulatory skills through its association with family routines (Brody, Flor, & Gibson, 1999).

Although there is limited empirical research on parental beliefs among Latino families and even less among Latino parents of toddlers, some researchers have focused on cultural values normally attributed to Latinos, such as good comportment, respectful communication, and strong ties to the family (e.g., familism) as ways to understand how Latino parents' beliefs influence their children. Of particular relevance to the development of EF is the importance attributed to family (familism), because it emphasizes interpersonal harmony, children's self-control, and closeness to adults. Studies have shown that mothers who reported higher levels of familism also exhibited more positive interactions with their children than those who reported lower level of familism (Coohey, 2001; Romero & Ruiz, 2007).



Ecocultural and developmental theories also recognize that children are active contributors to their own development (e.g., Bronfenbrenner, 1986). The distal and proximal processes that influence children's development are dependent on children's characteristics (e.g., gender). Several studies have shown better inhibitory control and overall EF in girls than in boys (Bassett, Denham, Wyatt, & Warren-Khot, 2012; Carlson & Moses, 2001; Hughes & Ensor, 2005; Li-Grining, 2007; McCabe & Brooks-Gunn, 2007; Wiebe, Espy, & Charak, 2008). These gender differences have been attributed in part to girls' superior language skills (Kimura, 1999). Children who have better language skills also show enhanced outer and inner speech, which strengthen their inhibitory control skills by enabling them to reflect upon, organize, and plan their behavior (Müller, Jacques, Brocki, & Zelazo, 2009; Vygotsky, 1978). Given the relation between verbal ability and gender with children's EF skills, it is important to account for them when examining children's inhibitory control skills. Research has also suggested that mothers interact differently with girls than with boys (e.g., Barnett et al., 2013)

In summary, studies with mostly White middle-class children have shown that the family environment, specifically parental beliefs, behaviors, and practices, are important sources of individual differences in children's regulatory behavior. Still, the number of studies examining children's development of EF during the preschool years is limited, especially among low-income minority children. Thus, there is still much to learn about how young children, especially those living in challenging circumstances, develop EF skills.

Overall, this body of literature suffers from several limitations. First, most research to date has focused exclusively on mothers; thus, we know little about how mothers *and* fathers promote children's inhibitory control skills. The omission of fathers is an important limitation because a growing body of literature indicates that fathers make unique and important

contributions to children's social and regulatory outcomes (Cabrera, Shannon, & Tamis-Lemonda, 2007; Paquette, 2004; Rowe, Coker, & Alexander Pan, 2004). This may be especially important for Latino children, because they are likely to live in two-parent households (Lichter & Landale, 1995) and to have highly involved fathers (Cabrera, Shannon, Mitchell, & West, 2009; Hofferth, 2003). Second, few studies have examined how parents' beliefs shape their parenting practices, which in turn may promote children's inhibitory control skills. Third, studies examining parenting behaviors have mostly focused on positive aspects such as scaffolding or responsiveness. We know less about how positive *and* negative qualities of parent-child interactions influence children's EF. Finally, studies have not considered the emotional context in which the mother-child interaction occurs. Examining the role of parental warmth in parent-child interactions provides a more nuanced understanding of parents' contributions to children's inhibitory control skills.

Based on Bronfenbrenner's bioecological model (1986) that conceptualizes child development as influenced by proximal processes (e.g., parent-child interaction) and more distal processes, I aim to address the gaps in the literature by assessing how low-income Latino maternal beliefs (i.e., familism and self-efficacy) relate to parenting quality and practices and how these, in turn, relate to their children's EF skills, specifically their inhibitory control skills. Additionally, I will examine whether warmth moderates this association.

### **Study Design**

This study uses a multi-method design to collect observational and self-reported data on the quality of mother-child and father-child interactions and parenting beliefs as well as child direct assessment data. The sample includes 51 Latino families of low-income background. Mothers and fathers answered a questionnaire that included questions on demographic

characteristics as well as parents' beliefs and routines in the home. Additionally, parents participated in a free-play situation for ten minutes with their two-year-old child at either the childcare center where the child was recruited or at the home, whichever was most convenient for the family. The parent-child dyads were videotaped and coded to assess the quality of the interaction using an adaptation of a well-established coding system, the Parent-Child-Interaction System (PARCHISY; Deater-Deckard, Pylas, & Petrill, 1997). This scale includes eight child codes (positive affect, negative affect, responsiveness to parent, on task, noncompliance, autonomy, activity, and verbalizations), seven parent codes (scaffolding, intrusiveness, warmth, negative affect, responsiveness, on task, and verbalizations), and three dyadic codes (reciprocity, cooperation, and conflict). Data on children's EF were derived from videotaped child assessments on two inhibitory control tasks (snack delay and tower task) based on Kochanska et al.'s (2000) battery.

### **Research Aims and Hypothesis**

Using the ecocultural theory (Bronfenbrenner & Morris, 1998; Bronfenbrenner, 1979) that children's development occurs within multiple contexts and is affected by factors at many levels, including individual characteristics, family processes, and environmental context, the aim of this study is to examine how Latino parents' familism, self-efficacy, quality of parent-child interactions, and practices (having routines in the home) are related to toddlers' emergent inhibitory control skills. I hypothesize that familism and parental self-efficacy will be positively linked to scaffolding and negatively to intrusiveness. I also expect that children's inhibitory control will be positively related to scaffolding and negatively to intrusiveness. Moreover, I expect that the association between mother and fathers' intrusiveness and children's inhibitory control skills will vary depending on the levels of warmth.

**Aim 1.** To determine whether parental beliefs, familism, and self-efficacy are linked to the quality of the mother-child and father-child interactions and to parenting practices (having routines in the home).

**Hypothesis 1.1.** Maternal familism and self-efficacy will be positively associated with maternal scaffolding and having routines in the home.

**Hypothesis 1.2.** Paternal familism and self-efficacy will be positively associated with paternal scaffolding and having routines in the home.

**Hypothesis 1.3.** Mothers' familism and self-efficacy will be negatively associated with maternal intrusiveness.

**Hypothesis 1.4.** Fathers' familism and self-efficacy will be negatively associated with paternal intrusiveness.

**Aim 2.** To examine whether the quality of parent-child interactions and parenting practices relate to children's inhibitory control skills.

**Hypothesis 2.1.** Maternal scaffolding and having routines in the home will be positively related to children's inhibitory control skills.

**Hypothesis 2.2.** Paternal scaffolding and having routines in the home will be positively related to children's inhibitory control skills.

**Hypothesis 2.3.** Maternal intrusiveness will be negatively related to children's inhibitory control skills.

**Hypothesis 2.4.** Paternal intrusiveness will be negatively related to children's inhibitory control skills.

**Aim 3.** To examine whether parental warmth moderates the association between the quality of parent-child interactions and children's inhibitory control.

***Hypothesis 3.1*** The association between maternal scaffolding and children's inhibitory control skills will be stronger when maternal warmth is high.

***Hypothesis 3.2*** The association between paternal scaffolding and children's inhibitory control skills will be stronger when paternal warmth is high.

***Hypothesis 3.3*** The association between intrusiveness and children's inhibitory control skills will be weaker when maternal warmth is high.

***Hypothesis 3.4*** The association between paternal intrusiveness and children's inhibitory control skills will be weaker when paternal warmth is high.

### **Contribution to the Field**

This study will build upon and go beyond existing studies on children's regulatory skill development by examining how low-income Latino parents promote inhibitory control skills in their toddlers. There is a lack of information about how very young Latino children develop the foundational skills that may set them on a path for positive development. Moreover, our understanding of how Latino parents contribute to their children's development is limited. These gaps in the literature are significant given the high number of Latino children in the United States. An inaccurate or incomplete view of Latinos' early socialization context can lead to stressing deficits and overlooking strengths. The study's findings will help to identify how parents' beliefs are linked to parental scaffolding and intrusiveness and how these dimensions of parent-child interactions are linked to children's early inhibitory control skills. Moreover, I will examine whether warmth moderates this association. Data gleaned from this study will help inform interventions and policy and practice that build on Latino families' strengths.

## Chapter 2: Review of the Literature

The body of research focused on executive function (EF) has grown exponentially during the last decade (Blair et al., 2014; Garon et al., 2008). EF is broadly defined as higher order thought processes that are foundational for reasoning and problem solving, such as inhibitory control of a desire activity in favor of a child's less valued activity. Children with higher inhibitory control and overall EF skills are able to direct their attention away from competing social and environmental demands to other tasks and develop better coping strategies for managing stressors (Blair, 2002, 2010; Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Raver, 2004). This ability, in turn, helps children learn in the classroom by following instructions, finishing tasks, and paying attention (e.g., Blair & Razza, 2007; Denham et al., 2012). Overall, this body of research has shown that EF, including inhibitory control skills, is associated with the social and cognitive skills children need to succeed in school and specifically to improve their math and literacy skills (Blair et al., 2005; Denham et al., 2012; Espy et al., 2004; Ponitz et al., 2009; Pritchard & Woodward, 2011; Raver, 2012; Raver et al., 2011; Thorell, 2007; Weiland et al., 2014), socio-emotional competencies (e.g., Bierman, Nix, Greenberg, Blair, & Domitrovich, 2008; Hughes, Dunn, & White, 1998; Razza & Blair, 2009), and theory of mind (e.g., Carlson, Mandell, & Williams, 2004; Carlson, Moses, & Breton, 2002). In addition to direct effects between EF skills and social and cognitive functioning, new findings suggest that EF may protect children against the negative effects of poverty by reducing its effects on their cognitive capacities (Evans & Kim, 2013; Li-Grining, 2007). Children growing up in low-income families have better cognitive skills when they have better EF skills. However, children growing up poor tend to exhibit less developed EF skills (e.g., Mezzacappa, 2004; Noble, McCandliss, & Farah, 2007).

The development of EF begins in infancy and it is influenced by multiple interacting factors. Among these factors, family level factors seem to be especially influential in the early years (Rhoades, Greenberg, Lanza, & Blair, 2011; Roskam, Stievenart, Meunier, & Noël, 2014). For example, the quality of the parent-child relationship and the way parents organize the home environment have been identified as important promoters of children's EF (Bernier et al., 2010; Hughes & Ensor, 2009). Parents' beliefs guide the types of parenting practices they use as well as the quality of parent-child interactions, which are, in turn, associated with EF (Murry & Brody, 1999).

Most of what is known about the factors that promote the development of EF comes from studies of White middle-class children. Therefore, the understanding of how minority families (e.g., poor or immigrant) help their children to develop EF skills is limited. Lack of research on Latino families, the fastest growing and largest ethnic minority group in the United States, is notable because Latinos are more likely than other groups to experience poverty and educational disparities (Crosnoe, 2007; KewalRamani et al., 2007). It is unclear how these contextual conditions influence the development of EF or how early family level experiences shape the development of EF. How parents' characteristics, behaviors, and practices influences Latino children's EF remains uncertain.

Given the importance of understanding how contextual factors influence children's development of EF skills, based on an ecological framework that conceptualizes the development of children as occurring within multiple contexts and as being affected by factors at many levels (Bronfenbrenner, 1986), I examine the associations between parents' beliefs and the quality of parent-child interactions and practices and how these relate to children's inhibitory control. I also examine whether parental warmth moderates this association. This chapter is

organized as follows: (1) development of EF during the preschool years; (2) theoretical background and predictors of EF; and (3) analytical summary and directions for research.

### **The Development of EF During the Preschool Years**

Unlike research on cognitive development that is based on a widely accepted consensus of what it is and how to measure it, research on EF is more varied. This is because it is based on multiple definitions, and there is little consensus about what it is and how to measure it.

Acknowledging this limitation, this section starts with a brief description of how EF has been defined and measured followed by a section on the developmental trajectory of EF in the early childhood period.

***Defining executive function.*** Assessment of EF comes from different research traditions, and it overlaps with other constructs within the domain of self-regulation (e.g., emotional regulation; Zhou, Chen, & Main, 2012). Researchers have used terms such as effortful control, inhibitory control, cognitive control, and self-control as synonymous with EF. Nevertheless, all these definitions share a set of core constructs: EF refers to the cognitive aspect of self-regulation and encompasses three related but distinct higher-order processes: working memory, inhibitory control, and cognitive flexibility (Bassett et al., 2012; Denham et al., 2012; Garon et al., 2008). Working memory refers to the ability to maintain and manipulate information in the mind for short periods of time while performing some operation (Willoughby, Wirth, Blair, & The Family Life Project Investigators, 2012). Inhibitory control is the ability to suppress desired or habitual responses. It reflects a child's emergent ability to impose cognitive control over behavior and is the most common component included in EF research (Willoughby, Blair, Wirth, Greenberg, & The Family Life Investigators, 2012). Cognitive flexibility (also known as shifting or attention shifting) is the ability to direct one's attention as necessary to a given stimulus, and it enables



children to sustain and switch attention from one task to the next (Morrison, Ponitz, & McClelland, 2010).

*Measurement issues.* The assessment of EF in young children is challenging for several reasons. First, preschool-age children experience rapid changes in cognitive abilities, such as language skills, needed to perform better on EF tasks. Individual differences in performance on any single task may not result solely from variation in regulatory proficiency, but may also be caused by other individual differences in abilities that are necessary to perform the task (Wiebe, Sheffield, Mize, & Clark, 2011). One way researchers have addressed this issue is by incorporating more than one task when assessing EF and/or controlling for possible confounding variables (Willoughby, Blair, et al., 2012).

Second, there are a wide variety of tasks and assessment batteries that have been used to assess EF skills. These assessments vary in the type of tasks and the EF components they tap into, as well as in the conclusions regarding the dimensionality of the construct itself. Most of the measures used to assess preschoolers' EF are direct assessments that include structured and semi-structured assessments of inhibitory control skills designed for laboratory use (see e.g., Murray & Kochanska, 2002). Most of the lab-based assessments have been developed with small convenience samples of children whose parents were motivated to participate in university research, limiting the generalizability to low-income or ethnically diverse samples (Willoughby, Blair, Wirth, & Greenberg, 2010). The field has made important efforts to adapt and standardize lab-based EF tasks for field research, though (e.g., Ponitz et al., 2009; PSRA in Smith-Donald, Raver, Hayes, & Richardson, 2007; Willoughby et al., 2010; NIH Tool Box in Zelazo et al., 2013). These types of assessments require a relatively shorter amount of training and time to collect reliable data, making it possible to apply them to more diverse samples (e.g., low-income

or ethnic minorities) who might not participate in university studies (Bassett et al., 2012; Smith-Donald et al., 2007). Most of these tasks have been shown to work equally well for Black and Latino children (Raver et al., 2012) and across groups of diverse economic backgrounds (Denham et al., 2012).

Third, parent or teacher reports rely heavily on the literacy skills of the reporters; thus, they may be less suitable for low-income/low-educated samples. Moreover, it appears that direct measures and reported measures of EF assess different things. Caregiver (parent or teacher) ratings are not highly correlated with a direct assessment of EF (Toplak, West, & Stanovich, 2013). In addition, few standardized measures have been developed and validated for use by teachers or parents of toddlers, so resulting scores can only be interpreted relative to the sample in which they are used (Willoughby, 2012).

To date there is no general consensus on how to define EF. Unsurprisingly, the lack of definition is also reflected in the lack of consensus regarding how to assess EF. However, most researchers agree that EF comprises working memory, inhibitory control, and cognitive flexibility skills. Currently the most commonly used way to assess EF is with direct child assessment of inhibitory control skills with either laboratory or field research.

***What do we know about EF?*** Despite methodological challenges, there are some commonly accepted findings about how EF develops. EF skills emerge during the first year of life and continue developing throughout adolescence in a stepwise fashion (Anderson, 2002). Most research in this area has been done with children age three and older; thus, relatively little is known about the development of EF in toddlers. One of the most important developmental changes related to EF skills, which occurs around 24 months of age, is the improvement of the attention system: causal attention decreases and focused attention increases in frequency (Garon

et al., 2008). Between 22 and 33 months of age, children notably improve their ability to stop an enjoyable activity in response to caregivers' requests and increase the length of time they are able to wait for a reward (inhibitory control; Carlson, 2005; Kochanska, 2002). It is also around two years of age that children are able to use a remembered rule to inhibit a response and execute a subdominant response, which is a reflection of their ability to coordinate working memory and response inhibition (Garon et al., 2008). Advances in other domains of development such as physical, cognitive, or social also help children to progress in their regulatory skills during the toddlerhood period. For example, motor skills allow a child to approach or avoid diverse stimuli in a more direct way (Hrabok & Kerns, 2010), and emergent language enables a child to use verbal mediation (Flavell, Green, Flavell, & Grossman, 1997). It is not until age three that the ability of set shifting starts to emerge, and an important improvement around age four. Three-year-old children can sort a series of cards according to one rule but are not able to switch to a new rule (e.g., Carlson, 2005; Hongwanishkul, Happaney, Lee, & Zelazo, 2005; Zelazo et al., 2003). Only after the age of four are children capable of overcoming strong conflicts to coordinate representations and response inhibition and exhibit flexibility by adjusting their attention to perform and disengage from a mental set (i.e., set shifting). The ability of set shifting, also known as cognitive flexibility, is the latest to emerge in the lifespan, likely because it relies on both working memory and inhibitory control (Garon et al., 2008).

Research on the development of self-regulation suggests that EF skills manifest first as a domain general process, and that it is only during the school years that it starts to differentiate into a multidimensional domain-specific phenomenon (Barata, 2011; Fuhs & Day, 2011; Wiebe et al., 2008). Consequently, assessing children's EF during the preschool years does not

necessarily require the inclusion of tasks that tap into each of the distinct EF factors (i.e., working memory, inhibitory control, and set shifting).

### **Theoretical Background: Predictors of Executive Function**

I frame this study with the bioecological model of human development, which states that children's development occurs within multiple contexts and is affected by factors at many levels, including individual characteristics, family processes, and environmental context, as well as interactions among these levels (Bronfenbrenner, 1986). Bronfenbrenner's theory highlights the importance of the processes in which the child is involved, especially proximal processes. Proximal processes refer to the exchanges between the developing child and her/his immediate environment (e.g., parent-child interactions) and are the major driving force of development (Bronfenbrenner & Morris, 1998). Accordingly, I examine how maternal beliefs (familism and self-efficacy) shape parenting practices (having routines in the home) and parent-child interactions, which in turn influence children's inhibitory control skills. I also explore whether warmth moderates this association.

*Parental beliefs and the quality of parent-child interactions and practices.* According to ecocultural theory, parents organize their children's environment (e.g., parent-child interaction and routines in the home) by incorporating their values and beliefs into their daily interactions (Weisner, 2002). In particular, the value of familism is considered especially important for Latinos (Halgunseth, Ispa, & Rudy, 2006; Leyendecker, Harwood, Lamb, & Schölmerich, 2002). Familism (strong ties to the family) has been theoretically linked to EF because it may help Latino children to develop inhibitory control by emphasizing children's self-control, interpersonal harmony, closeness to and respect for adults, and putting others' needs ahead of one's own (Galindo & Fuller, 2010; Li-Grining, 2012; Updegraff, McHale, Whiteman, Thayer,

& Delgado, 2005). Another line of research has suggested that parents who feel more comfortable and efficacious in their role as parents have children with positive outcomes such as social skills (e.g., Swick & Hassell, 1990). The question of why maternal familism and parental self-efficacy is related to children's outcomes is beginning to get some attention in the literature. It is hypothesized that values and beliefs shape parenting practices and parent-child interactions, and these in turn may affect children's ability to regulate. For example, mother who strongly believe in the importance of the family (familism) might organize their home environment differently by implementing routines where children and parents may have the opportunities to spend time together.

*Self-efficacy.* Parental beliefs about the best approach to childrearing and parents' perceptions of their own ability to solve problems with their children are important predictors of development, because they generate, organize, and shape parental behaviors and affect the effectiveness of parenting (Sigel & McGillicuddy-De Lisi, 2002). Although it is a growing field of investigation, research showing that parental beliefs of self-efficacy are related to child functioning via their effects on the quality of parenting is limited (Brody et al., 1999; Izzo et al., 2000; Shumow & Lomax, 2002). Izzo and colleagues (2000) interviewed 93 first-generation Mexican immigrant mothers regarding self-reported social support and parental self-efficacy (e.g., "I feel sure of myself as a mother" and "I can handle my child's problems"), self-reported parental warmth and control (e.g., "I speak to my child in a warm and friendly voice" and "I insist that my child respect the rules I have in the house") and their eight-year-old children's socioemotional adjustment (mothers' reports on, for example, "copes well with failure," "expresses ideas willingly," and "makes friends easily"). They found that parental warmth mediated the relationship between parental self-efficacy and child adjustment.

Shumow and Lomax (2002), using a subsample of the Survey of Parents and Children ( $N = 929$  parents - 677 mothers and 322 fathers - and their adolescent children), found that parental efficacy (e.g., how much they believed they could help their adolescents to avoid peer-related problems) predicted reported parental involvement and monitoring, and both parenting dimensions predicted adolescents' socioemotional adjustment (e.g., adolescents' reports of their mood and worries and parents' reports of adolescents' self-esteem).

Studies examining the link between parents' beliefs and routines in the home are limited. Sprunger and colleagues were some of the first to examine the relationship between maternal characteristics, such as the mother's sense of competence as a parent, and having routines, postulating that strong family routines may be a product of the mother's sense of competent parenting (Sprunger, Boyce, & Gaines, 1985). Brody et al. (1999), with a sample of African American single mothers of six to nine-year-olds ( $N = 139$ ), found that maternal self-efficacy influenced children's regulatory skills through an association with routines in the home. In this study, competence promoting parenting practices, which included both family routines and observational ratings of mother-child interactions, as well as teachers' reports of mothers' involvement with their children's schools, mediated the association between mothers' self-efficacy beliefs and maternal reports of children's self-regulation. More recently, Corapci and Wachs (2002), in a small study with European American mothers and their infants ( $N = 57$ ), reported a negative correlation between parental efficacy beliefs and disorganized home environments (e.g., TV on and chaotic household during researcher observation).

***Familism.*** Few studies have examined the link between familism and parenting. An exception is a study conducted with 167 12-year-old children and their mothers from different Latino countries that showed that familism (as reported by mothers) had an indirect effect on

children's behavior problems (e.g., lack of self-control, antisocial behavior, physical hostility) through self-reported parenting (e.g., involvement, positive parenting, effective discipline), suggesting that a strong family orientation as measured by familism is associated with positive parenting (Santisteban, Coatsworth, Briones, Kurtines, & Szapocznik, 2012). Romero and Ruiz (2007) conducted a longitudinal study examining familism, parental monitoring (knowledge and discipline), and risky behavior (e.g., drug use) in a sample of 56 adolescents (11–15 years old) mostly of Mexican origin. They found that adolescents who reported more family proximity (spending more time with family) were more likely to report, at a later time, that their parents knew their whereabouts and with whom they spent their time. They also reported more consistent parental discipline and having parents who often inquire about their activities. This in turn appeared to lead to less risky behaviors among these adolescents of Mexican descent.

Another large study with 2,491 Puerto Rican families with children between the ages of five and thirteen found that maternal familism values were protective against antisocial behavior over time only for young (five to nine-year-old) boys and girls. Findings from this study suggested that mothers with higher self-reported familism may have children with lower levels of antisocial behavior, because they have a warmer parent–child relationship with young children (Morcillo et al., 2011). Gamble and Modry-Mandell (2008) conducted a study with 55 families of Mexican background with five-year-old children enrolled in Head Start programs, and they found that the endorsement of familism strengthens the relationship between warm mother–child relationships and children's emotional adjustment in the preschool classroom.

Calderón and colleagues (2014) found a positive correlation between familism and home organization (with routines predicting familism) among 175 low-income Latinos. Other studies have suggested that having routines in the home, such as eating meals together or sleeping

routines, is an important opportunity to develop strong parent-child relationships and promote children's positive development (Executive Office of the President: Council of Economic Advisers, 2000). A large study using time diaries (N = 2,380 children's households containing 3,563 children ages 0-12) revealed that time spent in family activities (eating meals or sleeping routines) was associated with fewer problem behaviors (Hofferth & Sandberg, 2001). This might be of special importance for Latino families, because compared to European American and African American children, Latino children ages six to eleven are more likely to eat meals six to seven days a week with their families (Zarrett & Lerner, 2008). Whether or not this trend is also observable in Latino families with toddlers is an open question.

***Quality of parent-child interactions and children's inhibitory control skills.*** Parent-child relations represent the core of young children's proximal processes, especially during the first years of life (Bernier, et al., 2012; Blair et al., 2014; Bornstein, 2002; Carlson, Zelazo, & Faja, 2013). Research has suggested that parenting is not a unitary process and different dimensions of parenting may have particular effects on children's development (e.g., Bernier, Carlson, Deschênes, & Matte-Gagné, 2012; Bornstein, Tamis-Lemonda, Hahn, & Haynes, 2008; Meins, Fernyhough, Fradley, & Tuckey, 2001). Parenting quality can be assessed through many methodologies; however, observational measures have most consistently predicted child outcomes (Zaslow et al., 2006). Studies examining the link between children's EF and observed parent-child relationships have reported that dimensions such as responsiveness, scaffolding, and sensitivity are positively linked to children's inhibitory control skills, while negative aspects, such as intrusiveness, are negatively related to children's EF (Hughes & Ensor, 2009; Kochanska et al., 2008).



***Scaffolding.*** The link between parent scaffolding and children's EF is robustly established in the literature. Based on sociocultural theory, scaffolding provides children with the necessary support to accomplish goals that otherwise would be beyond their ability level (Vygotsky, 1978). Scaffolding helps children to gradually take more responsibility for a task, allowing them to practice their regulatory behaviors.

In a Canadian study, 80 middle-class mothers were assessed for their use of scaffolding during a puzzle task with their young children (e.g., mother intervenes according to child's need, encourages her child in the pursuit of the task, follows her child's pace) and their sensitivity during in-home mother–infant interactions (using a maternal behavioral q-sort; MBQS). Scaffolding and sensitivity explained 10% of the variance in children's performance on an EF task at 26 month of age, even controlling for children's Bayley scores at 12 months (Bernier et al., 2010). Another Canadian study reported that mothers' use of utterances that elaborated on a child's course of action during a puzzle task (scaffolding) was concurrently linked to better EF, controlling for the caregiver's education and the child's verbal ability (Bibok, Carpendale, & Müller, 2009). Similarly, a longitudinal study with mostly White, educated families in Canada found that mother's scaffolding at age three predicted children's EF at age four. Accounting for age, gender, verbal ability, and EF skills at ages two and three, maternal scaffolding when children were two and three years old accounted for an additional 9% of variance in EF at age four (Hammond, Müller, Carpendale, Bibok, & Liebermann-Finestone, 2012). Comparable results were reported by Hughes and Ensor (2009), who tested the longitudinal predictive value of maternal scaffolding on children's EF in an economically disadvantaged sample in the UK. Controlling for EF and verbal ability at age two, mothers' use of open-ended questions, praise or encouragement, and elaboration was predictive of better EF in children by age four. Finally, Li-

Grining (2007) reported that mothers' assistance to their two to four-year-old children when necessary during a puzzle task enhanced children's delay gratification skills (an inhibitory control skill) net of child's age and ecological risk.

The few studies of parenting that have included fathers have found similar results (e.g., Kochanska et al., 2008; Owen et al., 2013; Roskam et al., 2014). A study by Kochanska and colleagues (2008) of 120 White, middle-class families showed that children who had experienced a highly mutually responsive relationship with their fathers (or mothers) during their first two years of life displayed better inhibitory control skills at 52 months. A recent longitudinal study of 421 families (348 mother-child dyads and 342 father-child dyads) in Belgium showed that both mothers and fathers contribute to their children's inhibitory control skills through their self-reported positive childrearing behavior (including parental sensitivity, monitoring, rules, discipline, ignoring, rewarding, and autonomy) (Roskman et al., 2014).

***Intrusiveness.*** In contrast to scaffolding, intrusiveness (e.g., negative control and power assertion) has shown to have detrimental effects on children's EF. In a study of 69 White children and their mothers, Silverman & Ragusa (1992) found that mothers' negative parenting (e.g., strictness, aggravation, and negative control) during mother-child interactions, as well as in a self-report on rearing attitudes at 24 months, negatively predicted their children's inhibitory control skills two years later. In another study, maternal power assertive control was inversely correlated to children's emerging internalization and self-regulation (committed compliance; Kochanska & Aksan, 1995). In a more recent study, maternal and paternal power assertion (use of threats and negative and angry control during parent-child interactions) at 38 months predicted lower EF abilities at 52 months (Kochanska et al., 2008). Negative and power assertive parenting control is likely to promote inappropriate regulatory behavior, because it may direct children's

attention to the power differential rather than reasoning, which does not provide children with opportunities to develop self-regulation (Scaramella & Leve, 2004; Talwar et al., 2011). Other aspects of parenting, such as inconsistency, have not been found to predict children's EF once other child characteristics, such as previous EF and child's verbal ability, were accounted for (Hughes & Ensor, 2009).

***Parental warmth.*** Warmth is another aspect of the quality of parent-child interactions; it refers to affection, love, and acceptance. It is considered a universally "positively valued" dimension of parenting and has been shown to promote children's development (Landry, Smith, Swank, Assel, & Vellet, 2001; Maccoby & Martin, 1983). Likewise, warmth has been related to better inhibitory control skills in children (Bernier et al., 2010; Blair et al., 2014).

Warmth has also been conceptualized as a key aspect of the emotional climate of parent-child relationships. The affective context in which parental behaviors occur may be a critical determinant of their impact (Martinez, 1988; Grusec et al., 1997). For example, studies have shown that maternal warmth moderates links between negative parenting and children's outcomes (Brody & Flor, 1997; Ispa et al., 2004; Lansford et al., 2014; McLoyd & Smith, 2002). However, studies on the relation between scaffolding-warmth and intrusiveness-warmth among young children are limited, and none have linked this association to children's inhibitory control skills. Most studies consider scaffolding (or autonomy support) as part of a constellation of behaviors called *positive* or *sensitive parenting* in which it is assumed that scaffolding and warmth co-occur (e.g., Bernier et al 2010; 2012; Kochanska & Aksan, 1995; Maccoby & Martin, 1983). It may be the case, however, that how parents interact (i.e., how they respond to children's comments and questions, whether or not they ask open-ended questions, and how they display physical control) determines, in large part, the relation between the mother-child

interaction and children's inhibitory control skills. Perhaps parental warmth reduces the negative effect of intrusiveness or enhances the positive link between scaffolding and children's inhibitory control skills. No study to date has examined this possibility.

***Parenting practices.*** Parenting practices – verbal, physical, and material forms of caregiving – are another core aspect of parental care (Bornstein, 2002). There is a wide range of activities parents naturally engage in with their children. One of them is creating routines, which have been shown to be particularly important for infants and preschool children (see Fiese et al., 2002). Young children are healthier, and their behavior is better regulated, when there are predictable routines in the family.

***Routines in the home.*** Having routines in the home is an important way to structure a child's environment and create order and stability that promote EF (Evans, Gonnella, Marcynyszyn, Gentile, & Salpekar, 2005; Hughes & Ensor, 2009; Martin, Razza, & Brooks-Gunn, 2012). Having routines in the home helps children to develop self-regulatory skills, because it teaches children that events are predictable, and that there are rewards for waiting. A child who does not have many routines in the home may learn that opportunities for rewards are erratic, and that s/he should pursue rewards when they are available instead of waiting for the “right” moment, because that may never come. An unpredictable home environment may undermine children's confidence in their ability to influence their environment and to predict consequences, which may result in their experiencing a chronically high or flat state of arousal instead of learning to regulate their arousal according to situational needs (Zalewski et al., 2012).

Hughes and Ensor (2009) studied 125 children from disadvantaged backgrounds in the United Kingdom. When children were two years old their mothers completed the CHAOS scale, a parental self-report measure of 15 questions (such as, “Is there often a fuss going on at home?”

and “In the mornings, do you have a regular routine?”) to assess the degree of chaos in the household. Controlling for EF and concurrent verbal ability at age two, results showed that family chaos was associated with lack of improvement in EF between the ages of two and four. One critique of studies based on the CHAOS scale is that the scale only assesses some dimensions of chaos (disorganization of the home environment). Researchers interested in evaluating other aspects of chaos, such as specific routines, crowding conditions, background noise, and family instability have used direct assessment (e.g., measures of noise exposure) or have included these items on questionnaires (e.g., hours that the TV is on, number of rooms in the home, frequency of routines). Using a subsample of the Project of Human Development in Chicago Neighborhoods (PHDCN), Martin, Razza and Brooks-Gunn (2012) explored different dimensions of household chaos (i.e. family instability, routines in the home, TV usage, crowding, and noise) when children were two and a half years old. They tested for the independent contributions of each of these aspects to children’s inhibitory control skills two and a half years later. Controlling for income, education, family size, and race/ethnicity, only a lack of routines in the home was negatively associated with a delay of gratification task (i.e., inhibitory control task). Raver and colleagues (2013) also tested the impact of noise, crowding, a lack of routines, and unsafe housing conditions on children’s EF. Using data from a large longitudinal study of low-income families (n= 1,259), the authors found no link between these aspects of the home environment and children’s EF at 48 months. These findings suggest that it is a lack of routines which hinders children’s development of regulatory skills.

In summary, a robust body of literature has shown that the quality of parent-child interactions explains some of the variance in children’s inhibitory control skills. However, most research has focused solely on positive aspects of the parent-child relationship. Thus, little is

known about how positive *and* negative aspects of parent-child interactions are related to children's inhibitory control skills. Moreover, there is little understanding of the role of the emotional climate (warmth) in the association between parent-child interactions and children's inhibitory control skills. A handful of studies have examined the direct effect of home organization and children's EF, suggesting that living in a home lacking regular routines is negatively related to EF skills (Martin et al., 2012). In this study, I contribute to the scarce literature on this topic by examining the relation between scaffolding and intrusiveness, having routines in the home, and children's inhibitory control skills. I also examine whether warmth moderates the association between the quality of parent-child interactions and children's inhibitory control skills.

***Control variables.*** Developmental scientists have consistently emphasized the importance of context in understanding how children's development unfolds. Studies on the association between gender and EF tend to show that, overall, girls outperform boys (e.g., Bassett et al., 2012; Carlson & Moses, 2001; Hughes & Ensor, 2005; Li-Grining, 2007; McCabe & Brooks-Gunn, 2007; Wiebe, Espy, & Charak, 2008). But some studies have reported inconsistent results. For example, Carlson and Moses (2001) found that three to four-year-old girls outperformed boys, but only on some EF tasks. Others have reported no consistent gender differences in samples of preschool-age low-income children (Caughy, Mills, Tresch, & Hurst, 2013; McCabe & Brooks-Gunn, 2007).

In addition, the literature has suggested that mothers of girls may be more positive and engaged during interactions than mothers of boys, and that mothers tend to be more intrusive when interacting with boys as compared to girls (Barnet et al., 2013; Leaper, 2002). However, the magnitude of these differences is typically small. Given that gender has been linked to both

the quality of parent-child interactions and children's inhibitory control skills, I control for gender in my analysis.

Another important predictor of EF skills is verbal ability. Several studies have shown that greater verbal ability (receptive and expressive vocabulary) is positively associated with children's performance in EF tasks among toddlers and preschoolers (Carlson et al., 2004; Hongwanishkul et al., 2005; Hughes & Ensor, 2005). It is suggested that improved language may support children's EF skills by enhancing children's outer and then inner speech, which allows them to reflect upon, organize, and plan their behavior (Müller et al., 2009; Vygotsky, 1978). Given the evidence that children's language and EF skills are interrelated, I will include this variable as a control.

### **Addressing the Gaps in the Literature**

A review of the literature on individual differences of children's EF during the preschool years reveals several gaps. In this section, I synthesize the gaps in the literature and explain how I plan to address them. First, more research is needed to better understand how parental beliefs shape the quality of parent-child interactions and practices, which in turn influence children's regulatory skills. There is evidence that parents' beliefs about their competency in their role as caregivers (self-efficacy) and familism are positively related to positive parenting (e.g., consistent discipline). Most studies have only examined positive dimension of parenting, so we know less about how parental beliefs and intrusiveness are related. Moreover, the literature offers little information about how parental beliefs relate to the way parents organize the daily lives of their children (e.g., having routines in the home) and how this relates to children's regulatory skills. I address this gap by examining parents' familism and self-efficacy beliefs and their association with scaffolding and intrusiveness in Latino parents of toddlers.

The literature has highlighted the importance of the quality of parent-child interactions on the development of children's EF. Aspects such as scaffolding have been linked to better inhibitory control skills in preschool children concurrently and longitudinally (e.g., Bernier et al., 2010; Kochanska et al., 2000). Few studies, however, have examined the link between negative aspects of parent-child interactions (e.g., intrusiveness) and children's inhibitory control development. Moreover, there is little information on the role of parental warmth in this association. Does parental warmth strengthen the relation between scaffolding and children's inhibitory skills? Can warmth weaken the negative effects of intrusiveness on children's regulatory skills? In this study, I test the association between scaffolding, intrusiveness, and children's inhibitory control skills and examine whether this association is moderated by parental warmth.

Another aspect of children's home environment that presents a promising area for future research, but has received little attention, is the existence of routines in the home. Diverse studies have examined aspects of establishing family routines, such as eating meals together or general home routines, suggesting that these aspects promote positive development in children. However, these studies suffer from several limitations. First, most of the studies focus on the adolescent or preadolescent years; therefore, little is known about how routines in the home may be related to children during toddlerhood, a critical developmental period in which children start interacting more with peers and language emerges. Second, very few studies focus on EF as the outcome variable.

So, I address the aforementioned gaps in the literature by assessing low-income Latino parents' familism and self-efficacy beliefs and how these relate to the quality of their parent-child interactions (scaffolding and intrusiveness) and practices (having routines in the home).



Moreover, I assess the relation between the quality of parent-child interactions and toddlers' inhibitory control skills and whether this association is moderated by parental warmth. I also contribute to the literature by testing whether having routines in the home relates to children's inhibitory control skills at age two. Findings from this study will help to improve the understanding of the early socialization experiences of the largest immigrant group in the United States. In addition, I focus on low-income children because they are most at risk of school failure and therefore have the greatest need for early intervention. Data gleaned from this study will help develop interventional strategies and inform policy and practice that build on Latino families' strengths.

### **Chapter 3: Methods**

The design for this study was multi-method and included observed parent-child interactions, parent interviews, and direct child assessments. Following the designs of the Early Head Start Evaluation (EHSREP; Love et al., 2005) and National Institute of Child Health and Human Development (NICHD) childcare study, mothers and fathers interacted with their two-year-old children in a ten-minute free play activity with a series of toys such as a ball, a doll, and a helicopter (for a complete list of toys see Appendix A). Parents also answered a questionnaire developed for the study that asked a series of questions on the following domains: demographic data (e.g., parents' education), parenting practices (e.g., routines in the home), familism, and parental self-efficacy. Children participated in a direct assessment of their inhibitory control skills with the snack delay and tower task based on Kochanska et al.'s battery (2000).

#### **Participants**

Participants were toddlers and their mothers and fathers of Latino heritage aged 24-31 months enrolled in early childcare programs in the DC metropolitan area. The childcare centers identified for this study serve Latino families mostly from Central America (El Salvador, Honduras, and Nicaragua) and Mexico. I selected these centers for two main reasons: the high number of Latino families enrolled in their programs and a previous successful experience recruiting families from these centers. The majority of families enrolled at these centers are classified at or below the poverty line, and more than 70% are foreign born (Centro Nía, 2012). The largest Latino groups in both centers are Salvadorian and Mexican, reflecting the population distribution in the DC metro area (Migration Policy Institute, 2012).

The total number of participants for this study was 51 families (51 mothers, 21 fathers, and 48 children). It was not possible to get data from 30 fathers. Thirteen were not available

because we could not find a time and day to meet, fifteen because mothers did not have contact with them, one because he was in jail, and another because he had been deported. We could not collect data on three children, two because they refused to be assessed and one because of technical problems. Consequently, the final analytic sample for the present study included 51 mothers and 48 children. I present descriptive information about the sample in table 1 and more detailed information on the missing data on the result section

**Recruitment.** I met with school directors to obtain their permission and help in recruiting families. Bilingual researchers (myself and other graduate students from the Family Involvement Lab, accompanied by undergraduate research assistants) recruited potential participants in person during drop-off and pick-up hours and parent-teacher meetings from the centers the children attend. During the recruitment, we asked parents whether they were willing to participate in a study about their experiences raising a child in the United States. We also informed parents about the methodology and objectives of the study, the purpose for collecting these data, and confidentiality issues. If parents agreed to participate in the study, we asked them for their phone number(s) to schedule a time for the interviews, interactions, and child assessment. Consent forms were available in Spanish and English, and we conducted assessments in the language parents and children preferred (see appendix B for consent forms). As an incentive for participating in the study, families were given an educational toy for their child.

### **Current study**

We collected all data in participants' homes or childcare center (20% and 80% respectively), when children were between 24 and 31 months of age, on days and times that were most convenient for the families. Mothers and fathers were interviewed and videotaped interacting with their children. We assessed children in their preferred language. This is an

improvement over past methodologies that tend to assess immigrant children only in English or their parents' preferred language. By assessing children in their preferred language we obtained a measure of their conceptual understanding, instead of testing only if they know the concept in a specific language (most commonly English). For example, if a child knows the word "casa" (house) in Spanish but not in English, testing the child in English will result in the child scoring 0 for the concept of house. Thus, in this study we gave credit to children for knowing the concept of house in either language. Data collection took at least three visits, depending on the family's circumstances.

**Collecting interview and parent-child interaction data.** During the first visit, the research assistant or I read the three consent forms (one form for the interview and child assessment, one form to videotape the parent-child interaction, and another to use the video for educational purposes) to the mother or father. The research team answered all of their questions. We assured parents of confidentiality and reminded them that they could drop out of the study at any point. Once the parent signed the consent forms, one of the researchers administered the questionnaire. Assuming both the parent and child were available, we conducted the videotaped interaction at that same visit. For the videotaped interaction, we asked the parents to engage in a free play activity with the child (for protocol see appendix A). If the parent-child interaction could not be done at this time, we scheduled another visit to complete the rest of the data collection. The first visit lasted approximately 45-60 minutes.

**Child assessment.** The research team assessed children's inhibitory control skills according to the guidelines described below (see measures section). We made an effort to conduct child assessments at the child's childcare center. However, some assessments ( $n=10$ ) were conducted in the child's home. These two groups did not present significant differences in

their performance on the inhibitory control tasks ( $t(40) = .87, p = .4$ ). The child assessment lasted around 30 minutes. We gave children a sticker for participating in this part of the study.

## Measures

In Table 2 I present a list of all study measures, including method of assessment, scale, and how it is used in the model (independent, dependent, and control variables).

**Dependent variable.** One member of the research team (either a research assistant or myself) assessed children's executive control skills using two inhibitory control tasks based on Kochanska et al.'s (2000) battery. These tasks are considered appropriate for children age 22 months and older (Garon et al., 2008) and have been used with young children from diverse ethnic and SES backgrounds (Bassett et al., 2012; Caughy et al., 2013).

**Snack delay.** This task measures children's inhibitory control using a delay of gratification paradigm based on Kochanska et al.'s (2000) battery. We slightly modified Kochanska's protocol based on previous experience with this sample. The protocol was the following: The experimenter shows the child a snack (i.e., goldfish, a snack approved by parents and center directors) and over four trials of varying delays (10, 20, 30, and 15 seconds) the child is told not to touch the snack until the examiner says "Okay, you can eat it." We coded each trial for the latency (number of seconds) from the start of the trial until the child ate the snack. Inter-rater reliability (ICC) for the snack delay task coding was .99 based on 20% of cases. Higher scores indicate better inhibitory control skills.

**Tower task.** The second executive function task is also an inhibitory control task. It consists of a turn-taking task that involves both doing something fun and inhibiting one's response while waiting for the experimenter to have a turn. The experimenter and the child each have 12 wooden blocks. The child is asked to build a very high tower, taking turns with the

experimenter, across two trials. This procedure and the coding system represent the original protocol presented in Kochanska et al. (2002). The coding represents the average number of turns the child allowed the experimenter to take. Scores ranged from ten (no turns taken) to twenty (alternated every turn) points. Higher scores indicate more turn taking and better IC skills. For reliability, 98% of coding scores (number of blocks placed) were within one point, 100% were within two points.

Even though both measures (snack delay and tower task) are design to tap onto inhibitory control, they did not significantly correlate ( $r = -.18$ ,  $p = .20$ ). This is not surprising; previous studies have also noted that there is little or no correlation between measures of IC (for review see Paap et al., 2015). Thus, I decided to use both variables separately during the analysis.

**Independent variable.** In this study, I assessed parents' value of familism as well as parental self-efficacy beliefs.

**Familism.** Parents reported on three subscales of the Mexican American Cultural Values Scale (MACVS, Knight et al., 2010): family obligations, family referent, and family support. The MACVS was developed to measure values associated with traditional Mexican and Anglo cultures; however, it has been used across Latino groups with reported Cronbach's  $\alpha$  of .75 (Gonzales et al., 2011). Participants were asked to rate how much they agree or disagree with each of the items (e.g., "it is important for family members to show their love and affection to one another," "children should be taught that it is their duty to care for their parents when their parents get old") from 1 = *not at all* to 5 = *completely* (see Appendix C for all items). Cronbach's  $\alpha$  for the four scales was between .62 and .92. For all familism subscales, a higher score indicates a stronger endorsement of the value. In line with previous studies that reported a high correlation among the familism subscales (e.g., Gonzales et al., 2008; White & Roosa, 2012), in this study

the correlation among these subscales were between  $r = .42$  and  $r = .93$ ,  $p < .01$ . Given these correlations, and because they all refer to the same construct, I created a composite including the three familism subscales (Cronbach's  $\alpha = .82$  and  $.90$  for mothers and fathers respectively).

**Parental self-efficacy.** Using four items from the Parent Stress Index Short Form (PSI - SF; Abidin, 1990) I assessed parents' ability to manage their children's problems and raise them effectively. The items were: "I find myself giving up more of my life to meet my children's needs than I ever expected"; "I feel trapped by my responsibilities as a parent"; "I find that getting my child to do something or stop do something is much harder than I expected"; "My child's sleeping or eating schedule was much harder to establish than I expected". Using a 5-point likert-scale ranging from *strongly disagree* to *strongly agree*, participants indicated how much they agree with each statements. I computed a self-efficacy score summing scores across the items (Cronbach's  $\alpha = .69$ ).

**Parent-child interaction.** The research team videotaped parent-child interactions for ten minutes of free play. We asked mothers and fathers to play with their children and provide toys "as they normally would" for ten minutes. We gave them no further instructions.

**Coding of parent-child interactions.** A research assistant and I coded the quality of the parent-child interactions using an adapted version of the Parent-Child-Interaction System (PARCHISY; Deater-Deckard et al., 1997). The PARCHISY is extensively used in parenting research with various populations, including minority samples (e.g., Atzaba-Poria, Pike, & Deater-Deckard, 2003; Hughes & Ensor, 2005). The complete scale includes eight child codes (positive affect/warmth, negative affect, responsiveness to parent, on task, noncompliance, autonomy, activity, and verbalizations), seven parent codes (scaffolding, intrusiveness, warmth, negative affect, responsiveness, on task, and verbalizations), and three dyadic codes (reciprocity,

cooperation, and conflict). Each behavior is coded on a 7-point Likert-type rating scale that ranges from *very low* (1) to *very high* (7). The parental behaviors I included in this study were scaffolding, which includes the use of explanation instead of directives and open-ended questions by the parent, and responsiveness, which refers to parents' responses to their children's questions, comments, and behaviors. I also coded for warmth, which refers to the quality of the interaction context and includes how frequently the parent smiles and laughs during the interaction, creating a warm atmosphere. Similarly, I included one negative dimension, intrusiveness, which refers to the parent's physical control, pushing of his or her own agenda, and use of criticism.

To secure reliability I randomly selected 20% of the parent-child interactions to be independently coded by two raters (either myself and an undergraduate research assistant or two undergraduate research assistants). The percentage of agreement between the two coders was 88%. The disagreements in coding were discussed, with final determination of the scores made by the master coder.

***Routines in the home.*** I created the "having routines in the home" variable, combining four parent-reported items on bedtime, sleeping and bedtime routines, and mealtime frequency (e.g., does your child have a regular bedtime routine? Yes =1; no =0). Mealtime routines referred to whether parents had dinner with their children every day. For specific items, see appendix D. A higher score on this variable reflected more routines. Previous studies have reported that family routines are more predictive of children's regulatory skills than general home organization such as noise or crowding (Martin et al., 2012).

**Control variables.** Based on the literature that has shown that children's language skills are related to EF (e.g., Carlson et al., 2004; Hughes & Ensor, 2005), I included this variable in



preliminary analysis. From a sociocultural perspective, improved language supports children's EF skills by enhancing children's outer and then inner speech, which allows them to reflect upon, organize, and plan their behavior (Müller et al., 2009; Vygotsky, 1978).

Given that children's language is still emerging at age two, I assessed children's receptive language instead of their expressive language. I used the Mullen Scales of Early Learning (MSEL; Mullen, 1992), which is a standardized, individually administered test for children between 21 and 63 months that has been used with Latino toddlers (e.g., Song, Tamis-Lemonda, Yoshikawa, Kahana-Kalman, & Wu, 2011). The research team asked children to follow simple directions and point to pictures when the examiner named them. Reported Cronbach's  $\alpha$  for this test is .83.

In addition, I examined child gender as a possible control variable. Several studies have shown that girls outperform boys in different inhibitory control tasks (Bassett, Denham, Wyatt, & Warren-Khot, 2012; Carlson & Moses, 2001; Wiebe, Espy, & Charak, 2008). Gender has also been linked to the quality of parent-child interactions (Barnet et al., 2013; Leaper, 2002). Mothers reported their child's gender during the interview.

## Chapter 4: Results

I organized this chapter in the following way: (1) missing data, (2) testing the assumptions of normality and multicollinearity, (3) descriptive statistics and correlations, and (4) main analysis using multiple regressions.

### Missing Data

There was an average of 18% missing data on all study variables, ranging from 2 to 20%. The percent of missing data on study variables was as follows. On independent variables: familism subscales and mother self-efficacy (2%), mother-child interaction (12%); on control variables: household income (12%), child receptive vocabulary (6%); and on dependent variables: snack delay (10%) and tower task (20%). The highest number of missing data was on the tower task (10 children), four children refused to be assessed, five cases could not be coded (e.g., made a line instead of a tower with the blocks) and one because of technical problems. For the snack delay, four children refused to be assessed and one video presented technical problems. Three children did not cooperate when we assessed their vocabulary skills. In the case of the mother-child interaction, two mothers did not allow us to tape the interaction, one video had technical problems and could not be coded, and we were unable to schedule two other mother-interactions.

This level of missingness can be handled in SPSS successfully with Multiple Imputation (MI). SPSS 23.0 uses full conditional specification to impute each variable with missing values and then uses the imputed values in the imputation of other variables. This procedure produce output for each "complete" dataset (five in this study), plus pooled output that estimates what the results would have been if the original dataset had no missing values. Multiple imputation has

been shown to be superior to other missing data techniques (e.g., mean imputation, listwise and pairwise deletion) and is considered an acceptable technique to handle data that are missing at random (Graham, 2009). The first step in handling missing data is to determine whether the data are missing at random. If the data are not missing at random, then estimates can be biased because it suggests that an unobserved variable might explain the findings (Graham, 2009). To determine whether data were missing at random in my sample, I first performed the Little's MCAR test. The test was not significant ( $\text{Chi-square} = 207.93; df = 182; p = 0.1$ ), which indicates that no identifiable pattern exists to the missing data. That is, it is likely that the data are missing at random. Second, I used imputation procedures to estimate what the value of the missing data point would have been had it been included in the dataset. This process increases the number of observations (and power) used in subsequent statistical analyses (Schafer & Graham, 2002). Results of each imputed dataset generally did not differ from analyses based on original dataset. Thus, I ran analysis using the full sample with imputed values ( $N = 51$ ).

### **Frequency Distribution: Normality and Multicollinearity**

To determine the distribution of my sample, I tested the normality of variables by running normal QQ plots, which is recommended for small samples (Cohen, Cohen, West & Aikens, 2003). All the plots approximated a straight line suggesting a normal distribution of residuals in my sample.

To test for multicollinearity, that is, high correlation among the predictor variables, I ran correlations among all study variables. If the correlations are too high, then the variance of parameter estimates may be inflated (Hair, Anderson, Tatum, & Black, 1998). Bivariate correlations on study variables (see table 3) revealed a correlation of .8 between maternal warmth and scaffolding. To test the severity of multicollinearity I calculated the variance

inflation factors (VIF), which provides an index that measures how much the variance of an estimated regression coefficient is increased because of collinearity. Various recommendations for acceptable levels of tolerance and VIF have been published in the literature (e.g., Michael & Abiodun, 2014). Recommendation for small samples size is a VIF of 2.5. That is, if the VIF is higher than 2.5, multicollinearity is a problem. VIF values for my set of variables were not higher than 1.5 suggesting that multicollinearity is not a problem in my study and that these correlations would not bias parameter estimates (Hair et al., 1998).

### **Descriptive Results**

As explained in the recruitment section, I was able to collect data on 21 fathers, which does not allow me to run analysis with enough power. Consequently, I used only maternal data to answer my research questions. Descriptive statistics and correlations on all study variables are in Table 2 and 3. At the time of the study mothers and fathers were on average 30 and 33 years old, respectively ( $SD = 5.3$ , range 19-40 and  $SD = 5.3$ , range 24-46). The average age of parents at the birth of focal child was 28 and 38 years for mothers and fathers, respectively ( $SD = 5.3$ , 5.2 range 16- 38 and 23-44, respectively). Almost half of the participating parents were from Salvadorian origin (49% for mothers and 50% for fathers), followed by Mexican origin (17% of mothers and 23% of fathers). The majority of participants (97%) were married. In terms of education, 47% of mothers and 46 % of fathers had less than High School (HS) degree, 36% of mothers and 38% of fathers had HS, and 17% of mothers and 16% of fathers had some college. At the time of interview, 95% fathers and 53% of mothers were employed. Regarding income, 30% of the mothers reported an annual household income of less than \$12,000 and 32% reported between \$12,000 and \$24,000. The remaining 38% reported an annual income of \$ 24,000 or more. Children were on average 28 months old ( $SD = 3$ ) at the time of assessment and half of the

children in the study were male (51%).

For maternal beliefs, on average, mothers reported high levels of self-efficacy ( $M= 4$ ,  $SD= .7$ , range= 1-5) and high endorsement of familism values ( $M= 4$ ,  $SD= .38$ , range= 1-5). In terms of parenting practices (i.e., how many routines mothers have in the home) most mothers (70%) reported that all of four routines (e.g., sleep, bedtime routines) assessed were part of their daily life ( $M= 3.5$ ,  $SD= .8$ , range 0-4). Mothers exhibited, on average, high levels of scaffolding ( $M= 6$ ,  $SD= .8$ ), warmth ( $M= 5.7$ ,  $SD= .8$ ), and low levels of intrusiveness ( $M= 1.8$ ,  $SD= .9$ ). On average, children's receptive vocabulary scores on the Mullen Scale of Early Learning was 38.3 out of a possible 60 ( $SD= 10.4$ ), which corresponds to the "below average" category (MSEL; Mullen, 1992). However, the range was large ranging from 20 to 59. In contrast in terms of levels of regulatory behavior, 53% of children were able to wait the full time in each trial (i.e., 10, 20, 30, and 15 seconds) of the snack delay task. The average of the proportion of blocks placed by the children in the tower task was 15 in a range from 10 (no turns taken) to 20 (alternated every turn) points.

Table 3 shows the correlations among all study variables. Only maternal intrusiveness was significantly associated with children's performance on the snack delay tasks ( $r = -.47$ ,  $p < .01$ ). Neither gender nor receptive vocabulary was correlated to children's inhibitory skills. Thus, I will not include gender and verbal ability in the regression analysis.

### **Multiple Regression Analysis**

To test the first hypothesis that maternal beliefs (familism and self-efficacy) will be positively related to the quality of mother-child interaction (i.e., scaffolding and intrusiveness) and to having routines in the home, I ran three multiple regressions, one for each dimension of mothering: maternal scaffolding (a composite of scaffolding and responsiveness), intrusiveness,

and having routines in the home (used as a parenting practice) (Table 4). Only maternal self-efficacy was concurrently and positively associated with having routines in the home ( $\beta = .28$   $p < .05$ ) accounting for 15% of the variance. Maternal beliefs -familism and self-efficacy –were not significantly related to maternal scaffolding and intrusiveness.

To test the second and third hypotheses, that scaffolding and intrusiveness will be significantly related to children's inhibitory control and that warmth will moderate the association between intrusiveness and children's inhibitory control, I ran a hierarchical multiple regressions predicting children's snack delay and tower task (Table 5 and 6). Because bivariate correlational analysis indicated that neither verbal ability nor child gender was related to children's inhibitory skills I did not include them in this analysis. In step one I entered scaffolding, in step 2, I added intrusiveness, in Step 3 I entered warmth, and in step 4 the interactions terms.

For snack delay (table 5) the results showed that maternal scaffolding was no significantly related to inhibitory control skills (model 1). When intrusiveness was entered into the model (model 2), the association between maternal scaffolding and inhibitory control was furthered reduced (from .04 to -.12) and did not reach significance. However, intrusiveness was negatively and significantly related to inhibitory control ( $\beta = -.44$   $p < .01$ ) as assessed by the snack delay task. This model accounted for 20% of variance. An additional 15% of the variance was accounted for when warmth was included; warmth was a significant predictor of the snack delay task ( $\beta = .69$   $p < .01$ ). Finally an additional 4% of the variance was accounted for when the interaction term was entered into the model (model 4) but it did not reach significance suggesting that the association between intrusiveness and children's performance on the snack delay task did not vary by levels of warmth.

Results in table 6 showed that neither maternal scaffolding nor intrusiveness was significantly related to children's performance on the tower task (model 1 and 2). Model 1 accounted for 4% and model 2 for 13% of the variance on the tower task. An additional 8% of the variance was accounted for when warmth was included; but warmth was not a significant predictor of the tower task ( $\beta = -.48$   $p = .1$ ). Finally no additional percentage of the variance was accounted for when the interaction term was entered into the model (model 3) and it did not reach significance.

## Chapter 5: Discussion

Guided by the bioecological model (Bronfenbrenner & Morris, 1998; Bronfenbrenner, 1979), which asserts that children's development is influenced by parenting behaviors and beliefs (proximal processes), I examined how Latino mothers' beliefs of familism and self-efficacy are related to the quality of the mother-child interaction during play (assessed in this study as scaffolding and intrusiveness) and maternal practices (having routines in the home) and how these dimensions of quality are concurrently related to toddlers' inhibitory control skills. Children who have better inhibitory control skills are more able to follow instructions, finish tasks, and pay attention in the classroom (e.g., Blair & Razza, 2007; Denham et al., 2012). This is of particular importance for children growing up in low-income environments, because they are most at risk for school failure. Learning more about how the early experiences of Latino toddlers support the development of inhibitory control has significant implications for programs and interventions.

This study contributes to the field with five key findings. First, results suggest that the cultural value of familism is not promoting high quality mother-child interaction and practices at this age. This finding calls for examination of other cultural values that may be contributing to Latino children's inhibitory control skills at this age. Second, scaffolding did not predict children's performance in the snack delay or tower task. It could be that it is the quality and not the frequency of scaffolding, which may be related to children's inhibitory control skills. Third, intrusiveness has important effects on children's inhibitory control skills. Even in low levels maternal intrusiveness (e.g., use of physical control, pushing parents' agenda) during play was related to children's inhibitory control skills. Toddlers performed less well on the snack delay test, which aimed to capture their ability to delay gratification, when their mothers were highly



intrusive during play. Fourth, maternal affect did not protect against the negative effect of intrusiveness: The association between maternal intrusiveness and children's performance on the snack delay task remained even when mothers were warm and loving during play. Fifth, the quality of the mother-child interaction was only predictive of children's ability to delay gratification (snack delay) but not of children turn taking ability (tower task).

### **Low-Income Latino Parents and Their Toddlers**

Parents who participated in this study are recent immigrants with low levels of income and education. They are similar to samples of Latinos in other studies (e.g., Caughy et al., 2013). Despite general low levels of education and income, children in this study are growing up in relatively positive family environments with high-functioning parents. For example, most parents in this study are married, and mothers reported high levels of self-efficacy, familism, and routines in the home. When mothers were observed interacting with their children during a play observational task, they were high on warmth and displayed high levels of scaffolding and low levels of intrusiveness.

In comparison to others studies on inhibitory control skills using the snack delay task in Latino children, participating toddlers presented similar levels of regulatory skills (Caughy et al., 2013; Li-Grining, 2007). That is, they scored on average .79 seconds in a range of 0 to one minute. Children in Caughy's study were 42 months old and scored on average .73 in the same task. It is difficult to compare these results to other studies with White children for several reasons. First, most studies include middle to upper-class children, and second, most used a different task or reported a score based on a battery of EF tasks (Carlson & Moses, 2001; Denham et al., 2012; Kochanska et al., 2000).

Although not the focus of this study, I also examined the receptive vocabulary of the toddlers, because theoretically and empirically it has been suggested that language skills support children's EF skills by providing the child with more mental tools or symbolic representations that aid them in regulating their emotions and impulses (Vallotton & Ayoub, 2011). Compared to national norms for children's receptive vocabulary at 24 months, children in this study fall in the category "below average" (using the Mullen Scales of Early Learning). This finding is consistent with past findings showing lesser language abilities for emerging bilingual Latino children compared to monolingual English speakers in the United States (Lonigan et al., 2013; Mancilla-Martinez & Lesaux, 2011; Nogueira Peredo et al., 2015). Overall, the children in my study exhibited low language skills and average inhibitory control skills despite growing up in relatively supportive and warm home environments. This is an important finding, suggesting that children growing up in poverty begin to show mean group differences in language skills and inhibitory control in toddlerhood. The lack of strong language skills during this age also puts them at early risk for school difficulties.

Given differences in inhibitory control among Latino children, the question is: what explains these mean group differences? Or, how do early home environment experiences support the development of inhibitory skills? An important finding in the literature is that the cultural environments of minority children, cultural norms and beliefs, might be an important source of variability. Based on the ecocultural theory that parents organize their children's environment (e.g., routines) by incorporating their values and beliefs into their daily interactions (Weisner, 2002) studies with older children have found that familism is related to the quality of mother-child interactions and practices with effect sizes ranging from .1 to .5 (e.g., Gamble & Modry-Mandell, 2008; Morcillo et al., 2011; Santisteban et al., 2012). The idea behind this view is that

mothers who strongly believe in the importance of the family might organize their home environment differently by implementing routines where children and parents have opportunities to spend time together and bond. Mothers with high levels of familism might also be more responsive and less intrusive. Contrary to past findings with older children, I did not find support for the link between the cultural belief of familism and the quality of the interactions between mothers and toddlers during play. Perhaps the differences in the way parenting and familism were measured and the age of the children explain these inconsistent results. Familismo is a multifaceted construct that can be understood in terms of attitudinal and behavioral manifestations. While attitudinal familism refers to the actual beliefs and values, behavioral familism refers to the behavioral expression of those beliefs. The literature is plagued with significant methodological flaws concerning attitudinal versus behavioral familism as predicting outcomes. It is unclear what aspects of familism are particularly protective and whether there is a differential role of attitudinal versus behavioral familism (Stein et al., 2014). For example, findings from an ethnographic study conducted with Dominican and Mexican mothers showed that behavioral familism may play a critical role in childrearing, facilitate the immigration process for first-generation Latinos, and provide much needed financial and social support (Calzada et al., 2012). Perhaps it is the monetary and social support that results from familistic behaviors, which promote children's wellbeing by facilitating parent's use of positive and effective parenting practices (McLoyd, 1998). Another possibility is that familistic orientation may be observable in other aspects of parenting not observed in this study, such as management of conflict or coparenting, and that these associations might be observable over time and not concurrently as in this study (Calzada et al., 2012).

In addition to these specific cultural beliefs, I drew on a long line of research suggesting that parents who feel competent in their role as parents (self-efficacy) are more responsive to their children and are able to organize the home environment in a way that promotes positive child development. For example, competent parents might make more efforts to establish routines than parents who feel less competent. Having routines provides children with a predictable environment that helps them to regulate their arousal according to situational needs, which has been linked to inhibitory control skills (Corapci & Wachs, 2002; Zalewski et al., 2012), albeit with a small effect size (.07). To my knowledge this is the first study that examines the association between maternal self-efficacy and having routines in the home. Results showed that mothers who feel more competent in their parenting roles established more routines in the home. However, given that data were of correlational nature it is also possible that routines in the home contribute to mothers' feelings of efficacy and competence in their parenting role. To test this, I ran a reverse regression. Results showed that mothers who reported more routines in the home also reported feeling more competent than mothers who reported fewer routines in the home. An important task for future research will be to gather longitudinal data on changes over time in order to understand the nature of the link between maternal self-efficacy and having routines in the home. Contrary to my expectation, I found no association between having routines in the home and children's inhibitory control skills (results not reported). The literature examining this link is limited, and there is no clarity on what aspects of the home environment and routines promote inhibitory skills. This is an open area for future research.

Another important source of variability in children's development of social and emotional skills is the quality of the mother-child interaction. In particular, studies have shown that mothers who help their children in a responsive manner that is consistent and contingent on

the child's needs and age (scaffolding) have children who are able to explore their environments and gradually take more responsibility for their own behaviors, which helps them to practice their own regulatory skills. Contrary to past studies with middle-class mothers of two to four-year-olds that found that scaffolding was related to inhibitory control skills (Bibok et al., 2009; Bernier et al., 2010; Hammond et al., 2012), I found no support for this association in the snack delay task. A possible explanation for the inconsistency in results is the way scaffolding was assessed. Many studies of scaffolding measure it as verbal command and have reported associations between contingent elaborative responses and children's inhibitory control skills (e.g., Bibok et al., 2009). In my study, I assessed scaffolding by observing mothers interact with their toddlers during ten minutes of free play. Scaffolding was measured as the frequency of mothers' responses to children's comments and questions, respecting children's lead, explanations, and open-ended questions. Given that my approach did not include transcription of maternal utterances, I am unable to assess whether quality and type of mothers' talk is related to children's inhibitory skills. However, given that the language skills of the children in this study were lower than average, it is possible that maternal input might not be as high as the level of maternal input reported with middle class samples. This issue merits further investigation.

Consistent with past studies with White middle-class families (Kochanska & Aksan, 1995), I found that intrusiveness (mother who use physical control and push their own agenda) was significantly and negatively related to concurrent levels of children's regulatory skills assessed by the snack delay task, after accounting for the role of maternal scaffolding. This is a new finding in the literature and is particularly important because mothers in our study exhibited low levels of intrusiveness, and yet it was enough to impede children's ability to regulate as shown in the snack delay task. Research with other populations suggests that intrusive mothers

(physical guidance and direct commands or prohibitions) may not be attuned to children's wishes and interests and may tend to take the lead in task and play situations, fostering feelings of incompetence (Kahen, Katz, & Goffman, 1994; Pettit et al., 1991). Intrusive mothering may promote inappropriate regulatory behavior because it imposes on children's ability to exercise control over interactions and does not provide children with the opportunities to reason and practice their own regulatory strategies (Scaramella & Leve, 2004; Talwar et al., 2011). The findings of this study suggest that Latino toddlers, like all toddlers, are less able to regulate their behavior (as assessed by the snack delay task) when mothers engage in a controlling interaction with little opportunity for children's initiative.

Developmental scientists have long made the case that context matters. In particular, whether mothers' behaviors matter for children's development might depend on the emotional context of the interaction. Research has shown that mothers whose intrusive interactions with their children are also warm and loving tend to have children who perform better than mothers who might display negative affect during interactions (Brody & Flor, 1998; Ispa et al., 2004). My findings showed no support for this hypothesis. Levels of maternal warmth did not buffer the negative association between mothers' intrusiveness during play and children's performance in the snack delay task. In other words, my findings show that no matter how warm mothers were, intrusiveness was still strongly and negatively related to their children's regulatory skills. This finding supports the notion that intrusiveness, even in low levels, has negative consequences for toddlers regardless of whether their mothers are also warm (Lansford et al., 2014).

The relationship between maternal warmth and children's performance on the snack delay task was positive; mothers who interacted with their children in a comfortable and warm way had children who performed better in the snack delay task compared to mothers who

exhibited less warmth. This finding aligns with reported associations between maternal warmth and inhibitory control in samples of middle-class children (Kochanska & Aksan, 1995; Kochanska et al., 2005). The positive link between maternal warmth and child development is based on Kopp's argument (1982) that mother's prompt and effective response to their infants' distress helps children to modulate their immediate arousal and to develop appropriate regulatory strategies.

Why were these associations not significant for the tower task? The literature gives no clear guidance to answer this question. Based on the lack of correlation between the snack delay and tower task, it is reasonable to theorize that these two tasks assessed different aspects of children's regulatory skills. The snack delay task is based on a delay of gratification paradigm, which refers to cognitive processes in which affective and motivational aspects are salient (Brock, Rimm-Kaufman, Nathanson, & Grimm, 2009; Zelazo & Müller, 2002). The tower task, on the other hand, comprises affectively neutral, slow acting cognitive processes (Bassett et al., 2012). An emerging line of studies suggests that these differences in the affective tone of the task may be predicted and may predict different aspects of development (e.g., Brock, Rimm-Kaufman, Nathanson, & Grimm, 2009; Zelazo & Müller, 2002). However, theoretically and empirically is not yet clear how these two types of inhibitory control skills relate to children's broader regulatory skills and how and why different factors promote each other uniquely. More studies are needed to explore this issue.

### **Limitations and Future Directions**

The present study has several limitations which should be considered in an interpretation of the results. First, the low-income Latino mothers who participated in this study constitute a select group, because they voluntarily chose to participate in the study and all had a child

enrolled in an Early Head Start center. Thus, the findings may not generalize to all low-income Latino mothers. Mothers who agreed to participate may be those who have a close and positive relationship with their children and felt more efficacious in their roles as mothers.

A second limitation of the present study is that the small sample size makes it difficult to detect real effects. Although using multiple imputations to deal with missing data increased the number of data points I used in the analyses, statistical power was not ideal. Depending on the number of predictors I used, the power to detect a small effect size (0.2) ranged from .6 to .8. The small sample size also affects my analyses of interaction effects. Given that studies examining human development already have small effect sizes, the power to detect interaction effects is often even lower (Aikens & West, 1991). Further studies should examine whether the patterns found in this study are replicable with larger sample sizes.

Another limitation of this study is the absence of data on fathers. While extensive efforts were made to recruit an equal number of mothers *and* fathers, I was only able to collect data on 21 fathers. Long work hours and an ever-changing work schedule were two of the main reasons for the low participation rate among fathers. Future studies with more human and economic resources should incorporate paternal data into the analysis to examine what fathers do to promote children's inhibitory control skills. There is also a poor understanding of how both mothers *and* fathers simultaneously contribute to their children's inhibitory control skills. Emerging data suggest that fathers contribute to the development of children's regulatory skills above and beyond mothers' contributions (Lindsey, Cromeens, Colwell, & Caldera, 2009), and that mothers and fathers may contribute differently to children's development of regulatory skills (Owen et al., 2013). Future research should explore in more depth the additive and interactive impact of fathers and mothers on children's inhibitory control skills.



Additionally, the correlational nature of the data does not provide information about causal inferences. Maternal beliefs, maternal behaviors and practices, and children's inhibitory control skills were measured concurrently, so it is not possible to determine which elicited the other. As many researchers have stated, parent and child interactions are transactional. Parents do not have a unidirectional effect on children's development; parenting behavior may depend on children's characteristics, such as temperament or skill level (Belsky & Pluess, 2009; Bornstein, 2002; Sameroff, 2009). For instance, mothers in this study may display more intrusive behaviors with children who have lower inhibitory control skills. To date only one study has tested the bidirectional relationship between parenting and child regulatory behaviors (Blair et al., 2014). Future investigation should include longitudinal data permitting cross-lagged analyses and other forms of causal modeling to examine these relationships more fully. Studies could also examine the transactional relation between different dimensions of parenting (e.g., warmth, intrusiveness) and children's inhibitory control skills. Results would provide important data on how to promote positive feedback in which positive contexts to lead to more optimal regulatory skills in the home setting.

Finally, the assessment of only one dimension of child regulatory skills (i.e., inhibitory control) and the unfeasibility of creating a composite with the snack delay and tower task scores is another limitation of this study. It is possible that different associations may have emerged if other aspects of children's regulatory skills (or measures) were included. I selected inhibitory control tasks based on the fact that inhibitory control is central to the development of executive functions and academic abilities in early childhood (Blair & Razza, 2007; Diamond, 2002). In addition, I chose to assess inhibitory control because this is one of the earliest regulatory skills to emerge (Blair & Razza, 2007; Garon et al., 2008). Given the young age of the children in this

study it would have been difficult to use other inhibitory control tasks or to examine other aspects of executive functions. The field needs to develop a better understanding on how different inhibitory control and EF tasks relate, exactly what skills underlie each measure, and how to most reliably test inhibitory control skills in the preschool years (Willoughby et al., 2013; Zelazo et al., 2013).

## Appendices

### Appendix A: Protocol for Parent-Child Interaction

#### Preparation

Set up suitcase with:

- a. Toys: kitchen set (includes tea kettle, frying pan with lid, two-handled pot with lid and five utensils), soft basketball, baby doll with bottle, sesame street purse (includes plastic lipstick, keychain, change purse and comb), soft helicopter, soft truck, toy cell phone)
- b. Camera
- c. Tripod
- d. Microphone
- e. Camera light
- f. Check consent forms

#### Introduction

[Interviewer: “Thank you for agreeing to meet with us today. We are so happy to meet with you and (CHILD) again as part our project. As I mentioned on the phone, the activity will take approximately 30 minutes and it consists in

- (1) I will take out some different toys for (CHILD) and videotape you and (CHILD) playing together. In total, this portion will take around 10 minutes.
- (2) Then I will ask you to clean up the toys with your child.

As we go along, I will tell you what is coming next and what we need to do. Please, let me know if you have any questions. If at any time you need to take a break to take care of (CHILD) (or you other children) please let me know.

Interviewer: Unpack toys and put on floor in view of the camera. Set timer to 10 minutes. Tell the parent, “Now we’d like you to join your child and share these toys him/her for 10 minutes as you normally would”. It is important that parent and child face the camera and that the frame includes both of their faces and that you are able to see what both of them are touching. Once they are done, pack up all of the toys.

## Appendix B: Consent Forms

### CONSENT FORM- ENGLISH (also available in Spanish)

Project Title	<b><i>FAMILIA: Fathers and Mothers Involvement in Latino Immigrants in America</i></b>
Purpose of the Study	<i>This is a research project being conducted by Dr Natasha J. Cabrera at the University of Maryland, College Park. We are inviting you to participate in this research project because you are a Latino parent. The purpose of this research project is to explore parenting issues and experiences unique to the population of Latino families. This study will give us insight into how Latino mothers and fathers understand parenting and the type of the relationships they have with their children and partners. This study will also provide data on the strengths and positive practices of Latino families raising a young child in the U.S. This is an issue that is understudied in this population.</i>
Procedures	<p><i>The procedures involve one in-depth, semi-structured interview, along with observations and field notes following the interview. The interview will last approximately two hours and will occur once a year for 3 years. Interviews will take place in your home or at the center and will be scheduled at times most convenient for you and your family. During the interviews, you will be asked about past relationships, economic experiences, and beliefs about family planning. In addition, you will be asked about your current relationships and economic experiences in relation to your parenting, as well as aspects of your child's development, such as vocabulary use. You do not have to answer any question that makes you uncomfortable. Also, you and your child will be observed in interaction (playing or reading together) for about 30 minutes. The purpose of the videotaped portion of the study will be used to examine how fathers and mothers play with their children and how children's language and play behaviors develop over time. In addition, for this study we would like to see how your child interacts with some toys (all the toys we will use are non-toxic, clean and safe, and have been washed) and how s/he interacts with the researchers in tasks such as building a tower and cleaning up. Lastly, your child's teacher will complete a checklist that tells us how your child behaves in the classroom (for example, who your child plays with, how he behaves in class, and if he plays well with others).</i></p> <p><i>You will receive a toy for your child to thank you for your time.</i></p>

Potential Risks and Discomforts	<i>There are no known risks associated with participating in this research project. You may be upset by some of the questions we will ask you, you may choose to stop responding at any time, or to skip any questions that you do not want to answer.</i>
Potential Benefits	<i>This research is not designed to help you personally, but the results may help the investigator learn more about unique to the population of Latino families and their parenting experiences. We hope that, in the future, other people might benefit from this study through improved understanding specific aspects of the Latino population in the US.</i>
Confidentiality	<i>We will do our best to keep your personal information confidential. To help protect your confidentiality, we will take any identifying information out of the documented focus group, using only an identifier number. We will lock the information in cabinets in our offices, and will use password-protected computer files for the research. If we write a report or article about this research project, your identity will be protected to the maximum extent possible. In accordance with legal requirements and/or professional standards, we will disclose to the appropriate individuals and/or authorities information that comes to our attention concerning child abuse or neglect or potential harm to you or others.</i>
Certificate of Confidentiality	<i>We will do everything we can to keep others from learning about your participation in this study and the information you share with us. To help us further protect your privacy we have obtained a Certificate of Confidentiality from the United States Department of Health and Human Services (DHHS). With this Certificate, we cannot be forced (for example by court order or subpoena) to disclose information that may identify you in any federal, state, local, civil, criminal, legislative, administrative, or other proceedings. The researchers will use the Certificate to resist any demands for information that would identify you or your child except to prevent serious harm to you or others, and as explained below. You should understand that a Certificate of Confidentiality does not prevent you, or a member of your family, from voluntarily releasing information about yourself or your child, or your involvement in this study. If an insurer or employer learns about your participation, and obtains your consent to receive research information, then we may not use the Certificate of Confidentiality to withhold this information. This means that you and your family must also actively protect your own privacy. You should understand that we will in all cases, take the necessary action, including reporting to authorities, to prevent serious harm to yourself, children, or others. For example, in the case of child abuse</i>

	<p><i>or neglect.</i></p> <p><i>A Certificate of Confidentiality does not represent an endorsement of the research study by the Department of Health and Human Services or the National Institutes of Health.</i></p>								
Right to Withdraw and Questions	<p><i>Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.</i></p> <p><i>If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator, Dr Natasha Cabrera at 3304 Benjamin Building, University of Maryland College Park, phone 301-405-2801 or at <a href="mailto:ncabrera@umd.edu">ncabrera@umd.edu</a>.</i></p>								
Participant Rights	<p><i>If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:</i></p> <p style="text-align: center;"><b>University of Maryland College Park Institutional Review Board Office 1204 Marie Mount College Park, Maryland, 20742 E-mail: <a href="mailto:irb@umd.edu">irb@umd.edu</a> Telephone: 301-405-0678</b></p> <p><i>This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.</i></p>								
Statement of Consent	<p><i>Your signature indicates that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. You will receive a copy of this signed consent form.</i></p> <p><input type="checkbox"/> <i>Yes I agree</i></p> <p><input type="checkbox"/> <i>No I do not agree</i></p> <p><i>If you agree to participate, please sign your name below.</i></p>								
Signature and Date	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"><b>PARTICIPANT NAME</b></td> <td style="width: 40%;"></td> </tr> <tr> <td><b>[Please Print]</b></td> <td></td> </tr> <tr> <td><b>PARTICIPANT SIGNATURE</b></td> <td></td> </tr> <tr> <td><b>DATE</b></td> <td></td> </tr> </table>	<b>PARTICIPANT NAME</b>		<b>[Please Print]</b>		<b>PARTICIPANT SIGNATURE</b>		<b>DATE</b>	
<b>PARTICIPANT NAME</b>									
<b>[Please Print]</b>									
<b>PARTICIPANT SIGNATURE</b>									
<b>DATE</b>									

**Father and Mother Involvement in Latino Families in America**  
**ADDITIONAL CONSENT TO BE VIDEOTAPED:**

As part of this research project, we will make a videotape recording of you interacting with your child. This data will be used for research purposes only, and after the data collection is over, they will be permanently stored in a private archive.

This consent is entirely separate from your consent to participate in the interview and may be withdrawn at any time in the future.

The compensation discussed earlier represents full compensation for participation in the study by you and your child and no additional compensation will be provided.

Please check one box and sign the form.

[  ] Additional Consent Given

[  ] Additional Consent Not Given

If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:

University of Maryland College Park, Institutional Review Board Office, 1204 Marie Mount College Park, Maryland, 20742. E-mail: [irb@umd.edu](mailto:irb@umd.edu), Telephone: 301-405-067

_____ Participant's Name	_____ Child's Name
_____ Participant's Signature	_____ Date
_____ Interviewer's Signature	_____ Date
_____ Parent's Signature if Participant is under 18 years of age	_____ Date

**INFORMED CONSENT FOR ADDITIONAL  
RESEARCH AND EDUCATIONAL USES**

In the future, the video tapes will only be viewed or used for educational purposes and might be reproduced and shown at conferences, workshops, and for other research purposes, with the understanding that no identifying information will be used. The compensation discussed earlier represents full compensation for participation in the study by you and your child and no additional compensation will be provided. Please check one box and sign the form.

[    ] Additional Consent Given

[    ] Additional Consent Not Given

If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:

University of Maryland College Park, Institutional Review Board Office, 1204 Marie Mount College Park, Maryland, 20742. E-mail: [irb@umd.edu](mailto:irb@umd.edu), Telephone: 301-405-0678

\_\_\_\_\_  
Participant's Name

\_\_\_\_\_  
Child's Name

\_\_\_\_\_  
Participant's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Interviewer's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Parent's Signature if Participant is under 18 years of age    Date



## Appendix C: Mexican American Cultural Values Scale (MACVS)

Familism subscales

**Interviewer: The next statements are about what people may think or believe. Remember, there are no right or wrong answers. Tell me how much you agree with the following statements.**

1 = Not at all (NA)

2 = A little (AL)

3 = Somewhat (S)

4 = Very much (VM)

5 = Completely (C)

1. Parents should teach their children that the family always comes first. (Familism support)
2. Children should be taught that it is their duty to care for their parents when their parents get old. (Familism obligation)
3. Children should always do things to make their parents happy. (Familism referent)
4. Family provides a sense of security because they will always be there for you. (Familism support)
5. If a relative is having financial difficulties, one should help them out if possible. (Familism obligation)
6. Family should ask for advice from close relatives when it comes to important decisions, (Familism referent)
7. It is always important to be united as a family. (Familism support)
8. A person should share their home with relatives if they need a place to stay. (Familism obligation)
9. It is important to maintain close relationships with aunts/uncles, grandparents, and cousins. (Familism support)
10. Older siblings should take care of and be role models for their younger brothers and sisters. (Familism obligations)
11. Children should be taught to always be good because they represent the family. (Familism reference)
12. Holidays and celebrations are important because the whole family comes together. (Familism support)
13. Parents should be willing to make great sacrifices to make sure their children have a better life. (Familism obligation)
14. One should always consider their family when making important decisions. (Familism referent)
15. It is important for family members to show their love and affection to one another. (Familism support)
16. It is important to work hard and do one's best because this work reflects on the family. (Familism referent)

## Appendix D: Routines in the Home

**Interviewer: Now I'd like to get a sense of family routines and activities that you, (child's name) and the other members of your family have**

1. Some families have a routine that they do every night when they put a child to sleep. Do you (or another member of the family/ caregiver) have a regular routine or do something specific with (child's name) when they put her/him to sleep?

Yes 1   
No 0

2. Is there a specific hour in which (child's name) regularly goes to bed at night?

Yes 1   
No 0

3. Does (child's name) have one specific place where (he/she) usually sleeps every night?

Yes 1   
No 0

4. In a typical week, how many days do you and (child's name) eat (dinner) together?

0    1    2    3    4    5    6    7

**Appendix E: Parent Demographic Questions**

What's your DOB? \_\_\_\_\_

What is your nationality?

- a. Mexican
- b. Salvadoran
- c. Guatemalan
- d. Honduran
- e. Colombian
- f. Puerto Rican
- g. Other (specify) \_\_\_\_\_

Where were you born? \_\_\_\_\_  
(If foreign born) How old were you when you came to the United States? \_\_\_\_\_

Why did you/your family move to the US? \_\_\_\_\_

How many years of school have you completed? \_\_\_\_\_ years

- <9 years
- High School diploma/GED
- College Degree
- Some high school (did not graduate)
- Some university
- Graduate degree

How many years of school were completed in the U.S.? \_\_\_\_\_ years

- <9 years
- High School diploma/GED
- College Degree
- Some high school (did not graduate)
- Some university
- Graduate degree

Are you employed?                      Yes                       No

(If yes) part-time or full-time?

- Part-time Employment
- Full-time employment

**MARITAL STATUS - MOTHER-FATHER RELATIONSHIP**

Are you currently married for the first time, widowed, divorced, separated, remarried, or have you never been married?

CIRCLE ONE

- Married for the first time 01
- Widowed 02
- Divorced 03
- Separated 04
- Never Married 05
- Remarried 06

**INCOME**

**Interviewer:** Now I have some questions about the different sources of income you may be receiving. Again, I want to assure you that none of your answers will be discussed with anyone.

**Interviewer:** IF RESPONDENT ANSWERS "DON'T KNOW" FOR AMOUNTS, PROBE WITH: **Do you think it was closer to \$100, \$200, \$400, \$600, \$800, \$1,000, or \$1,500 more?**

Approximately, what is the household income per month?

- \$ 0-500 Per month
- 500-1K per month
- 1k-2k MONTH
- Other \_\_\_\_\_

In (PRIOR YEAR) did you have a job or do any work for pay

- Yes
- No

Taking into account all of the sources of income, how much did you earn in (PRIOR MONTH) in total before taxes and other deductions were taken out ? \$ \_\_\_\_\_

**CHILD DEMOGRAPHIC**

What is his/her DOB? \_\_\_\_\_

Gender:

- male
- female

Where was your child born?

- a. If in U.S. give city and state \_\_\_\_\_
- b. If outside of U.S. give city/town, region, country) \_\_\_\_\_

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