

Autonomy Support in Parents and Young Children Experiencing Homelessness: A Mixed
Method Approach

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Dedication

For Farmör and GP

Abstract

Both executive function (EF) skills and autonomy have been linked to academic achievement in early childhood. Promoting the development of these skills may be one way to prevent academic difficulties for those most at-risk, such as young children experiencing homelessness. Theoretical and empirical work points to the important role of caregivers as key socializers of EF and autonomy development through autonomy-supportive parenting behaviors. However, some scholars have suggested that autonomy support may be problematic in high-risk contexts, such as homelessness. The current dissertation examined the proposed tension between the potential benefits and drawbacks of autonomy support in families experiencing homelessness. Study 1 was a qualitative interview about autonomy support with 21 parents living in an emergency homeless shelter. Results indicated that many parents endorsed ideas that were consistent with autonomy support, but that some viewed behaviors like offering choice to young children to be inappropriate. Study 2 was a quantitative assessment with 100 parents and their 3- to 6-year-old children to further examine autonomy support in families experiencing homelessness. Unexpectedly, parent verbal IQ emerged as the sole predictor of autonomy-supportive behaviors, and autonomy support was only positively associated with EF skills in children who had not completed kindergarten. Furthermore, the relations between autonomy support and child outcomes did not depend on safety concerns, household chaos, or familial values of autonomy support. Overall, the evidence from the current project addresses gaps in our understanding of autonomy-supportive parenting in high-risk contexts.

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Chapter 1. Introduction

Children experiencing homelessness are at increased risk for academic difficulties throughout their schooling even compared to children who are low-income, but housed (Cutuli et al., 2013; Fantuzzo, LeBoeuf, Chen, Rouse, & Culhane, 2012; Manfra, 2019; Obradović et al., 2009). However, many homeless and highly mobile (HHM) children do well in school, performing above the national norms in math and reading (Cutuli et al., 2013). A contributing factor to this academic resilience is strong self-regulation, including executive function (EF) skills (Lafavor, 2018; Masten et al., 2012; Obradović, 2010), which can be fostered by effective parents (Herbers et al., 2011). One aspect of parenting that is understudied in contexts of risk is autonomy support, which has been robustly associated with EF development above and beyond other positive parenting behaviors (Bernier, Carlson, & Whipple, 2010; Bindman, Pomerantz, & Roisman, 2015). Autonomy support consists of offering choice, scaffolding, and perspective-taking, with the goal of instilling children with a sense of volition (Joussemet, Landry, & Koestner, 2008). Furthermore, recent research has shown that autonomy-supportive behaviors mediate the link between parent and child EF skills (Distefano, Galinsky, McClelland, Zelazo, & Carlson, 2018), providing some support for the intergenerational transmission of self-regulation through parenting behaviors (Bridgett, Burt, Edwards, & Deater-Deckard, 2015).

Although autonomy support appears to bolster EF skills, as well as internalization of familial rules and norms, in preschoolers (Bernier et al., 2010; Distefano et al., 2018; Grolnick & Ryan, 1987; Laurin & Joussemet, 2017; Meuwissen & Carlson, 2015), some scholars have suggested that it is problematic in risky environments (Gonzales, Cauce,

Friedman, & Mason, 1996; McElhaney & Allen, 2001), like those experienced by homeless families. This dissertation aimed to better understand autonomy support in HHM families by investigating the extent to which parents experiencing homelessness endorse autonomy-supportive socialization practices; parental factors associated with the use of autonomy support; and links among autonomy support and preschooler EF skills, internalization, and academic outcomes. To address these aims, I conducted two studies. Study 1 was a qualitative interview with parents in emergency housing on their beliefs about autonomy-supportive behaviors. Study 2 used quantitative measures to examine (1) predictors of autonomy support in a shelter context, (2) links among autonomy support, child EF skills, internalization, and academic achievement, as well as whether autonomy support mediates the association between parent and child EF skills, and (3) the extent to which relations between autonomy support and child outcomes are moderated by aspects of risk and parenting values.

Risk and Resilience in Homeless and Highly Mobile Children

One in eighteen children under 6 years of age experienced homelessness in the United States during the 2016-2017 academic year (U.S. Department of Education, 2019). This number is staggering, and yet does not include the number of additional young children who are housed, but face similar risks, such as chronic poverty, dangerous neighborhoods, and familial instability and conflict. These risk factors tend to co-occur, such that families living in extreme poverty are also more likely to spend time in dangerous neighborhoods or experience familial conflict (Evans, 2004). This problem is significant given that marked developmental change occurs during early childhood and cumulative risk threatens positive development (Obradović, Shaffer, & Masten, 2012;

Sameroff, Seifer, Barocas, Zax, & Greenspan, 1987; Shonkoff, Boyce, & McEwen, 2009). Indeed, decades of research have shown that as the number of risk factors in a child's environment increases, the likelihood of maladaptive functioning increases as well (Evans, Li, & Whipple, 2013; Rutter, 1979; Sameroff, Seifer, & McDonough, 2004). One of the most apparent examples of the negative impact of cumulative risk is in the domain of academic functioning.

In collaboration with the Minneapolis Public Schools, Cutuli and colleagues (2013) analyzed standardized achievement test data of over 26,000 children from 3rd through 8th grade. Children were classified into one risk category, corresponding to a gradient of increasing risk: general, reduced-price meals, free meals, and HHM. Results indicated that, as a group, HHM students had the lowest math and reading scores at the 3rd grade benchmark testing and also improved more slowly over the five assessment years compared to the low-income, but housed groups and the general group. These findings suggest that housing instability confers even greater risk than extreme poverty alone. However, a story of resilience is also present in these data. Almost half of the HHM children performed at or above the national norms in both math and reading. To explain why some children do well in the face of chronic risk and adversity, researchers have identified a number of factors that are associated with positive adaptation in high-risk children.

Executive Function Skills as a Resilience Factor

A contemporary definition of resilience refers to the capacity of a system to adapt to challenge (Masten, 2014). Multiple systems within the child, the immediate microsystem, and the broader ecological context interact over time to support positive

adaptation. Within a resilience framework, resilience factors can be promotive (i.e., predictive of positive outcomes in low- and high-risk contexts) or protective (i.e., particularly important in high-risk contexts). Some factors can also be promotive *and* protective, meaning that they are associated with adaptation in low-risk contexts, but the relation is stronger in high-risk contexts. One factor within the individual that has been robustly linked to resilience is strong self-regulation skills (Wright & Masten, 2015). Self-regulation is an umbrella term that refers to the cognitive (e.g., EF) and emotional processes that support the modulation of one's behaviors and goal-directed action (Nigg, 2017). Perhaps the most widely studied aspect of self-regulation in relation to academic achievement is EF skills. EF consists of working memory, inhibitory control, and cognitive flexibility (Miyake et al., 2000) and develops rapidly during the preschool years (Carlson, 2005).

Dozens of studies have shown that EF skills are related to both numeracy and literacy across risk levels (Allan, Hume, Allan, Farrington, & Lonigan, 2014; Best, Miller, & Naglieri, 2011; Bull, Espy, & Wiebe, 2008; Masten et al., 2012; Sektnan, McClelland, Acock, & Morrison, 2010; Willoughby, Magnus, Vernon-Feagans, Blair, & the Family Life Project Investigators, 2017). Intervention studies provide some evidence that the link between children's EF skills and academic achievement may be causal. Blair and Raver (2014) examined the effects of the Tools of the Mind intervention that targets EF skills in kindergarteners through specialized curriculum and EF practice. The researchers recruited a sample of 759 children from across 29 schools and found that children who received the intervention showed greater EF improvements compared to those in the control group. There was also a significant main effect of condition on both

math and reading scores, such that Tools children performed better than control children. Another study that investigated the efficacy of the Chicago School Readiness Project found that the effects of the intervention on preschoolers' early vocabulary, literacy, and numeracy were mediated by children's EF skills (Raver et al., 2011).

There are a number of mechanisms by which EF skills may impact academic competence. For example, when children are introduced to the subtraction sign, they need to inhibit adding the numbers together instead. Indeed, training studies with preschool and kindergarten-aged children have shown that those with better EF skills learned more from the training (Kolkman, Hoijtink, Kroesbergen, & Leseman, 2013; Laski & Dulaney, 2015; Miller, Rittle-Johnson, Loehr, & Fyfe, 2016). EF appears to also have an indirect role on achievement through learning-related behaviors. Individual differences in young children's EF skills are significantly related to emotion regulation skills (Carlson & Wang, 2007), which have been shown to predict early achievement (Brophy-Herb, Zajicek-Farber, Bocknek, McKelvey, & Stansbury, 2013; Graziano, Reavis, Keane, & Calkins, 2007). Furthermore, multiple studies have shown that classroom behaviors, such as children's involvement, mediate the association between EF and academic skills (Baptista, Osório, Martins, Verissimo, & Martins, 2016; Nesbitt, Farran, & Fuhs, 2015; Sasser, Bierman, & Heinrichs, 2015).

Although EF has been related to school success in both low- and high-risk children, there is also some evidence that strong EF skills may be particularly important for children experiencing poverty-related risks and adversity. Lengua (2002) found a significant interactive effect of inhibitory control and risk on positive adjustment (e.g., social competence and well-being) in a sample of school-aged children. Specifically,

those children who endorsed many risk factors, but also had strong inhibitory control skills, did not differ from low-risk children on the indicators of positive adjustment. In HHM children, Distefano et al. (in prep) found that EF skills were more strongly related to early math achievement in a sample of HHM preschoolers compared to a relatively low-risk community sample, suggesting a promotive and protective effect. Together, the empirical work to date suggests that young children's EF skills have important implications for academic competence, particularly in those who are most at-risk.

A Role for Children's Autonomy in Academic Competence

Most of the research on the influence of self-regulation on achievement has focused on the cognitive or emotional processes involved in goal-directed behavior. Much less research has investigated the extent to which one's motivations for self-regulating impact academic outcomes, particularly in young children. Motivations involved in self-regulation fall on a continuum from *external* (i.e., behavior is regulated by external rewards or punishments) to *internal* (i.e., behavior is modulated volitionally; Roth, Assor, Kanat-Maymon, & Kaplan, 2006; Ryan & Connell, 1989). Self-regulation that is fully consistent with one's internal values is referred to as *autonomy*. However, autonomy does not imply that children are able to do whatever they want, but rather that they have internalized societal values around appropriate behavior and thus regulate volitionally rather than by external demands (a process referred to as internalization). For example, if a preschooler needs to put her toys away after playing, her behavior may be due to external demands (e.g., "I will not get ice cream if I leave my toys out, so I will clean up my toys") or it may be autonomous (e.g., "my dad explained that if I clean up

my toys I will easily find them next time and I want to find them, so I will clean up my toys”). The observable goal-directed behavior is the same, but the motivations differ.

According to self-determination theory (SDT), autonomy represents inner endorsement of one’s own behaviors and is a universal human need (Deci & Ryan, 1985). SDT suggests that people have a natural tendency towards growth and that autonomy, along with experiences of competence and relatedness, support positive development (Ryan & Deci, 2006). Because of the prediction that the need for autonomy is universal, SDT also posits that autonomy predicts adaptation across contexts. Indeed, a number of studies conducted across the world have shown that autonomy is associated with psychological well-being (e.g., self-esteem, happiness, life satisfaction; Chen, Vansteenkiste, Beyers, Soenens, & Van Petegem, 2013; Chirkov, Ryan, Kim, & Kaplan, 2003; Cordeiro, Paixão, Lens, Lacante, & Luyckx, 2016; Roth et al., 2006; Véronneau, Koestner, & Abela, 2005). There is also some evidence that children’s autonomy is related to learning in school-aged children.

An experimental study by Grolnick and Ryan (1987) conducted in the United States directly examined the role of autonomy in children’s learning. A sample of 91 fifth graders were given two passages to read and were randomly assigned to receive instructions that were either autonomy-supportive (e.g., “I’m just interested in what children can remember from reading passages. Read in whatever way is best for you.”) or controlling (e.g., “You should work as hard as you can because I’ll be grading you on the test to see if you’re learning well enough.”). Children in the autonomy-supportive condition found the passage more interesting and demonstrated more conceptual recall (i.e., the main purpose of the passage) than children in the controlling condition.

Furthermore, individual differences in children's self-reported autonomy were positively associated with more conceptual learning, regardless of condition. Results from this study, as well as evidence from the cross-cultural correlational studies, illustrate a likely role for autonomy in multiple facets of adaptation.

One understudied area of research is the extent to which autonomy is associated with children's EF skills. The development of EF skills and autonomy may rely on similar foundational processes, namely reflection. The Iterative Reprocessing (IR) model posits that reflection—or the iterative reprocessing of information—allows one to resample more information from a given stimulus to gain a more complete representation, which provides an opportunity to selectively attend to different aspects of the stimulus (Zelazo, 2015). Within this model, EF skill development is facilitated by improvements in iterative reprocessing. Similarly, the process of internalization—one aspect of autonomy—may also depend in part on reflection. Internalization of family rules and societal norms often requires children to follow rules that they impulsively would not follow. According to Ryan and Deci (2006), to act autonomously, individuals need to reflect on their motives for behavior and select which motive they most fully endorse. For example, consider a child who has internalized the family rule that he cleans up his toys when his mother asks because he will want to find them later. It is possible that when his mother initially asks him to clean up his toys, his impulse is to continue playing because it is fun. However, upon reflection of his internalized values, he recognizes that it is important to him to clean up his toys when he is asked.

In addition to possibly relying on similar developmental processes, the relation between autonomy and EF skills is likely bidirectional. When children's autonomy is

supported, they are more likely to pursue challenges on their own (Deci, Driver, Hotchkiss, Robbins, & Wilson, 1993; Grolnick, 2009), and children's EF skills are strengthened when they take on increasingly difficult challenges that allow them to practice their EF (Diamond & Ling, 2016; Ericsson, Nandagopal, & Roring, 2009). EF likely influences the development of autonomy as well. The process of internalization requires children to inhibit an impulsive response and take on another perspective about why following rules or norms is important; considering another person's perspective (i.e., theory of mind) appears to be supported by neurocognitive processes like cognitive flexibility (Jacques & Zelazo, 2005). Indeed, there is some empirical evidence to suggest that young children's EF skills and autonomy are linked.

The few studies that have examined the association between EF and autonomy have typically used measures of rule internalization as an indicator of child autonomy. In studies with older school-aged children, autonomy is primarily measured with self-report, but that is not possible with preschoolers. Assessments of rule internalization typically include a primary caregiver asking a child to complete an unpleasant task or requesting that they not engage in a tempting task, such as playing with a set of toys. Then, the child is left alone and video-recorded to determine how she behaved when she was alone. If the child continues to follow along with the request of her caregiver in their absence, she is thought to have internalized the value of the caregiver requests. Kochanska, Murray, Jacques, Koenig, and Vandegest (1996) found that preschoolers' inhibitory control skills were positively associated with rule internalization across a variety of tasks that tempted children to do a prohibited action. Furthermore, Hill and Braungart (2002) found that 4-

month-old attentional regulation, skills that are foundational to later EF development, predicted rule internalization at 36 months.

Although, autonomy and EF skills appear to be interrelated in multiple ways, and both are related to learning and academic competence, most of the studies on school readiness in HHM preschoolers have focused primarily on EF skills. However, there is some evidence in the resilience literature that autonomy may be associated with positive outcomes in children facing poverty-related risks and adversity. Werner (1995) noted that during the preschool years, children who were identified as “resilient” demonstrated both autonomy and the ability to ask for help when needed. Furthermore, one study with preschoolers in Head Start found that autonomy was positively related to social competence and that children who were categorized as “resilient” exhibited profiles that were relatively high on autonomy, as well as adaptability, approach-orientation, emotion regulation, and language ability (Mendez, Fantuzzo, & Cicchetti, 2002). These findings suggest that autonomy may be one of a constellation of individual level factors that contribute to positive adaptation. Finally, cross-cultural research by Kağıtçıbaşı found that an intervention to promote the concept of an autonomous-relatedness self (i.e., feelings of volition *and* closeness to one’s family) in mothers and their young children from rural villages in Turkey predicted greater autonomy, social competence, and educational attainment in the children (Kağıtçıbaşı, 2012). Together, this evidence suggests that autonomy may be important for high-risk children, but there has been little research on autonomy in HHM preschoolers. The present dissertation aimed to address this gap by investigating links among autonomy, EF skills, and academic outcomes in children experiencing homelessness.

Socialization of EF and Autonomy Development

Multiple theoretical perspectives highlight the importance of child-caregiver interactions for facilitating the development of EF skills and autonomy. For example, the idea that EF development arises from interactions with social partners was posited by Vygotsky's sociocultural theory of cognitive development in the early 20th century. He suggested that cognitive processes develop through relationships between people before becoming internalized within a person. Vygotsky first introduced the concept of the zone of proximal development, or the distance between what a child can accomplish independently and that which the child can solve with the guidance of more capable social partners. Although Vygotsky did not use the terms self-regulation and EF skills, he noted that reflective thought and children's voluntary behaviors arise from the interactions between children and other people in their environment (Vygotsky, 1978). A complementary theory, SDT, also notes the influence of the social context on children's autonomy (Joussemet et al., 2008; Deci & Ryan, 2000). According to SDT, social regulations are internalized and intrinsic motivation is sustained when parents and teachers provide structure and support that respects a child's perspective and interests. Conversely, external pressures, such as withholding affection as punishment or use of extrinsic rewards can undermine internalization and intrinsic motivation (Joussemet et al., 2008).

Dozens of studies have found relations between parenting behaviors and EF development. In fact, a recent meta-analysis of 42 studies with children ages 0 to 8 years found a significant positive association between children's EF skills and positive parenting behaviors (e.g., warmth and sensitivity), as well as cognitive parenting

behaviors like scaffolding (Valcan, Davis, & Pino-Pasternak, 2018). The authors also found that the relation between cognitive parenting behaviors and EF was moderated by age, such that it was strongest for younger children; this may suggest that parenting influences are most salient earlier in development when parents are the primary socializers. There is also some causal evidence from randomized control trials for the influence of effective parenting on children's developing EF. Lind, Raby, Caron, Roben, and Dozier (2017) examined the effects of the Attachment and Biobehavioral Catch-up on EF skills in 4-year-old foster children. The intervention provided foster parents with 10 in-home coaching sessions to promote sensitivity, responsiveness, and co-regulation. Results indicated that children in the intervention group performed significantly better on an EF task than those in an active control group. Effective parenting also appears to support children's EF development in preschoolers experiencing homelessness and may provide a protective role for those most at risk. Herbers et al. (2011) found that children's EF mediated the link between global measures of positive parenting and academic skills. Furthermore, high-quality parenting moderated the link between risk and children's academic competence, suggesting that parents can buffer the detrimental influences of risk and adversity.

One constellation of parenting behaviors that has received much less attention in high-risk contexts is autonomy support. Above and beyond overall positive parenting behaviors, autonomy support appears to bolster both young children's EF and autonomy development in relatively low-risk samples. Autonomy-supportive parenting consists of providing opportunities for choice, taking a child's perspective, highlighting a child's competence, and offering just enough support for a child to accomplish a task on his/her

own (Bernier et al., 2010; Joussemet et al., 2008; Whipple, Bernier, & Mageau, 2011). It has been suggested that autonomy support fosters cognitive development by providing experiences that allow children to practice their skills and take on new challenges to continue to build their skills (Diamond & Ling, 2016). Furthermore, children's intrinsic interest in learning is supported when children feel competent and capable of facing new problems (Pomerantz, Grolnick, & Price, 2005; Pomerantz, Moorman, & Litwack, 2007).

Bernier and colleagues demonstrated that maternal autonomy support in infancy predicted later EF skills in toddlers and preschoolers (Bernier et al., 2010; Bernier, Carlson, Deschênes, & Matte-Gagné, 2012). Importantly, Bernier et al. (2010) found that these associations remained after controlling for other aspects of positive parenting (e.g., maternal sensitivity and maternal mind-mindedness), suggesting that there is likely something specific about autonomy-supportive behaviors that are particularly important for supporting the development of EF skills. Similar relations between autonomy support and preschoolers' EF has been found in fathers (Meuwissen & Carlson, 2015), as well as parents across diverse socioeconomic backgrounds (Distefano et al., 2018). However, no research has examined links between autonomy support and EF in children and families experiencing homelessness who face unique challenges that may undermine the use of autonomy-supportive behaviors, such as greater exposure to danger and chaos.

There is also some evidence in lower risk families that autonomy-supportive behaviors facilitate children's autonomy development. Laurin and Joussemet (2017) examined how autonomy support, microsocially coded every 30-sec for 14 minutes, during a cleanup task when children were 2 years predicted rule internalization when children were 3 years. Results indicated that autonomy support significantly predicted

preschooler internalization, even after controlling for family socioeconomic variables, racial/ethnic background, and children's internalization at 2 years. Another empirical study has corroborated the findings from Laurin and Joussemet (2017) and demonstrated that parents' endorsement of 8 autonomy-supportive practices positively predicted toddlers' rule internalization (Andreadakis, Joussemet, & Mageau, 2019). There is a more robust literature on the links between autonomy support and autonomy in school-aged children and adolescents (e.g., Fousiani, Van Petegem, Soenes, Vansteenkiste, & Chen, 2014; Inguglia, Liga, Lo Coco, Musso, & Inguglia, 2018; for review, see Vasquez, Patall, Fong, Corrigan, & Pine, 2016), but those studies are not reviewed in detail because they typically rely on children's reports of autonomy and the present dissertation is focused on young children.

Risk and Protective Factors of Autonomy Support

Due to increased interest in the relations between autonomy-supportive parenting and child adaptation, researchers have examined the predictors of autonomy support in an attempt to delineate risk and protective factors linked to the use of these behaviors (for review, see Distefano & Meuwissen, in prep). Indices of cumulative risk (e.g., single parent household, family mobility, high household density, etc.) have been associated with lower levels of scaffolding behaviors—one aspect of autonomy support—with preschoolers when assessed in a parent-child interaction task (Lengua et al., 2007). Furthermore, single socioeconomic risk factors, such as low parental education, have also been linked to fewer observed autonomy-supportive behaviors (Bindman et al., 2015; Distefano et al., 2018; Lundy & Fyfe, 2016). However, few studies have examined *why* parents in high-risk contexts are providing less autonomy support. Furthermore, no

studies, to my knowledge, have examined autonomy support in contexts of extreme poverty and other sociodemographic risk factors, such as homelessness.

One way in which poverty may influence parenting behaviors is through parental psychological distress. According to the family stress model (Conger & Elder, 1994; Conger, Reuter, & Conger, 2000; Elder, 2018), long-term poverty leads to disruptions in parental mental health, which in turn predicts more hostile and ineffective parenting behaviors. The research that has examined parent distress in relation to autonomy support has not always incorporated the role of poverty, but multiple studies have found a negative link between parent depressive and anxiety symptoms and levels of autonomy support (Geurtzen, Scholte, Engels, Tak, & van Zundert, 2015; Gondoli & Silverberg, 1997; Mageau, Bureau, Ranger, Allen, & Soenens, 2016; Stuart Parrigon & Kerns, 2016).

Another important risk factor may be a dangerous rearing environment. Some researchers have proposed that autonomy-supportive behaviors are counterproductive in a dangerous environment (Gonzales et al., 1996; Gutman, Sameroff, & Eccles, 2002; McElhaney & Allen, 2001). It may be more important for parents in high-risk contexts to control what their children do to keep them safe *now*, rather than embark on the time-intensive process of internalization, which might have greater benefits *later*. There is some empirical work to suggest that parents' perceptions of threat are associated with lower levels of autonomy-supportive behaviors. Gurland and Grolnick (2005) recruited 40 mothers and their elementary school-aged children. Mothers completed the World Out There measure that assessed maternal worry (e.g., "It makes me nervous to think about all the dangers kids are exposed to these days") and perceived instability (e.g., "Kids today face an unpredictable future. There can be prosperity one minute and poverty the

next”). Results indicated that both worry and perceived instability were negatively associated with observational measures of autonomy support. This study provides some initial evidence that contextual danger may be an important risk factor, but few studies have explored perceptions of safety in the families’ current proximal environment.

Finally, household chaos represents crowded, noisy, and substandard living conditions that feel hectic and unpredictable to parents and children (Evans, Gonnella, Marcynyszyn, Gentile, & Salpekar, 2005). Emergency shelters tend to be chaotic, with most family members often living in the same small room together. High levels of household chaos have been repeatedly linked to lower quality parenting even outside of a shelter setting (Deater-Deckard et al., 2009; Evans, Maxwell, & Hart, 1999; Valiente, Lemery-Chalfant, & Reiser, 2007). Little research has examined the influence of chaos on autonomy support, but it may have an even greater impact on autonomy support compared to global measures of parenting. Autonomy-supportive behaviors are characterized as being particularly effortful and requiring significant time and attention. For example, helping a young child tie his shoes in an autonomy-supportive way requires a parent to offer just enough help so he can do it on his own and additional time to take his perspective if he gets frustrated. Conversely, in contexts of high chaos, it is much more efficient to tie his shoes for him.

Although there are a number of possible risk factors for autonomy support, a guiding framework for this dissertation is resilience theory (Masten, 2014; Masten, 2019). Thus, it is also important to identify predictors of positive parenting even within highly stressful, dangerous, and chaotic environments. One possible protective factor for autonomy support is parents’ own EF skills. Autonomy-supportive parenting behaviors

are particularly effortful for caregivers. For example, when working with a 4-year-old on a jigsaw puzzle, a parent will need to wait patiently as the child attempts to place in pieces on her own and to be flexible when providing helpful suggestions or taking the child's perspective. Two studies with parents and their preschool-aged children found that parent EF abilities (e.g., working memory, inhibitory control, and cognitive flexibility) were associated with autonomy support with preschoolers (Distefano et al., 2018; Meuwissen & Carlson, 2015). Finally, in very poor families living in Pakistan, mothers' working memory skills were associated with scaffolding behaviors, which is one aspect of autonomy support (Obradović et al., 2017).

However, the evidence for an association between parent EF skills and parenting in families experiencing homelessness is mixed. Monn, Narayan, Kalstabakken, Schubert, and Masten (2017) found that *only* parents' hot EF (i.e., EF skills used in contexts of emotional or motivational salience) was associated with global measures of positive parenting in the context of an emergency homeless shelter; working memory was not associated with parenting. These findings are corroborated by another study which found that the relation between maternal EF and harsh parenting was moderated by household chaos. In that study, Deater-Deckard, Wang, Chen, and Bell (2012) found that mothers' EF skills were only associated with parenting in calmer households that reported low levels of chaos. The authors suggested that the regulatory role of EF on parenting behaviors may be overwhelmed in chaotic environments. Because these two studies used global measures of parenting, it is not clear whether the lack of association between measures of cool EF and parenting are due to extreme sociodemographic risk

and chaos per se, or whether EF skills are less critical for global positive or negative parenting than for the very effortful types of behaviors that comprise autonomy support.

It is important to further investigate the extent to which parent EF skills are associated with autonomy support in families experiencing homelessness to determine if the intergenerational transmission of self-regulation model (Bridgett et al., 2015) accurately captures processes that are present across risk levels. This model posits that parents' self-regulation skills are related to children's self-regulation through numerous mechanisms, including parenting behaviors. Distefano et al. (2018) found support for the intergenerational transmission of EF skills through autonomy-supportive parenting behaviors in families from low-, middle-, and high-socioeconomic backgrounds, but the sample did not include families experiencing extreme poverty and adversity like those living in an emergency homeless shelter. If there is little or no support for the intergenerational transmission of self-regulation in families experiencing homelessness, the model needs to be further refined and adapted to incorporate developmental processes that are different in high-risk children and families.

The Role of Autonomy Support in Contexts of Risk

There has been little research on autonomy support and child outcomes in risky contexts, with even fewer studies focusing on the preschool period and the development of EF skills and autonomy. In two studies with adolescents, risk moderated the association between autonomy support and adolescent functioning. McElhaney and Allen (2001) found that autonomy during a parent-child discussion task was associated with higher adolescent-reported delinquency and lower peer-rated social competence for high-risk youth. The opposite was true for the low-risk adolescents: autonomy was negatively

related to delinquency and positively associated with social competence. Furthermore, Gutman et al. (2002) demonstrated that high-risk African American adolescents had worse academic achievement when their mothers reported greater promotion of democratic decision-making (e.g., “I find that listening to what my 7th grader has to say helps me reach a better decision”), which may be considered one aspect of autonomy support for older children.

The authors of both studies proposed that in contexts of risk, parents employ more controlling parenting behaviors and prevent autonomy to keep their children safe. Unfortunately, neither of the two studies measured safety concerns and could not assess whether danger was an important moderator. Importantly, autonomy is not synonymous with independence (Soenens et al., 2007; Van Petegem, Beyers, Vansteenkiste, & Soenens, 2012). However, as noted above, supporting autonomy is particularly effortful and requires time. In dangerous contexts, there is more urgency in having children abide by familial rules around safety. Conversely, in lower risk environments, parents may have more opportunities to promote internalization of safety rules because the well-being of their children is not continually threatened. In young children in particular, they may have a difficult time fully comprehending why they cannot go to the playground in the evening and instead know that they cannot play after dark because dad said so.

Although the safety hypothesis has been suggested by multiple scholars (e.g., Gonzales et al., 1996; Gutman et al., 2002; McElhaney & Allen, 2001), there may be an influence of instability and household chaos that tends to be present in high-risk contexts, such as homelessness. Employing autonomy support is particularly resource-intensive in that these behaviors require time and space to provide children with opportunities to

problem solve with an appropriate level of support from parents. In chaotic environments, parents may not have the time or resources (both physical and psychological) to use autonomy-supportive behaviors, or at least not consistently. Indeed, Matas, Arend, and Sroufe (1978) noted the importance of continued support and emotional availability on the part of parents to promote children's self-regulation skills and autonomy. However, a homeless shelter is a particularly chaotic environment to parent. All members of a family are likely sharing one room, mealtime is in a communal setting with many other families, and parents often find themselves parenting in public spaces. Thus, characteristics of a shelter environment may make it particularly challenging for parents to use these behaviors consistently with their children. For families who report high levels of chaos in the shelter, autonomy support may be less robustly associated with children's EF and internalization compared to families who report relatively calm experiences in the shelter, and, thus, are more likely to provide autonomy support consistently.

Furthermore, it is well known that racial/ethnic background is confounded with risk. In 2013, almost half of families experiencing homelessness in the United States were African American even though African American families made up only 14% of the population (National Center on Family Homelessness, 2014). Although some researchers would suggest that autonomy support is universal (Chirkov et al., 2003; Deci & Ryan, 2000), there is evidence to suggest that African American parents provide lower levels of autonomy support compared to European American families (Hillaker, 2012; Ispa et al., 2015; Richman & Mandara, 2013). Some studies have simply used racial/ethnic background as a moderator of links between parenting and child outcomes to assess differences in cultural values (e.g., Ispa et al., 2004). However, there are likely

differences in parenting values *within* racial/ethnic groups. It will be important to directly measure parenting values to examine how these values interact with observed parenting to predict positive development rather than using racial/ethnic background as a proxy for different parenting beliefs. It is currently not clear whether specific aspects of risky environments (e.g., danger or chaos) are the primary mechanisms to explain why risk moderates the link between autonomy support and child outcomes *or* that autonomy support is simply valued less in risky contexts. Thus, the current dissertation will explore the extent to which chaos, perceptions of safety, and parental values interact with observed autonomy support to predict both children's developing EF skills and autonomy.

Finally, given the dearth of research on autonomy support in families experiencing homelessness it will be important to use qualitative methods to gain a better understanding of how staying in shelter affects parenting behaviors and the extent to which autonomy-supportive behaviors are valued in a high-risk context. A number of past qualitative studies with parents in homeless shelters has provided invaluable insight into how parents themselves feel that homelessness influences their parenting and their children's behaviors (for review, see Bradley, McGowan, & Michelson, 2018), but have not focused on autonomy support specifically. It may be that risk is associated with lower levels of autonomy support because promoting autonomy is not an important socialization goal for parents in high-risk contexts. Thus, an in-depth understanding of the parenting goals of families living in emergency housing will be invaluable to inform parenting interventions aimed to promote effective parenting, as well as children's EF skills and autonomy.

Current Studies

The two studies in this dissertation aim to address gaps in our understanding of autonomy support in high-risk contexts, specifically for young children and parents experiencing homelessness. If autonomy support is viewed as relevant to families living in emergency housing and it is positively associated with child EF skills and autonomy, it may be a target for future interventions aimed at promoting positive development in children experiencing homelessness.

Chapter 2. Study 1

No studies, to my knowledge, have used qualitative analysis to understand autonomy support in families experiencing homelessness. The current study attempts to address this gap by assessing parents' ideas about autonomy-supportive behaviors to support children's self-regulation. I used a theoretical thematic analysis, which is guided by the specific research questions about autonomy support, rather than an inductive approach which analyzes all content regardless of its relevance to the research questions. Although this thematic approach is guided by theory, I used open coding by developing and modifying codes and subthemes throughout coding rather than using pre-determined codes. Qualitative analysis is an exploratory and more ecologically valid approach to better understand autonomy support across contexts (Côté-Lecaldare, Joussemet, & Dufour, 2016). Due to the exploratory nature of Study 1, I make no specific hypotheses about parental views on autonomy support.

Method

Participants

Twenty-one parents (15 biological mothers and 6 biological fathers) residing in a large urban shelter for homeless families participated in the current study. Participation rates were based on the total number of recruited eligible families who completed the study. Twenty-nine families expressed interest, but eight did not participate because they either moved out before scheduling a study session or they cancelled a scheduled session and were not able to reschedule. The participation rate of 72% is similar to other studies conducted in this population (e.g., Bassuk, Weinreb, Dawson, Perloff, & Buckner, 1997; Ramakrishnan & Masten, 2019). All parents had a child between the age of 3- and 6-years-old ($M = 4.33$, $SD = 1.02$) and had between 0 and 4 additional children. The parents in the study ranged in age from 20 to 54 years ($M = 31.67$, $SD = 8.39$) and their racial/ethnic background was 57% African American, 14% European American, 14% Multiracial, 5% Native American or Alaska Native, and 10% other. Participants' highest level of education ranged from some high school, but no degree to college graduate; the median education level was high school graduate with diploma.

Procedure

Parents were recruited to participate via three recruitment methods: one-on-one conversations with a researcher at communal mealtimes, informational flyers in families' mailboxes, and word of mouth from parents who had previously participated. Eligibility criteria for participating in the study included having (1) a child between the ages of 3- and 6-years, (2) a sufficient understanding of English, and (3) stayed at the shelter for at least three days. The study sessions were scheduled at the parents' convenience in a dedicated research room at the emergency shelter and lasted between 20 and 30 minutes

to complete. A trained graduate student and undergraduate research assistant administered the study protocol. Both researchers were European American females.

All study procedures were approved by the University of Minnesota Institutional Review Board. First, the trained researcher reviewed the consent form and parents provided written consent. Second, parents were asked to complete a family information questionnaire to gather basic demographic information to characterize the study sample. The questionnaire was read aloud by the researcher to alleviate any concerns about parent literacy. Third, the researcher administered the qualitative interview questions, which were audio-recorded to be later transcribed and coded. Parents were reminded that they could skip any questions they did not want to answer and that there were no right or wrong answers. Upon completion of the interview, parents were given a \$10 Target gift card to thank them for their time and for sharing their views on parenting and beliefs about children's self-regulation development.

Interview Protocol

Family Information Questionnaire. This brief questionnaire gathered information about parent age, number of children, ages of the children, parent racial/ethnic background, and parent education. The demographic information was collected to characterize the sample.

Qualitative Interview. The interview consisted of 11 open-ended questions to assess parents' values of autonomy-supportive practices and the extent to which they use them with their young children. The first four questions were intentionally broad and asked about general socialization goals to determine if parents would spontaneously note qualities related to autonomy (e.g., I want my child to be his own person). These

socialization questions have been used previously in multiple studies of parenting across the world, such as in Brazil, Puerto Rico, and Norway (Lordelo, Roethle, & Mochizuki, 2012; Miller & Harwood, 2001). The second set of three questions were more specifically focused on how children learn to control or manage their behaviors. Again, the questions were included to examine whether parents endorsed autonomy-supportive ways of helping children learn to self-regulate (e.g., I make sure to ask their point of view when they are upset). The final set of four questions asked parents specifically about different autonomy-supportive behaviors to more directly assess parents' feelings about autonomy support. For example, one of the questions asked what parents thought about offering young, preschool-aged children chances to make their own choices. The list of interview questions is included in Appendix 1.

Data Analysis

The audio-recorded interviews were transcribed verbatim by one graduate student and three trained undergraduate research assistants with the Child Language Analysis (CLAN) program (MacWhinney, 2000). The voice of the parent interviewee was retained by transcribing the speech phonetically rather than using formal spelling. For example, if the parent said "em" instead of "them," the word "em" was included in the transcription. Each transcription was then checked against the original audio file by one member of the transcribing team who did not complete the original transcription. Any errors were corrected in a new transcription file rather than the original file and any disagreements were discussed and resolved as a group.

The transcribed data were then independently coded by a graduate student and post-bac research assistant using directed content analysis. Directed content analysis is a

type of qualitative analysis that is informed by theory; some codes are predetermined based on theory and others are defined during data analysis (Hsieh & Shannon, 2005). Because the primary research question of this qualitative study is the extent to which parents in an emergency shelter endorse or reject autonomy-supportive parenting behaviors, coders were guided by principles and themes in self-determination theory (Joussemet et al., 2008; Deci & Ryan, 2000). Unlike an inductive approach to qualitative analysis, only content that was relevant to autonomy-supportive behaviors was coded. Other content provided by parents, such as discussions about not wanting children to become involved with drugs or criminal activity when they get older, were not further analyzed in the present study.

Both independent coders read and re-read through all of the transcriptions to familiarize themselves with the content. All coding was done in Microsoft Excel, which has been deemed an effective and economical program for categorizing and sorting qualitative data (Bree & Gallagher, 2016). The first step of the coding was to distill the text into codes that represent the overall points the parents made during the interview. These codes are succinct paraphrased representations of the content in the transcripts. After each coder assigned all relevant codes, they met to discuss, modify, and address any disagreements about the codes. The total number of codes across the two coders was 140 and 63% of the codes were the same or represented the same idea with different phrasing. The remaining 37% were either discarded because they were not related to the research question, modified to fit within another similar code, or added to the final set of codes. This conferencing of codes led to 122 final codes that were categorized into subthemes by each coder independently. For example, the subtheme—children’s thoughts

and ideas are valuable—included codes like (1) listening to kids gives parents a new perspective and (2) it is nice to hear what children’s thoughts are. Once all subthemes were assigned, the coders met again to review and compare subthemes and to create a final set of subthemes to be included in the results. Coder 1 had 20 final subthemes and Coder 2 had 18 final subthemes. Subthemes were modified if they represented a similar idea to another subtheme or discarded if they provided redundant information.

Results

The interviews with parents revealed 15 distinct subthemes related to their views on supporting autonomy in young children. These subthemes have been further clustered into six categories to provide an organizing framework for the presentation of the qualitative results.

Children as Individuals

Two subthemes indicated that parents viewed young children as their own person and that they learn at their own pace: (a) children are individuals with rights and (b) children need space and time to learn in their own way or at their own pace. Parents noted that children have individual rights to express how they feel just like adults and that they also have a right to make their own choices. For example, one parent said, *“we all have feelings so it’d be kinda messed up if you’re like oh think about my feelings and then when your kids sad they like you’re a kid”* (Participant 16). Another parent noted, *“I want them to be themselves”* (Participant 13). Finally, two parents stated that children *“have their own minds”* (Participant 6 and 14).

Parents also noted that sometimes it takes time for parents to learn what works best for an individual child. For example, one parent exclaimed that parents need to “go

through probly millions of strategies and other things before you find the right one that actually works for that child cuz every child is different” (Participant 17). Another common idea was that children need to be given space to think on their own, *“so like get em and given them time to think about what they doing one and one by themselves”* (Participant 6). One way in which parents indicated that they allow children time and space to learn at their own pace is by being patient with them (Participant 1, 4, 14, 17, and 21).

Children as Capable

In addition to speaking about children as individuals, many parents described young children as capable: (a) parents recognize children’s competence, (b) children can make their own choices, (c) children’s thoughts and ideas are valuable, and (d) importance of children doing some things on their own.

With regard to children’s competence, some parents indicated more generally that children can trust their own instinct and that *“they’re smart enough to know what they want”* (Participant 14). Other parents noted specifically that young children are able to make some of their own choices and that choices are beneficial to young children. Participants 5, 14, 19, and 20 said that allowing children choice makes them feel good. For example, choice *“makes them feel that they have a place you know in the community”* (Participant 5). A number of parents tended to qualify their use of choice with young children by only providing choices for small things like which clothes to wear or which food or drink to pick out (Participant 3, 4, 9, 11, 12, 15, 17, 19, 21). As Participant 21 points out, *“as long as it’s not violent and it’s age appropriate, I’m fine with it.”*

A number of parents indicated that they found their children's thoughts and ideas valuable. This value was sometimes noted as being intrinsically rewarding, *"it's nice to be able to uh hear what they have to say without interrupting without anything like that just to hear what their thoughts are on things"* (Participant 1). Similarly, multiple parents noted how they love listening to their children. For example, *"because kids are fun and playful and they make me laugh so I like I love hearing it"* (Participant 15). Other parents noted more practical reasons for why their children's thoughts are valuable. Participants 6, 8, 13, 15, 16, 19, and 21 said that children's ideas help them better understand what the problem is. As Participant 8 indicates, *"some can be really wrong that you don't know about and your baby is really trying to tell you."*

Finally, parents also stated that they found it important for children to do some things on their own. For example, a number of participants said that they like it when their young children take on responsibilities like being able to brush their own teeth, putting on their clothes by themselves, or making their bed. Participant 12 noted these capabilities as a sign of intelligence, saying, *"he's a very um intelligent 4-year-old; he knows a lot of commonsense things so getting up in the morning, brushing his teeth, getting ready, putting his clothes on."*

Parents as Teachers

Parents also spoke at length about how they teach their children how to manage their behaviors in ways that are consistent with autonomy support, such as (a) parents modeling how to act, (b) explaining to children how to behave, (c) talking and listening to children, and (d) being available when children need them. About half of the participants mentioned that children learn from seeing how parents behave: *"just kinda*

um by example” (Participant 1), *“see me doing things”* (Participant 5), *“give a good example because you know your kids watch everything that you do”* (Participant 10). In addition to modeling, parents indicated that it is helpful to explain to children how to behave. For example, *“I’m gonna sit down and try to explain to him the best way I can about you know that’s not what mommy and daddy allows”* (Participant 12). There was also some indication that children learn when parents both talk to them and also listen to what they have to say. About half of the parents noted that talking to children is how they learn to manage their behaviors. In addition, some parents also said that parents know the best ways to support their children when they listen to them. For example, Participant 1 pointed out that parents can listen to children to shape their minds and Participant 6 suggested that listening is best for children because then parents can know how to help them. Finally, a couple of parents indicated that they want to listen to their children when they are young so they will feel comfortable coming to parents when they are older (Participant 2 and 16).

Undermining Child Autonomy

Although parents endorsed a number of parenting behaviors that are characteristic of autonomy support, there was some indication that parents tend to use more controlling behaviors in some domains. The subthemes related to undermining child autonomy include, (a) parent-directed strategies to manage child behavior and (b) inappropriate to support autonomy in young children.

We conceptualized parent-directed strategies as ways that parents tried to control children’s behaviors that did not consider the child’s perspective or provide an explanation. One common example of parent-directed strategies that parents used was

taking away things that children like for discipline, which often included technology. As Participant 1 said, *“start yanking stuff they really want away all of a sudden it’s oh we’re listening now, you know.”* Another strategy that about half of the parents relied on was repetition. Specifically, parents said they just had to keep repeating over and over again to children the correct way to act without any indication of explanation for behavioral requests. For example, *“repetitive you know”* (Participant 5), *“just keep repeating it”* (Participant 9), and *“we just keep telling them”* (Participant 12).

In response to the interview questions about specific autonomy-supportive behaviors like choice and listening, some parents rejected them. When asked about offering choice to young children, Participant 16 exclaimed, *“not at that age, no because no.”* As Participant 15 points out, *“if we let them make their own choices they be running us over, running us around.”* One parent indicated that they offer the illusion of choice, but will then be *“the first to be right there to tell them if it’s not [correct]”* (Participant 1). Offering choice tended to be the most contentious behavior among parents, but a couple of other parents also noted that they cannot explain things to children until they are older, *“I just wait until they get older like just say no and then when they get older tell em why”* (Participant 9) or that young children’s point of view is not very useful (Participant 4 and 9).

Valuing Respect

One subtheme that was common across more than half of the participants was that parents wanted their children to be respectful. For example, Participant 15 said, *“first and foremost is always respect because that goes a long way and, you know, if you don’t have respect you don’t have nothing.”* This subtheme was not integrated with the others

because it is ambiguous whether valuing respect in children is compatible with notions of autonomy or not. However, given how commonly parents referred to the idea of respect, it was included in the present results.

Impact of Shelter on Parenting

Finally, one of the qualitative interview questions specifically addressed whether staying in emergency housing has changed the way parents help their children manage their behaviors. Two distinct subthemes emerged in response to this question: (a) shelter hinders their parenting and (b) shelter helps their parenting. Two parents indicated that being at shelter makes them more controlling of their children's behaviors. For example, *"I would let them run around in the yard and do whatever, you know you guys can't do that here"* (Participant 4). One parent indicated that they have tried less to manage their children's behaviors since coming to shelter. Conversely, six parents indicated that being at shelter has improved the ways they help their children manage their behaviors. For example, Participant 3 indicated that they use shelter rules to their advantage to communicate to their child that it is a shelter rule, not just a family rule. Another parent noted that a place of their own has been helpful, *"then like now that I'm here it's you got a corner to stand in, it's this is where your toys are gonna be"* (Participant 14). Finally, some parents indicated that they have learned helpful strategies for managing their children's behaviors from the staff members and programs at shelter (Participant 15, 16, and 17).

Brief Discussion

The results of Study 1 indicate that many of the values and parenting strategies that parents discussed were compatible with autonomy-supportive ideas. Parents said that

young children are their own person and that they view them as competent in a number of domains, such as getting themselves ready in the morning and choosing between a few good options. Furthermore, some parents expressed that it was important to talk to young children and provide explanations for behavioral requests. They also noted that they as parents need to model good behavior for their children because they pick up on everything that parents do. However, these ideas were not universal across all participants. In fact, offering young children choices was the most polarizing autonomy-supportive behavior. Some parents felt that choice was a right for children while others claimed that it was inappropriate to provide young children with choices. One subtheme that was common across many participants was the idea that children should be respectful. It is unclear the extent to which parents meant respect in a way that was consistent with autonomy support. Children could learn to be respectful by internalizing familial values around respect or through more controlling means. Finally, the sample was heterogeneous with regard to how staying in shelter has impacted their parenting. Some parents indicated that they needed to adopt more controlling strategies with their children and others felt that the resources at shelter have helped them learn how to best manage their children's behaviors.

Chapter 3. Study 2

Given that Study 1 indicated autonomy-supportive behaviors seem relevant to parents in emergency housing to some extent, this study sought to use quantitative methods to examine autonomy support and child outcomes in families experiencing homelessness. Specifically, I investigated the risk and protective factors associated with the use of autonomy-supportive behaviors in a shelter setting, as well the links among

autonomy support, EF skills, autonomy, and academic competence in young children experiencing homelessness. The two primary aims and an additional exploratory aim of the current study are:

1. Assess parental correlates of autonomy support, including parent distress, parental perceptions of safety, household chaos, relevance of autonomy support, and parent EF skills.
2. Investigate links among autonomy support, children's EF skills, autonomy, and academic success, as well as the extent to which autonomy support mediates the link between parent EF and child EF, as suggested by the intergenerational transmission of self-regulation model.
3. This exploratory aim will examine whether parental perceptions of safety, household chaos, and relevance of autonomy support moderate links between autonomy support and child EF and autonomy.

The hypotheses for these aims are depicted in the conceptual model in Figure 1. With regard to aim 1, I hypothesize that autonomy support will be negatively associated with parent distress and household chaos and positively associated with autonomy-supportive values, perceptions of safety, and parent EF skills. The hypotheses for aim 2 are that autonomy support will predict child EF, autonomy, and academic outcomes; child EF skills and autonomy will be significantly related; and that child EF and autonomy will mediate the association between autonomy support and children's academic outcomes. Furthermore, I hypothesize that autonomy support will mediate the link between parent EF and child EF skills. Within this second aim, I will also conduct exploratory analyses to examine the extent to which links between autonomy support and child outcomes are

different for children who have completed one year of kindergarten compared to those who have not. Due to the challenges of recruiting families living in an emergency shelter, I broadened the study age range to include 6-year-old children to reach the target sample size of 100 families. However, there is a substantial body of evidence to suggest that formal schooling is itself an important intervention for children (Grammer, et al., in prep; Morrison, Kim, Connor, & Grammer, 2019), so the pattern of the results may look different for those who have completed one year of formal schooling, even after controlling for age. Finally, although aim 3 is exploratory, I hypothesize that perceptions of safety and household chaos will moderate the relation between autonomy support and child EF and autonomy, such that at lower perceptions of safety and higher levels of household chaos, this association will be weaker. Relevance of autonomy support will also be an important moderator, such that at high levels of relevance, the link between autonomy support and child outcomes will be stronger.

Method

Participants

One hundred parent-child dyads currently residing at a shelter for families experiencing homelessness participated in the current study. The overall participation rate for the study (calculated in the middle month of data collection) was 71%, with 10% of families indicating that they were not interested in participating; this participation rate is similar to that in Study 1 (72%). Children were between 36- and 84-months ($M_{\text{age}} = 58.94$; $SD = 14.48$) and 55% male. The racial/ethnic backgrounds of children were 69% Black/African American, 18% multiracial, 8% American Indian or Alaska Native, 3% White/European American, and 2% not specified. Parents were either children's

biological mothers (94%) or biological fathers (6%) and between the ages of 19- and 42-years ($M_{\text{age}} = 28.77$; $SD = 4.84$). The racial/ethnic backgrounds of parents were 69% Black/African American, 12% American Indian or Alaska Native, 12% White/European American, 3% multiracial, 1% African Native, and 3% not specified. The majority (82%) were currently living with a partner. As is typical in families experiencing homelessness, parents endorsed a range of sociodemographic risk factors. Over half of the sample reported an annual household income of \$10,000 or less in 2017. Parents had a range of education levels from some high school to a post-graduate degree (Median = high school diploma). Almost one-third of parents had their first child before 18 years and two-thirds reported at least one previous experience of homelessness.

Procedure

Parent-child dyads were recruited to participate during communal family mealtimes, paper fliers in their mailboxes, and word of mouth from other participating families. To be eligible to participate, families must have stayed at the emergency shelter for at least three days to provide some time to adjust after experiencing the acute stress of displacement. Additional inclusion criteria were (1) children were between the ages of 3- and 6-years old, (2) children had no known developmental delays that would prevent participation, such as autism spectrum disorder, and (3) both parents and children had a sufficient understanding of English. If more than one child per family met the eligibility criteria, the child who had the earliest birth month (e.g., April rather than November, or January rather than March) was selected to participate. Families who expressed interest in the study were scheduled to participate at their convenience in an on-site research room.

Teams of three lab members, consisting of two undergraduate research assistants and one graduate student or lab manager, conducted the study session with families in the shelter. Undergraduate students were trained as parent examiners and conducted both the consent process and the parent study assessments. Graduate students and the lab manager were trained as child examiners and administered the child assessments. All study procedures were approved by the Institutional Review Board at the University of Minnesota. The study visit began with the parent examiner going through consent with the parent while the child examiner spent some time coloring with the child participant to make him or her feel comfortable. Any siblings that came along to the study spent the duration of the session in a nearby playroom with the third study team member to ensure both parent and child assessments were completed with minimal distractions. Upon the parent's completion of consent, the child examiner verbally assented the child by telling him or her about the study tasks and asking if they wanted to participate.

Once the child assented, the parent and parent examiner went to a nearby room to complete the study tasks and questionnaires. Parent examiners read the instructions aloud for each task, as well as all questionnaires to ensure that parents fully understood each assessment regardless of their literacy level. The child remained in the room with the child examiner and completed a series of paper-pencil and iPad tasks. After both the parent and child completed their individual assessments, the parent reunited with the participating child, and they worked on a puzzle together for 10-minutes; this interaction was followed by three minutes of free play before the parent was instructed to ask the child to clean up the toys and then to leave the room one final time. Study sessions ranged from one and a half to two hours depending on the child's abilities, how often the

parent elaborated during the questionnaires, sibling distractions, and bathroom breaks. To thank families for their time, parents were given a \$30 Target gift card, children picked out a toy (e.g., a doll or action figure), and each sibling could select a dinky toy (e.g., a bouncy ball or bath toy).

Measures

Child tasks.

EF measures.

Minnesota Executive Function Scale (MEFS; Carlson & Zelazo, 2014). The MEFS is a tablet-based EF task comprised of 7 levels in which children sort cards into boxes based on different rules. The starting level of the task is based on the child's age and the task adjusts in difficulty depending on the child's performance on the starting level. For example, at the starting level for 4-year-olds, children are shown two boxes – one with an orange monkey on it and one with a green lion on it. The experimenter first demonstrates to the children how to play the shape game by putting a monkey card in the monkey box and a lion card in the lion box. Then the experimenter turns over the cards for the children to sort. Children are given two practice trials with feedback before moving onto the test trials. During Part A, children sort 5 cards by shape, and if they sort at least 4 cards correctly, move on to Part B where they are instructed to sort by color. If children do not pass Part A or Part B, they continue to move down until they pass a level or fail Level 1. However, if they do pass Part B in the initial starting level, they continue to move up to the next level, and continue to do so until they fail a level or reach Level 7. Final scores are computed by the MEFS algorithm based on accuracy and response time.

Peg-Tapping (Diamond & Taylor, 1996). In this task, an experimenter shows children a wooden dowel and teaches them the rules of the tapping game. First, the experimenter tells the children that when the experimenter taps one time (and demonstrates the tapping), the children should tap two times. The children are able to practice the first rule when the experimenter says, “Okay, let’s try that, when I tap one time, you tap...” and then hands the peg to the children to try. Then the experimenter introduces the second rule, which is that when the experimenter taps two times (and demonstrates the tapping), the children should tap one time. Like before, the children are given one opportunity to practice. After the rule demonstration, the children are given two pre-test trials. If the children get both rules correct, the experimenter provides positive feedback and then proceeds with the 14 test trials without feedback. If the children answer one or more pre-test trials incorrectly, the experimenter reminds the children of both rules (starting with the one they answered incorrectly first) and completes two additional trials (i.e., skip trials) before moving to the 14 test trials without feedback. The total possible score on this task is 16. If children answer both initial pre-test trials correctly, they are added into the final score. However, if the children answer one or more of the pre-test trials incorrectly, only the children’s “skip” trials are added to the final score.

NIH Toolbox® Developmental Extension Flanker Task (Anderson, Wenzel, Carlson, Zelazo, & Masten, 2013; Zelazo et al., 2013). This developmental extension version of the NIH Toolbox® Flanker task is administered on a tablet. Children are shown a line of five fish and are told by the experimenter that the fish in the *middle* of the row is hungry and to feed the hungry middle fish they have to touch the button at the

bottom of the screen that is pointing the same way the middle fish is swimming. After the experimenter correctly demonstrates how to touch the button facing the way the middle fish is pointing, the children are given a number of practice trials with feedback. If they pass the practice trials, they continue with the test trials that are identical to the practice trials. If children do not pass the practice trials, they move down to the developmental extension version of the task. The experimenter introduces them to just one fish on the screen with a bowl of food on one side and instructs children to feed the fish by touching the button pointing the direction of the fish. The levels become increasingly more challenging to scaffold the children's understanding of the task and the word middle. First the food on the screen disappears, then more fish friends join who are smaller and a different color, and finally the same row of 5 orange fish appears like those from the beginning of the assessment. The task ends if children answer enough trials incorrectly or when they complete the final level of the developmental extension. The NIH Toolbox® scoring algorithm automatically computes total scores for children who did not need the developmental extension. For those children who required the developmental extension, total scores were computed with the `dextScore` function in the `ICDtools` package in R (Desjardins, 2018) based on the scoring protocol detailed in Zelazo et al. (2013).

Gift Delay with Bow (Kochanska, Murray, & Coy, 1997). This EF task is a measure of children's hot EF, or EF skills that are employed in emotionally or motivationally salient contexts. In this task, children need to wait before opening an enticing present. During Part 1, the experimenter wraps a present behind the children. During Part 2, the experimenter leaves the children alone in the room with the gift. This

task occurred at the end of the child session so the experimenter could introduce the present as a reward for participating in the study. The experimenter tells the children:

You have done such a great job here today and I really had fun playing with you. I have a really neat present for you, but I have to wrap it first so it will be a surprise. Can you sit in this chair and try not to look so that I can wrap up your surprise? It is a really cool present, so I think you will really like it. Let's try that, okay? Sit here and I will wrap your present for you. Try not to look!

After the instructions, the experimenter goes to a cabinet behind the children to get the wrapping supplies and a toy. The wrapping supplies consist of a large box with a lid, both of which already have wrapping paper on them, and a bunch of tissue paper. The experimenter proceeds to wrap the toy up in the tissue paper nosily for one minute. After the minute is over, the experimenter says "Okay, I am finished, but I need to find a bow to put on top. Try to stay in your seat and try not to touch the gift because the game is not over yet. Let's see if you can wait." The experimenter then leaves the children in the room for two minutes before returning with the bow and giving the gift to the children to open.

Both portions of the task were video-recorded and later coded for children's worst transgression, as well as latency and frequency of worst transgression. During Part 1, transgressions were coded as follows: 2 – no transgression, 1 – turns head, or 0 – turns body. During Part 2, transgressions were coded on a 7-point scale: 6 – no transgression, 5 – turns head, 4 – turns body, 3 – touches gift, but no peeking, 2 – opens box to peek in, 1 – puts hand into the box, 0 – pulls gift from the box. Videos were coded by two trained research assistants who established reliability with the anchor coder using gift delay

videos from a previous data collection. Thirty percent of the videos from the current study were double-coded by the anchor coder and reliability ranged from acceptable to excellent: 98% agreement for rating of worst transgression across Part 1 and 2; 98% agreement within 1 for frequency of worst transgression; 78% agreement within 2-sec for latency to worst transgression (similar levels of agreement were found using this task previously with children experiencing homelessness; Sapienza, 2016).

Total scores for Part 1 and Part 2 were computed by compositing the three elements of the coding system: rating of worst transgression, latency to worst transgression, and frequency of worst transgression. Children who did not have a transgression during Part 1 were given a latency of 60 seconds; those who did not have a transgression during Part 2 were given a latency of 120 seconds. Frequency of worst transgression was reverse coded so that higher values indicated better regulation. Part 1 frequency was reverse coded by subtracting each child's frequency score from the highest frequency of worst transgressions in the sample for (i.e., 4). For Part 2 frequency, each child's score was subtracted from the highest number of worst transgressions in the sample (i.e., 7). By using this method of reverse coding, the variability in the sample was retained. The composite for each part of the task was created by z-scoring worst transgression, frequency, and latency and averaging them. Higher scores on Part 1 and Part 2 indicated better hot EF.

Academic measures.

Woodcock Johnson Test of Achievement III – Letter Word Identification (ID; Woodcock, McGrew, Mather, & Schrank, 2001). The Letter Word ID subtest is a standardized measure of early literacy skills. First, children are asked to identify letters

and then commonly used words. The assessment continues until children incorrectly answer at least 6 questions in a row at the bottom of a page. If children answer 6 incorrectly before the end of a page, the experimenter continues the task. In this situation, if children then answer one correctly before the end of the page, then the experimenter must proceed to the next page. The task only ends once children have answered at least 6 questions incorrectly at the end of a page.

Woodcock Johnson Test of Achievement III – Applied Problems (Woodcock et al., 2001). The Applied Problems subtest is an assessment of early math and numeracy skills. An experimenter reads simple math problems out loud to the children and waits for their response. For example, children are shown a picture of a cow, dog, and cat and the experimenter then asks how many cows are in the picture. As with the Letter Word ID subtest, the task ends once children answer at least 6 questions incorrectly at the end of a given page.

NIH Toolbox® Picture Vocabulary (PVT; Gershon et al., 2013). The PVT is a tablet-based instrument from the NIH Toolbox® to assess receptive vocabulary. Children are presented with four pictures on the screen and then hear a voice say a word. They must select the picture that matches the word that was said. The starting level of the task is based on children's highest level of education, and the task adjusts in difficulty depending on the children's performance. Children are shown a maximum of 25 items, and the task ends once the standard error of the children's performance is 0.3 or less (Gershon et al., 2014). This task was used as a control measure in the subsequent analyses.

Autonomy measure.

Committed Compliance Task (Kochanska, Coy, & Murray, 2001). This measure was designed to capture the internalization aspect of child autonomy (i.e., the extent to which the child has internalized a parent's rules). In the task, the experimenter asks the parent-child dyad to play for a few minutes with a box full of toys (e.g., trains, blocks, stuffed animals) and tells the parent to leave the toys scattered around the room as they play. Then the experimenter comes back after three minutes and says to the parent:

The last thing we would like to do today is a clean-up task, but we would like to see what (child's name) does when you are not with him or her. Can you please ask (child's name) to clean up the toys in the room in the way that you normally would?

The parent then leaves the room and the experimenter moves to a corner of the room facing away from the child and pretends to complete some paperwork. If the child attempts to engage with the experimenter, she says that she is busy working. The task ends three minutes after the parent leaves the room or once the child has put away all of the toys on the floor.

Children were video-recorded for later coding. One trained undergraduate research assistant not involved in data collection coded all the videos after establishing reliability (Cohen's kappa above .75) with the anchor coder on clean-up task videos from a previous data collection at an emergency shelter. The three-minute videos were coded in 10-sec intervals. An interval was coded as either a 1 (child was engaged in sustained cleaning for the full 10-sec) or a 0 (child was engaged in another activity for any part of the interval). Other activities include, but are not limited to, playing with the toys, engaging with the experimenter, looking out the window, fidgeting with clothes, or

attempting to leave the room. Because some children finished cleaning before the full 3-min were over, the final clean-up score was computed by dividing the frequency of intervals the child was engaged in sustained cleaning (i.e., sum of all segments) by the number of segments when any toys remained on the floor. Thirty percent of the videos were double-coded by the anchor coder and reliability was good (Cohen's kappa = .83).

Parent tasks.

Questionnaires.

Family Information Questionnaire. Parents reported on basic demographic information for themselves and their children, such as age, racial/ethnic background, and education. In addition, they answered questions about family structure, current occupation, family income, and reasons for coming to the shelter. Questions about parents' perceptions of safety, both prior to coming to the shelter and at the shelter, were also included; parents rated safety on a 5-point scale from 1 (*not safe*) to 5 (*very safe*). Responses to the question about current perceptions of safety at the shelter are used as a moderator in the subsequent exploratory analyses.

Confusion, Hubbub, and Order Scale (Matheny, Wachs, Ludwig, & Phillips, 1995). This 6-item measure asks parents to rate the disorganization in their household at the present time on a 3-point scale from 1 (*not true*) to 3 (*very true*). An example item is "You cannot hear yourself think in our home." Inter-item reliability of the full 6-item scale was $\alpha = .51$. A closer examination of the scale revealed that item 4 ("There is usually a television, computer, or other screen turned on somewhere in our home.") was problematic. Item 4 was correlated between $r = -.07$ to $.03$ with the other items in the scale. Furthermore, given the ubiquity of screens now compared to in 1995 when the

scale was first developed, the item likely represents something different now than in the mid-90s. Thus, the item was removed and the reliability of the 5-item scale increased to $\alpha = .62$.

Kessler Screening Scale for Psychological Distress (Kessler et al., 2003). This measure of psychological distress asks parents 6 screening questions for internalizing problems. Parents answer how often they have experienced certain feelings (e.g., restlessness, hopelessness, etc.) in the last 30 days on a 5-point scale from 1 (*all of the time*) to 5 (*none of the time*). Items were reverse-coded, such that higher values represent greater distress. Internal consistency of items in this sample was good ($\alpha = .77$) and comparable to reliability in the general population ($\alpha = .89$; Kessler et al., 2003).

Autonomy Support Scale (Joussemet, Mageau, & Koestner, 2014). This 12-item scale was used as an index of the extent to which families valued autonomy-supportive behaviors in their everyday lives. Each end of the scale was anchored with an example of how a parent talks to their children and a corresponding picture. One side represented an autonomy-supportive strategy (e.g., “It’s time to get dressed! Do you want to wear your red sweater or your green one today?”) and the other was a controlling strategy (e.g., “It’s time to get dressed! I put your clothes on your bed.”). The examiner read the parent each example while pointing to the picture as they were reading and then parents rated the item on a scale from 1 to 9 with the poles corresponding with, “This looks exactly like I do.” For example, if the autonomy-supportive example was on the left side of the page, the parent would circle a 1 to indicate that it looks exactly like what they do. Similarly, the 3 and 7 on the scale correspond with, “This is what I tend to do,” and the 5 corresponds with, “Sometimes I do one, sometimes I do the other.” The autonomy-

supportive style occurred on the left side for 6 items and on the right side for the other 6 items. The items with the controlling style on the right side (corresponding to 9) were reverse-coded so that higher values on the scale represented more autonomy support. Because this scale has not been used previously in a shelter context, I examined its psychometric properties with an exploratory factor analysis (EFA) in the results section and do not report the internal consistency of the full scale here.

Cognitive measures.

Minnesota Executive Function Scale (MEFS; Carlson & Zelazo, 2014). The MEFS is administered as described under the child tasks, with a few modifications. All parents start at level 5 and move up or down one level based on their performance on the starting level. Unlike in the child version of the task, parents turn over all their own cards to sort rather than having an experimenter do so. Due to potential literacy concerns within this sample, the parent examiner read all instructions and rule reminders aloud for the parents. The task ends once the parents' highest level passed has been determined. The MEFS software algorithm computes the final scores based on both accuracy and response time.

NIH Toolbox® Picture Vocabulary (PVT; Gershon et al., 2013). In this tablet-based measure, described under the child tasks section, parents see four pictures on the screen, hear a word, and then must select the picture that means the same as the word that was said. The starting level is based on the parents' highest level of education and ends once the standard error of their performance is less than 0.3, with a maximum of 25 trials. The PVT was included as a control variable for analyses with parent EF and autonomy support to control for parents' general cognitive abilities.

Parental warmth.

Five-Minute Speech Sample (Magaña et al., 1986). During this task parents are asked to talk about the kind of person their child is and how the two of them get along for 5-min. If the parent stops talking for 30-sec during the speech sample, the parent examiner prompts the parent by asking them to please tell them anything about their child for a few more minutes. The speech sample was audio-recorded and later coded for overall warmth using the Caspi et al., (2004) coding system. Warmth is rated on a scale from 0 to 5 and is based on positive tone of voice, empathy, interest in or enthusiasm about the child, and spontaneity (e.g., a specific story about their child). Narayan, Herbers, Plowman, Gewirtz, and Masten (2012) validated this task with parents experiencing homelessness and the parental warmth dimension is correlated with observed measures of effective parenting, such as the Family Interaction Tasks (Forgatch & DeGarmo, 1999; Gewirtz, DeGarmo, Plowman, August, & Realmuto, 2009). Parental warmth was used as a control measure in the subsequent analyses to examine the extent to which autonomy support is uniquely associated with child outcomes, above and beyond this measure of global positive parenting.

Two trained undergraduate research assistants double-coded each speech sample and thirty percent were double-coded by the anchor coder to ensure reliability. Each coder demonstrated good reliability with the anchor coder (Coder 1 $ICC = .91$; Coder 2 $ICC = .87$) and with each other ($ICC = .89$). Final parental warmth scores were computed by averaging the rating of the two coders, as is typical in past studies with this coding system in an emergency shelter setting (Narayan et al., 2012).

Parent-child tasks

Autonomy support.

Dyadic Puzzle Task (Whipple et al., 2011). Parent-child dyads were given a set of puzzles to work on for 10 minutes. The 7 puzzles were selected for their appeal to young children (Paw Patrol themed) and to be too challenging for children to complete on their own (ranging from 12 to 24 pieces). Parents are instructed to begin with the same 12-piece puzzle, but then to move on to any of the other puzzles if they finish the first one. The experimenter also tells the parent that “We would like to see what your child can do by him or herself, but feel free to provide him or her with any help that you would like.” The instructions of the task are purposefully vague to elicit a more naturalistic interaction. After the instructions, the experimenter leaves the room and returns to end the task after 10 minutes.

The task was video-recorded and later coded for autonomy support by rating the parents’ behaviors on 4 scales: (1) the extent to which the parent created an optimal challenge for the child and intervened at the appropriate moment; (2) the extent to which the parent used appropriate hints, offered praise and encouragement, and used a positive tone of voice; (3) the extent to which the parent acknowledged the child’s perspective and was flexible in his or her attempts to keep the child on task (this scale is only coded if the child deviated from the task for more than 5-sec); and (4) the extent to which the parent followed the child’s lead, ensured that the child was the primary actor in the task, and offered opportunities for choice. Each scale was coded from 1 (*not autonomy-supportive*) to 5 (*very autonomy-supportive*). Coders were two trained research assistants who each coded half of the videos, and 30% of all the videos were double-coded by the anchor coder; reliability was good ($ICC = .86$). Given the high intercorrelations between the 4

scales found in the current study ($r_s = .49$ to $.65$), they were averaged for one total autonomy support score, which is consistent with previous studies that used this measure (e.g., Bernier et al., 2010; Distefano et al., 2018; Meuwissen & Carlson, 2015).

Results

Missing Data

Missing data ranged from 0% missing for parent PVT and shelter safety to 18% missing for the child cleanup task, with the remaining variables missingness at 8% or lower. The cleanup task likely had high rates of missingness because it was the last task administered during the study session. Five families ended the session before the cleanup task because they had another commitment, such as an appointment or meeting with a family member. According to Little's MCAR test (Little, 1988), the missing data appeared to be missing completely at random ($\chi^2 [350] = 371.64; p = .20$). Full information maximum likelihood (FIML) estimation is an appropriate method for handling data that is MCAR (Peng, Harwell, Liou, & Ehman, 2006) and was used in the main analyses to provide unbiased estimates while using all available data.

Data Reduction

EFA was used as a data reduction strategy to examine the structure of the EF tasks, as well as the Autonomy Support Scale – a questionnaire that has not been used previously with families experiencing homelessness. The analyses were conducted with the psych package (Revelle, 2018) in R 3.5.0 (R Core Team, 2018).

For the EF tasks, I investigated whether they should be represented as one global EF composite or whether the cool and hot tasks should be analyzed separately. EFA was used instead of confirmatory factor analysis (CFA) because there is theory to suggest that

cool and hot EF are distinct (Zelazo & Carlson, 2012; Zelazo, Qu, & Müller, 2005), but previous studies with HHM preschoolers have found that similar tasks load onto one factor (Distefano et al., under review; Masten et al., 2012). Initial evidence from the scree plot indicated just one factor with an eigenvalue greater than one. The factor loadings and model fit indices also suggested that the one-factor model was appropriate. Standardized loadings ranged from .42 (Gift Delay Part 2) to .87 (Flanker and Peg-tapping) and together explained 52% of the variance (Cronbach's $\alpha = .83$). The fit indices were also good: Root Mean Square Residual (RMSR) = .06; Root Mean Square Error of Approximation (RMSEA) = .08; Tucker Lewis Index (TLI) = .99; Comparative Fit Index (CFI) = .99. In contrast, the two-factor model, with oblimin rotation, in which the hot and cool tasks loaded onto separate factors, but were allowed to correlate, indicated that Gift Delay Part 2 cross-loaded equally on both the cool factor with Flanker, MEFS, and Peg-tapping (standardized loading = .25) and on the hot factor with Gift Delay Part 1 (standardized loading = .27). Although the fit indices were near perfect (RMSR = .01; RMSEA = .02; TLI and CLI = 1.00) and two factors explained 67% of the variance, the issue of cross-loading, plus the low alpha value for the hot tasks ($\alpha = .56$), made this model untenable. Thus, I adopted the one-factor model and composited the 5 EF tasks for one global EF score for the main analyses.

I also conducted an EFA for the Autonomy Support Scale because there is very little research with the measure and it has not been previously used with families experiencing homelessness. The initial scree plot evaluation showed that two factors had eigenvalues near one, so I proceeded with testing both the one- and two-factor models. The one-factor model fit poorly: RMSR = .11, RMSEA = .10, TLI = .33, CFI = .46. In

particular, items 1, 2, 6, and 8 had standardized factor loadings of below .10. The two-factor model with oblimin rotation had only slightly better fit: RMSR = .09, RMSEA = .09, TLI = .53, and CFI = .70. Items 3, 4, 5, 7, 9, 10, 11, and 12 loaded onto factor one; although item 4 had the lowest standardized factor loading of .27. Items 1, 2, and 6 did not load onto either factor and item 8 loaded onto factor two with a standardized loading of 1.00. These results indicate that some items on the scale should likely be removed rather than pursuing models with more than two factors.

In the next model, I removed items 1, 2, 6, and 8 and only included items 3, 4, 5, 7, 9, 10, 11, and 12 in a one-factor model. All 8 items had standardized loadings of .25 or higher and explained 17% of the variance. The model fit indices also improved considerably: RMSR = .08, RMSEA = .07, TLI = .79, and CFI = .85. However, many of the fit indices still fell outside of the acceptable range. In the final model, I removed item 4 because of all the remaining items, it had the lowest standardized loading from the original one-factor model. In this model, the standardized factor loadings of items 3, 5, 7, 9, 10, 11, and 12 ranged between .29 and .58 and explained 18% of the variance. All of the fit indices were in the acceptable range: RMSR = .07, RMSEA = .03, TLI = .97, CFI = .98. Finally, Cronbach's α of the 7-item scale was .60, which is comparable to the one study that used the Autonomy Support Scale with middle-income families in Canada ($\alpha = .64$; Joussemet et al., 2014).

Main Analyses

Descriptive statistics for the child and parent variables are displayed in Table 1. Bivariate correlations, as well as partial correlations controlling for child age are shown in Table 2.

Aim 1: Parent and context factors associated with autonomy support. As indicated by the bivariate correlations in Table 2, none of the hypothesized variables—perceptions of safety, parental distress, chaos, parent EF skills—were significantly correlated with autonomy support during the parent-child interaction task. The Autonomy Support Scale, assessing relevance of autonomy support in families’ lives was marginally correlated with the observational measure of autonomy support ($r = .19, p = .07$). Unexpectedly, the only variable that was significantly associated with observed autonomy support was parents’ PVT scores ($r = .29, p < .01$), which was included primarily as a control measure. Indeed, a hierarchical linear regression with autonomy support regressed on parent PVT, parent MEFS, and parental warmth (i.e., a control for global positive parenting) indicated that PVT still remained a significant predictor ($\beta = .31, p < .01$).

Exploratory follow-up analyses assessed the extent to which parent EF skills and verbal IQ were correlated with the individual subscales within the autonomy support coding system. Bivariate correlations indicated no significant associations between parent EF and any of the autonomy support subscales. However, parent verbal IQ was significantly correlated with the competence subscale ($r = .22, p < .05$) and the choice subscale ($r = .25, p < .05$). Interestingly, parent verbal IQ was less robustly associated with the verbalization subscale ($r = .20, p > .05$).

Aim 2: Intergenerational transmission of self-regulation through autonomy support and links to academic competence. Initially, I had planned to test a conceptual model with autonomy support mediating the link between parent EF and each aspect of child self-regulation (i.e., EF skills and internalization). However, given that parent EF

was not significantly correlated with either autonomy support ($r = .12$), child EF ($r = .05$), or child internalization ($r = -.09$) there appeared to be little support for the intergenerational transmission of self-regulation through autonomy-supportive parenting in this sample. Thus, the analyses for Aim 2 focused on relations among autonomy support, child EF skills, child rule internalization, and academic achievement and the exploratory moderation by kindergarten completion.

Initial evidence from the partial correlations in Table 2 indicated that autonomy support was correlated with child EF composite ($r = .22, p < .05$) and that child EF skills were significantly associated with rule internalization during the cleanup task ($r = .33, p < .01$), Letter Word ($r = .39, p < .01$) and Applied Problems ($r = .54, p < .01$). Using the lavaan package in R (Rosseel, 2012), a path model was fit with the variables of interest, as well as child age, child verbal IQ, and parental warmth as control variables. Overall, the model fit well: $\chi^2(4) = 0.64, p = .96$; RMSEA = .00 [90% CI = .00, .10]; CFI = 1.00; TLI = 1.00. The R^2 values for each of the endogenous variables were: .70 for child EF composite; .05 for child internalization; .54 for Letter Word ID; and .83 for Applied Problems, suggesting that the model explained a large portion of the variance for all but child internalization. As shown in Figure 2, the path from autonomy support to child EF composite and child internalization was not significant. Therefore, I did not proceed with testing a mediation model from autonomy support to academic outcomes through either child EF or child internalization.

Although the link between autonomy support and child EF was not robust to covariates, exploratory follow-up analyses examined whether specific subscales of the autonomy support coding system were more related to child EF skills than others.

Bivariate correlations indicate that the choice subscale was significantly correlated with child EF composite ($r = .22, p < .05$), although it was no longer significant after controlling for child age, verbal IQ, or parental warmth.

Finally, I investigated whether the link between autonomy support and child EF and internalization appeared to be different for children who had completed one year of kindergarten. Results indicated that kindergarten status significantly moderated the path between autonomy support and child EF skills, such that the relation between autonomy support and child EF was positive for children who had either not attended or just started kindergarten and negative for children who had a whole year of kindergarten exposure ($\beta = .32, p < .05$). A depiction of the interaction is shown in Figure 3. The fit indices for the model were good: $\chi^2(4) = 1.43, p = .84$; RMSEA = .00 [90% CI = .00, .10]; CFI = 1.00; TLI = 1.00. To explore what might be driving the interaction, I conducted a one-way ANOVA to investigate differences between the two groups. As expected, children who completed kindergarten had significantly higher EF scores ($F(1, 97) = 53.24, p < .001$). However, there were no differences in the levels of autonomy-supportive parenting between the two groups ($F(1, 94) = 0.15, p > .05$). Similarly, there were no differences between the groups on each of the subscales of autonomy support: supporting competence, positive verbalizations, perspective-taking, or offering choice.

Aim 3: Moderators of the association between autonomy support and child EF and child internalization. In the following three exploratory path models, I investigated the extent to which associations between autonomy support and child outcomes was influenced by three moderators: parental perceptions of safety, household chaos, and relevance of autonomy support. To do so, I fit separate path models that

include all of the components of the path model in Aim 2, but with an additional interaction term between autonomy support and each target moderator.

I tested three separate models with perceptions of safety, household chaos, *or* relevance of autonomy support as moderators. Results indicated that there was not a significant interaction between autonomy support and any of the moderators, suggesting that the association between autonomy support and child EF or internalization did not depend on either perceptions of safety, chaos, or relevance of autonomy-supportive behaviors.

Brief Discussion

The results provide little support for the hypotheses in Study 2. Parent distress, perceptions of safety, and household chaos were not significantly associated with observational measures of autonomy-supportive behaviors. Furthermore, parent EF skills did not predict autonomy support; rather, parent verbal IQ was the only factor significantly associated with autonomy support, even after controlling for parent EF and parental warmth. Exploratory analyses indicated that parent verbal IQ was most strongly correlated with the choice subscale and less strongly associated with the positive verbalization subscale. However, because verbal IQ was only included as a control variable and no a priori hypotheses were formed about parental IQ, these results should be interpreted with caution.

Although partial correlations indicated that autonomy support was positively associated with child EF, this link was not significant after controlling for child age, child verbal IQ, and parental warmth suggesting the relation is tenuous. Surprisingly, autonomy support was not associated with child internalization given that internalization

is one aspect of children's autonomy and thus the most proximal outcome of autonomy-supportive parenting. There was also no support for the intergenerational transmission of EF skills in this sample. Parent EF was not related to either autonomy support or child EF skills and, controlling for important covariates, autonomy support did not predict child EF. As expected, children's EF skills were significantly related to internalization, but only child EF was positively associated with Letter Word ID and Applied Problems. There was also no support for the hypothesis that children's EF and internalization mediate the relation between autonomy support and academic outcomes; autonomy support was not related to children's EF or their academic performance in the full sample. However, there was a significant interaction between kindergarten status and autonomy support, such that autonomy support was positively associated with children's EF in those who had not completed kindergarten; the relation was negative for children who had completed kindergarten. There was not a significant interaction between kindergarten status and autonomy support for child internalization.

The final aim investigating moderators of the link between autonomy support and child EF skills and internalization was exploratory given the small sample size and limited previous empirical evidence. Results indicated that none of the target moderators—perceptions of safety, household chaos, or relevance of autonomy support—appeared to influence the link between autonomy support and child EF skills or internalization.

Chapter 4. General Discussion

Overall, this dissertation project aimed to better understand beliefs about autonomy support in the context of homelessness, factors associated with the use of

autonomy-supportive behaviors, and links between autonomy support and child functioning in high-risk families. Results from both studies indicated that parents experiencing homelessness appear to use autonomy-supportive behaviors to some extent. The qualitative findings demonstrate that parents view children as individuals with their own important thoughts and ideas and that some parents find young children's point of view to be valuable. The quantitative results suggest that parents offered similar levels of autonomy support during a dyadic puzzle task to those found in a previous study with both low- and middle-income families: $M = 3.31$ ($SD = .92$) for parents in the current study compared to $M = 3.41$ ($SD = 1.13$) for parents in Distefano et al. (2018). Although the puzzle used in the two studies was different and behavioral coding can be influenced by the range of behaviors seen in a given sample, this comparison offers some preliminary evidence for the use of autonomy-supportive behaviors across a range of sociodemographic risk. In the following discussion, I interpret results first from Study 1 and then Study 2 before noting strengths and limitations of this dissertation project and avenues for future research.

Views on Autonomy-Supportive Parenting

Counter to the prediction that autonomy support is not relevant in high-risk contexts (Gonzales et al., 1996; McElhaney & Allen, 2001), Study 1 revealed that many parents currently experiencing homelessness endorsed at least some ideas and parenting strategies that are consistent with autonomy support. Two main themes were that they view children as their own person and that young children are capable and competent. Highlighting children's competence is one essential aspect of autonomy-supportive parenting practices (Whipple et al., 2011). Furthermore, a number of parents identified

themselves as key teachers in helping their children learn to manage their own behaviors. Many of the subthemes that parents noted about facilitating children's development were consistent with previous qualitative work on autonomy support with preschool teachers (Coté-Lecaldare et al., 2016). For example, parents talked about how they need to behave appropriately because children learn from watching their parents. Preschool teachers also indicated the importance of modeling for supporting young children's autonomy development (Coté-Lecaldare et al., 2016). Furthermore, parents indicated that they think children learn by providing explanations for behavioral requests, which is a primary mechanism by which societal norms and familial values become internalized in children (Deci & Ryan, 2000).

Not all autonomy-supportive behaviors were deemed appropriate by parents in the present study. Providing opportunities for choice is one aspect of autonomy support (Whipple et al., 2011), but a number of parents indicated that it was not okay to offer young children choices. It would be interesting in future studies to explore what parents think of when they hear the word choice. It was clear from the interview that some parents thought about smaller, age-appropriate choices like what color shirt to wear. However, it is possible that the parents who believed that choice was inappropriate were considering things like a 5-year-old choosing not to go to school or staying up until 3:00 in the morning. A follow-up study that focuses specifically on choice and where parents draw the line on choice would be helpful to examine if even those parents who rejected choice in the present study might think there are some conditions under which choice for young children is okay. Beyond choice, there were a couple of parents who thought it was not valuable to explain behavioral requests to preschool-aged children or listen to

their point of view, but that it was okay to do so with older children. These results indicate that parents may value the autonomy-supportive practices of providing explanations and perspective-taking, but that they deem them developmentally inappropriate for younger children.

One important avenue for future research is to investigate how parents think children learn to be respectful and the ways in which they teach their children respect. Being respectful of children's feelings, interests, and boundaries is one dimension of autonomy support (Coté-Lecaldare et al., 2016). An outstanding question is the extent to which parents teach children to be respectful of others by demonstrating respect with their own children. Conversely, if respect is an essential family value, there may be external pressure from parents to be respectful and they may employ more controlling techniques to ensure respect. It was clear from the present study that parents living in emergency housing value respect in their children, but it was ambiguous the extent to which this value is compatible with children's developing autonomy.

Finally, a couple of parents indicated that staying in shelter has caused them to employ more controlling parenting strategies, but other parents said that the resources and support in the emergency shelter have helped them become better parents. Importantly, one parent noted that having a consistent place to stay means that they can establish consistent household rules, such as where children can put their toys when it is time to clean up. Although Study 1 was exploratory, I had anticipated that staying in shelter may have decreased parenting quality per the qualitative results from Bradley et al. (2018). However, it is encouraging that some parents feel they have learned helpful

information about parenting from shelter programs and staff as this provides some evidence that these services are working as intended.

Parent- and Family-Level Predictors of Autonomy Support

The first aim of Study 2 was to investigate risk and protective factors associated with the use of autonomy support in parents experiencing homelessness. I had hypothesized that parental distress and household chaos would be negatively correlated with autonomy support and parent perceptions of safety, autonomy-supportive values, and EF skills would be positively correlated with observed autonomy support. Counter to the hypotheses, none of these factors were significantly associated with the use of autonomy support during the dyadic puzzle task. The null relation between parent distress is particularly surprising given the robust evidence for a negative association between parent internalizing symptomatology and autonomy support (for review, see Distefano & Meuwissen, in prep). Not only is this lack of association counter to past empirical evidence, but it is inconsistent with the family stress model, which posits that financial hardship in part affects parenting behaviors through its effects on parent mental health (Conger & Elder, 1994; Conger et al., 2000; Elder, 2018). However, previous research with HHM families has also failed to find a significant association between parent distress and behavioral measures of parenting quality (Gewirtz et al., 2009; Narayan et al., 2012; Narayan et al., 2017), indicating that the family stress model may not fully represent processes within highly mobile families.

Unexpectedly, parent EF skills were not significantly related to autonomy support. Rather, parents' verbal IQ score, as indexed by the PVT, was the only factor examined in the present study that was associated with autonomy-supportive parenting

behaviors; this link remained even after controlling for parent EF skills and parental warmth, suggesting that the association is more specific than general cognitive capabilities related to indicators of positive parenting. Exploratory post-hoc analyses revealed that parents' verbal IQ was most strongly correlated with the choice subscale of the autonomy support coding system and was surprisingly not significantly related to parents' scores on the positive verbalizations subscale. The link between parent verbal IQ and autonomy support was not hypothesized a priori, so these results should be interpreted with caution and replicated in future studies with families experiencing homelessness.

In light of the limitations, there are a number of interpretations for the link between parent verbal IQ and autonomy support. One explanation is that the coding system relies primarily on verbal cues, such as parents giving verbal praise, encouragement, and hints and offering explicit choice (e.g., "Do you want to start with the Skye piece or the Rocky piece?"). Thus, verbal IQ may not be necessary for the use of autonomy support, but rather a function of how the task measuring autonomy support was coded. There are some indications in the data that suggest the findings may not be fully explained by this lean interpretation. First, an exploratory analysis examined correlations between parents' verbal IQ and each autonomy support subscale. Verbal IQ was most highly correlated with the choice subscale and least correlated with the verbalizations subscale. Although the choice subscale is partially dependent on offering explicit verbal choices, it also captures the extent to which parents follow children's lead. For example, if a child picks up a piece to work with, does the parent shift attention to help the child with her selection or push the child to work on the part of the puzzle the

parent wants. Furthermore, in the linear regression, parent verbal IQ remained a significant predictor after controlling for parental warmth as measured by the FMSS. This is noteworthy given that the coding of the FMSS also relies on verbalizations, such as expressing enthusiasm, interest in, and enjoyment of the child.

Another possible explanation is that verbal IQ is a proxy for other correlates of autonomy support, namely parental education or personality. Parents' highest level of education has been repeatedly linked to autonomy support (Distefano & Meuwissen, in prep). Indeed, parent education is positively correlated at the bivariate level with verbal IQ ($r = .32, p < .01$) and autonomy support ($r = .23, p < .05$). However, even after controlling for parent education in the original model regressing autonomy support on parent EF skills, verbal IQ, and parental warmth, verbal IQ remained a significant predictor and parent education was no longer significantly associated with autonomy support.

There is also some evidence that verbal IQ is associated with the openness dimension of the big five personality traits. Ashton, Lee, Vernon, and Jang (2000) found that openness was more highly correlated with crystallized measures of IQ compared to fluid IQ and that the relation was strongest for measures that involved pictures. The authors note that the link between openness and performance on IQ assessments with visual stimuli may reflect the tendency for people high on openness to become particularly absorbed in tasks involving meaningful visual stimuli. There is also some evidence to suggest that openness is positively associated with observational measures of autonomy support (Nietzel & Stright, 2004). Thus, parental verbal IQ may be confounded with parent personality in the present study. Future research could explore this possibility

by including both a verbal IQ assessment and a personality questionnaire or by incorporating a verbal IQ measure that is less reliant on visual stimuli.

Although *how* parents use the knowledge they have to support their children during a problem-solving task (i.e., use of EF skills) appears to be important in relatively low-risk samples (Distefano et al., 2018; Meuwissen & Carlson, 2015), in this high-risk sample *what* parents know may be particularly critical to be autonomy-supportive. For example, to provide appropriate supports for their children's individual skill level, parents need to have some understanding of what strategies would be helpful. An unskilled child may need help lining up the matching colors on the puzzle piece while a more skilled child may need guidance on the best ways to structure the task, such as starting with the edges and then filling in the rest. Parents who know a number of strategies for helping their children problem solve are likely providing higher quality support. In contrast, parents who have a limited repertoire of strategies may perseverate on a single suggestion, such as telling children to just find the pieces with blue even if the child doesn't yet understand what that color word means; they may not know how to help their children and, thus, simply complete the puzzle for them.

Another, relatively unexplored, possibility is that in highly chaotic and stressful environments, parents rely more on crystallized rather than fluid cognitions. EF skills are particularly susceptible to sleep deprivation (Belenky et al., 2003; Lim & Dinges, 2010) and stress (Arnsten, 2009; Beversdorf, Hughes, Steinberg, Lewis, & Heilman, 1999; Diamond, 2013; Liston, McEwen, & Casey, 2009), which are both common in parents experiencing homelessness (Banyard & Graham-Bermann, 1998; Bradley et al., 2018;

Distefano, August, Barnes, Carlson, & Masten, 2017; Pable, 2012). Conversely, crystallized knowledge may be less liable to environmental influences (Blair, 2006).

There is some corroborating evidence for the importance of verbal IQ for positive parenting behaviors in high-risk contexts. One study with parents of preschoolers currently experiencing homelessness found that parents' verbal IQ was related to global indices of positive parenting even after controlling for parental education and EF skills (Monn et al., 2017). The authors also found that only hot EF skills predicted parenting behaviors, and not the cool EF tasks. Given that parents experiencing homelessness are parenting in highly stressful environments, a measure of cognitive skills that is decontextualized may not be as useful for explaining variability in parenting. Another study with highly disadvantaged mothers of preschoolers in rural Pakistan found that working memory was a significant predictor of scaffolding, but that maternal verbal IQ was an even stronger predictor (Obradović et al., 2017). Future research with parents experiencing homelessness could continue to explore the link between IQ and parenting by investigating the extent to which fluid and crystallized IQ are differentially associated with parenting. To examine the possibility that knowledge of helpful strategies is important for autonomy support, a future study could ask parents to first note all of the strategies they might consider using to help their child with a puzzle before completing the dyadic puzzle task.

Links Among Autonomy Support and Aspects of Child Functioning

Although there was a small correlation between autonomy support and child EF skills after controlling for child age, this link did not withstand the addition of important covariates like child verbal IQ and parental warmth. As expected, EF skills were

positively associated with both early numeracy and literacy skills, which has been replicated many times in young children experiencing homelessness (Herbers et al., 2011; Masten et al., 2012; Obradović et al., 2010). Children's internalization was not significantly associated with either domain of academic competence, although internalization and EF skills were significantly correlated, controlling for child age and verbal IQ. The significant correlation between children's rule internalization and their EF replicates findings from Kochanska et al. (1996), although this is the first study to examine this link in preschoolers experiencing homelessness. The relation between internalization and EF may be due to bi-directional influences and/or the development of foundational neurocognitive skills, such as reflection (Zelazo, 2015). It will be interesting to further tease apart these possibilities with longitudinal research designs in the future.

Overall, the final path model provides little support that autonomy support is uniquely associated with children's EF and internalization, and that these early self-regulatory abilities mediate relations between autonomy support and academic success. However, an exploratory analysis suggested that these processes may be operating differently in children who have completed a full year of formal schooling compared to those children who have no formal schooling or have just started. Results indicated a significant interaction between kindergarten status and autonomy support, such that autonomy support was positively related to children's EF skills in non-kindergarteners and negatively related in kindergarteners. Post-hoc comparisons between the two groups of children indicated that children in kindergarten did have significantly better EF skills, as we would anticipate. However, the parenting appeared to be similar. There was not a significant difference in levels of autonomy support in the kindergarteners and non-

kindergarteners. Furthermore, parents of kindergarteners and non-kindergarteners did not differ in any of the subscale scores of the autonomy support coding system. Similarities across the subscales may be counter to what we would expect. For example, one might anticipate more opportunities for choice with kindergarteners and fewer verbal hints since they are likely more competent at puzzles. As with the parent verbal IQ results, these findings should be interpreted with caution as this moderation analysis was exploratory; keeping this in mind, there are a few different possibilities for the different pattern of results for kindergarteners and non-kindergarteners.

First, the dyadic puzzle task and autonomy support coding system may be ill-suited for children who have had experience with formal schooling and are more competent at solving puzzles. Indeed, most of the studies that have used the Whipple et al. (2011) coding system have been with preschool-aged children, and it was originally created for parents and toddlers. The coding system was designed to consider each child's individual skill level, but it may be more challenging for coders to do so when children are already competent at puzzles. For example, the first subscale of the coding system assesses the extent to which parents provide an appropriate level of support based on the child's skill levels. For very unskilled children, the right level of support may be physically helping them lift the puzzle piece to fit among the other pieces. Moderately skilled children may need help focusing their attention on a smaller subset of pieces so they are not overwhelmed with all the possibilities. Conversely, very skilled children may just need a helpful suggestion occasionally. The appendix of the coding system indicates that if parents do not have the opportunity to use some behaviors, to give them the benefit of the doubt. For example, if the child does not need the task to be adapted to create

optimal challenge, the parent will receive full credit for that subscale. Therefore, it may be possible that for very competent children, the coding system is more likely to conflate autonomy support with more laissez-faire behaviors (i.e., being uninvolved). These laissez-faire behaviors are the most noticeable when children are clearly struggling and parents are not providing support, but are more nuanced when children rarely need help (one exception being that parents are on their phones or engaged with something else while the skilled children complete the puzzle on their own).

Second, autonomy-supportive parenting behaviors may be less related to EF development once children receive additional helpful input from school. In this case, school may provide a compensatory function, such that EF skill development is fostered in children who have less supportive parents at home. Multiple studies have shown that formal schooling, in and of itself, is an important intervention (see Morrison et al., 2019 for review). Furthermore, in their meta-analysis, Valcan et al. (2018) did find that the overall relation between cognitive parenting behaviors and children's EF skills was moderated by age, such that the strongest relations were seen with younger children. Conversely, this moderation effect was not found with global positive parenting behaviors like warmth and sensitivity.

Theoretical evidence for the development of EF skills would suggest that receiving positive support from multiple developmental contexts is helpful because children have many opportunities to practice using their EF in a variety of domains (Zelazo, 2015). However, within highly mobile children and families, the relative consistency of school may be beneficial for all children's EF skill development regardless of the amount of autonomy support they are receiving at home. Although these findings

are counter to the original hypotheses, they are particularly encouraging given that it is often easier to intervene with children experiencing homelessness at school. Indeed, there are a number of efficacious EF-specific interventions that have been successfully implemented in preschool and kindergarten classrooms (Distefano & Masten, submitted).

Moderation by Contextual Factors

The final aim of Study 2 was to investigate the extent to which the link between autonomy support and children's EF skills and internalization depended on multiple contextual factors within the family system. Previous research has questioned the importance of autonomy-supportive behaviors for children's development in high-risk environments (Gonzales et al., 1996; McElhaney & Allen, 2001). However, the mechanisms for the limited use of autonomy support in contexts of risk have not been fully explored. The three target mechanisms that I examined in the current study were parental perceptions of safety, household chaos, and relevance of autonomy-supportive behaviors. Specifically, I hypothesized that autonomy support would be less robustly associated with child outcomes in families where parents reported high household chaos, low perceptions of safety, and low relevance of autonomy-supportive practices. However, results indicated that the association between autonomy support and children's outcomes did not depend on any of the target moderators. It is possible that these results represent a true effect in the population, such that autonomy support operates similarly across risk levels in young children, but there are also a number of reasons why we may not have detected moderation effects.

Limitations of the sample may help to explain the null results for this exploratory aim. Although a sample of 100 preschoolers is impressive given that families

experiencing homelessness are challenging to reach and underrepresented in child development research, the sample size may have been too small to adequately detect moderation effects. A sensitivity power analysis conducted prior to data collection indicated that with a sample of 100 and an alpha value of .05, I had 80% power to detect moderation effects of .08 or larger. An effect of .08 would be considered relatively small for a main effect, but moderation effects tend to be much smaller. Indeed, a 30-year review conducted by Aguinis, Beaty, Boik, and Pierce (2005) indicated that the median observed effect size for moderation of categorical variables was .002 across 261 analyses. Thus, the effect of the interactions in the current study would need to be much larger than those typically seen in psychology.

Another possibility for the null moderation results may be due to measurement issues. Parental perceptions of safety, for example, was measured using a single question on a 5-point Likert scale from 1 (*not safe*) to 5 (*very safe*). Furthermore, the question asked parents to rate safety in shelter and did not consider previous safety or how safe they felt their children were at shelter. Parents who felt safe in their previous environment and provided high levels of autonomy support may not allow their current feelings of safety to influence ingrained parenting practices. The Confusion, Hubbub, and Order Scale had some issues with reliability. The 6-item scale had one item (“There is usually a television, computer, or other screen turned on somewhere in our home”) that was not correlated with any of the other items, and it was subsequently removed. Even with the removal of the problematic item, the reliability of the scale was .62, which is considered the low threshold for acceptable. Finally, the Autonomy Support Scale had not been used previously in an emergency shelter setting and also showed some issues with reliability.

The EFA results indicated that five of the items did not load with the other items or with each other. The 5 items were removed, leaving 7 items that were composited into one relevance of autonomy support score. However, even with the problematic items removed, the reliability of the scale was still low: $\alpha = .60$ (although this is comparable to the alpha value of .64 found in another study with middle-income families).

Strengths and Limitations

The overall dissertation project had a number of important strengths. The qualitative interview provided a rich understanding of beliefs about autonomy support in parents currently experiencing homelessness. A major question in the SDT literature is the extent to which the ways parents support children's developing autonomy is different across contexts (Deci & Ryan, 2000). In Study 1, it was evident that many parents believed that modeling behaviors and listening to children are important, but that opinions about offering young children choices were more mixed. Furthermore, the qualitative data allowed the voices of underrepresented and marginalized families to be present in developmental science.

Another strength was the behavioral measures used in Study 2. As previously noted, some of the questionnaires did not work as well as intended, but the behavioral assessments were strong. First, I observationally coded autonomy-supportive behaviors, which is considered the gold standard for measuring parenting, particularly for parents with high levels of distress or from lower socioeconomic backgrounds (Herbers, Garcia, & Obradović, 2017). Second, all of the child variables were measured behaviorally, with multiple measures for children's EF skills, which eliminates bias that is common in parent- and teacher-report measures. In addition to the use of behavioral measures, I also

incorporated a measure of parenting quality to examine the unique effects of autonomy support on child outcomes. Some of the previous research that has documented a link between autonomy support and children's EF skills in preschoolers did not control for overall positive parenting (Distefano et al., 2018; Meuwissen & Carlson, 2015), which makes it challenging to determine whether there is a unique effect of autonomy support or that it simply indexes high-quality parenting.

Finally, this dissertation project is one of the few studies to examine autonomy support with young children in a risky environment (for exceptions, see Gutman & Sulzby, 1999; Harvey et al., 2016; Matte-Gagné, Harvey, Stack, & Serbin, 2015), and the only study, to my knowledge, that has done so in the context of homelessness. A homeless shelter is often characterized by parents as dangerous and chaotic (Bradley et al., 2018), which means it may be particularly challenging to be autonomy-supportive even compared to families living in poverty who are stably housed. In addition to investigating autonomy support in contexts of risk, I attempted to delineate which specific elements of a high-risk environment may (1) influence the use of autonomy-supportive behaviors and (2) moderate the relation between autonomy support and child outcomes. Although, I did not find support for the target contextual factors examined in Study 2, it will be important for future research to continue to disentangle specific aspects of risk rather than treat risk as unidimensional.

This dissertation project also had a number of limitations. The qualitative interview was conducted by two European American females studying child development and the participants were primarily African American mothers. It is possible that the participants responded to the interview questions based on what they thought the

interviewers wanted to hear. Some of the parents did reference child development and parenting classes (e.g., conscious discipline), which they may have talked about to give what they perceived was the “correct” answer rather than their actual parenting beliefs. We attempted to combat this desirability bias by telling parents that there were no right or wrong answers to the questions and that we just wanted to hear some of their ideas. There was also variability in the types of answers parents gave, which suggests that parents did not view just one answer as the “correct” one. For example, some parents wholeheartedly endorsed offering their children choice and others noted that providing young children opportunities for choice is wrong: “*not at the age, no because no.*”

In Study 2, notable limitations included issues with the self-report measures, challenges with generalizability, and a number of exploratory analyses. As noted previously, the reliabilities of some of the measures were borderline acceptable. For example, Cronbach’s alpha for the Confusion, Hubbub, and Order Scale was just .62, even after removing one problematic item. Furthermore, although the measures did capture variability in the sample, all of the participants were very high-risk; incorporating low-income, but housed and middle-income families that are matched on demographic variables would likely provided more variability for the moderation analyses. Expanding the sample to families from different socioeconomic backgrounds would further delineate the extent to which the findings from the current study are specific to families experiencing homelessness or families living in poverty more generally. In addition, homelessness in this study was specific to parents and children living in an emergency homeless shelter. Therefore, the results may not generalize to families who are doubled-up with friends or relatives or currently living unsheltered (e.g., in a tent or car). Finally,

a number of the analyses were exploratory, including the link between parent verbal IQ and autonomy support, the moderating role of kindergarten status, and interactions between autonomy support and contextual factors. Given that the results of the exploratory analyses were not hypothesized a priori, they should be interpreted with caution.

Future Directions

Findings from the current dissertation project revealed a number of areas for future exploration. First, a majority of parents in the qualitative study noted that they wanted their children to be respectful. It was challenging to interpret this subtheme in the qualitative coding because it was unclear how it related to the research question about the relevance of autonomy-supportive parenting behaviors. Children who act respectfully could do so autonomously if they fully endorsed that value or they could be acting heteronomously if they feel pressured by external factors to be respectful. A future qualitative study could focus specifically on this concept of respect and examine what parents mean by being respectful, why they endorse this value so highly compared to others, and how they help their children learn to be respectful.

Second, it will be important to replicate the results that were not hypothesized, namely the link between parent verbal IQ and autonomy support and the moderating role of kindergarten status on autonomy support and children's EF skills. In addition to replicating the findings, there are a number of ways they could be extended. To examine the extent to which parent cognition is differentially related to parenting across risk contexts, a future study could systematically investigate the unique contributions of parent EF skills and IQ (both verbal and non-verbal) to parenting behaviors and

determine if the relations are moderated by the degree of sociodemographic risk. A longitudinal design could tease apart the influence of formal schooling on the link between autonomy support and children's EF skills to determine if the relation is stronger at the beginning of kindergarten compared to the end within the same children.

Third, if the link between autonomy support and child EF in preschool-aged children is replicated, it will be important to conduct additional research to examine whether the relation is causal. Meuwissen and Carlson (2019) experimentally manipulated the amount of autonomy support parents provided and found that they were able to make parents more or less autonomy-supportive. Furthermore, children whose parents improved the most in autonomy support from baseline, also subsequently demonstrated better self-regulation skills when they were asked to complete a puzzle task on their own. This intervention study only examined change during one study session. A future study could provide extended parenting training on autonomy-supportive behaviors and explore longer term effects on EF development in preschoolers.

Conclusions

The overarching goal of this dissertation was to better understand the role of autonomy support in families experiencing homelessness. Specifically, some researchers have called into question the relevance of autonomy-supportive parenting behaviors in high-risk environments due to concerns about safety and high levels of chaos, which are both elevated in an emergency shelter setting. Furthermore, little work has examined whether autonomy support is consistent with the socialization goals of parents with high levels of sociodemographic risk and adversity. Study 1 gathered qualitative data from parents of young children in a homeless shelter to gain an in-depth understanding of their

views on autonomy-supportive behaviors. Most parents endorsed at least some behaviors that bolster children's autonomy, such as listening to young children's point of view. However, opinions about other aspects of autonomy support were more mixed. For example, some parents viewed opportunities for choice as essential to children's learning, whereas a number of parents thought it was inappropriate to give choices to young children.

Study 2 aimed to delineate risk and protective factors for providing autonomy support in a shelter context. Unexpectedly, parent distress, household chaos, perceptions of safety, and parent EF skills were not significantly associated with observed autonomy support during a dyadic puzzle task. Parent verbal IQ was the only factor positively associated with autonomy-supportive parenting and this relation did not appear to be driven solely by the representation of verbal support in the coding system or parents' highest level of education. Given that parent EF skills were not associated with autonomy support or children's EF skills, results from this study offer little support for the intergenerational transmission of self-regulation model in this sample. Furthermore, autonomy-supportive parenting was only related to EF in children who had not completed kindergarten, suggesting that the socialization of EF development may rely primarily on parents until children enter formal schooling. In this high-risk sample, school may play a compensatory role such that children who receive less optimal parenting at home may catch up to their peers as they receive positive input from school.

The current project addresses a number of important gaps in the literature on autonomy support. Most of the work on contextual influences of autonomy-supportive parenting behaviors has focused on cultural differences (Chirkov et al., 2003; Supple,

Ghazarian, Peterson & Bush, 2009; Wang, Pomerantz, & Chen, 2007). Few studies have investigated the extent to which autonomy support appears to be important in high-risk contexts; those that have done so tend to include only low-income, but housed families who are primarily European American (e.g., Distefano et al., 2018; Matte-Gagné et al., 2015). Although other studies have directly examined risk and protective factors (Harvey et al., 2016), there has been less focus on aspects of parent cognition, contextual factors like chaos and safety, and parents' views about autonomy support. Similarly, cumulative risk has been linked to lower levels of autonomy support (Lengua et al., 2007), but no studies, to my knowledge, have attempted to delineate how different contextual factors may moderate the link between autonomy support and child outcomes. Finally, most of the research on autonomy support has used a quantitative approach, such that parents will rate the extent to which they use autonomy support on various scales from disagree to agree. The qualitative data on autonomy-supportive behaviors provides a more nuanced understanding of the strategies that parents use in risky contexts to bolster their children's developing autonomy and self-regulation skills while ensuring they are safe and protected.

In addition to filling gaps in our scientific understanding of autonomy support, the current dissertation project may have practical implications for those working with young children and parents experiencing homelessness. For children who had not completed kindergarten, autonomy support was associated with children's EF skills above and beyond child verbal IQ, age, and parental warmth. Because autonomy support is comprised of discrete behaviors, such as acknowledging a child's point of view, an intervention around autonomy-supportive behaviors may be adaptable to multiple

intervention delivery systems. For example, an intervention might consist of a couple initial parenting groups to introduce the intervention, increase participant buy-in, and build relationships, but then continue as a texting intervention, in which parents are given daily tips about integrating autonomy-supportive behaviors into their daily lives. Texting interventions may be particularly helpful for families living in homeless shelters who do not have the time or resources to attend multiple in-person parenting trainings over an extended period of time. The length of time families stay in emergency shelters is very limited and high mobility may prevent parents from staying in an in-person intervention even if they want to continue.

The qualitative data from Study 1 provides additional insight into how to personalize parenting intervention content based on both logistical barriers and parenting values. For example, many parents endorsed wanting to listen to their young children's point of view. In this case, intervention content could focus less on trying to convince parents that listening to preschoolers is important and more on what logistical barriers may prevent parents from taking a few extra minutes to hear what their children have to say. Conversely, some parents may not see the value in offering choices to young children and even find the suggestion of doing so to be inappropriate. Here, the intervention could be adapted to focus primarily on the other ways that parents can support children or those delivering the intervention could work with parents on how they could integrate the element of choice without compromising their values. To adapt intervention content to best fit the needs of individual families, it will be important to gather data on parenting beliefs prior to beginning any parenting intervention.

Beyond the possible implications for parenting interventions, the qualitative results may also be useful for advocating at the policy level for families experiencing homelessness. One theme from Study 1 was that some parents felt that the support they received from shelter staff and programming has helped them learn how to manage their young children's behaviors. Direct quotes about the impact that emergency services have on parenting are often the best ways to communicate to policy makers about important issues (Young & Quinn, 2017). This type of data tends to be perceived as more compelling to those at the policy level compared to a simple correlation between shelter support and parenting quality, for example.

In sum, this dissertation project adds to a large literature on the influence of parenting on children's positive adaptation. Dozens of studies have demonstrated that effective parenting is one of the most powerful protective factors for children experiencing sociodemographic risk and adversity. It is essential then, to better understand how risk and protective processes influence high-quality parenting. Furthermore, a resilience framework acknowledges that parents in high-risk contexts have many important strengths that can be leveraged to support their children. The current dissertation project is fully compatible with this notion and finds evidence for these strengths in both the qualitative and quantitative data.

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Table 1

Descriptive statistics for the child, parent, and interaction tasks

	<i>n</i>	<i>M</i>	<i>SD</i>	Sample Range
Child				
PVT	92	55.87	8.89	30 – 74
Flanker	92	0.50	4.00	-5 – 8.04
MEFS	94	33.06	19.14	0 – 76
Gift Delay Part 1	93	0.00	0.93	-1.64 – 1.04
Gift Delay Part 2	92	-0.01	0.70	-1.18 – 1.99
Peg-tapping	94	7.02	5.67	0 – 16
EF Composite	99	-0.04	0.75	-1.73 – 1.67
Internalized Cleanup	82	0.40	0.40	0 – 1
Letter Word ID	99	8.06	8.46	0 – 40
Applied Problems	97	9.53	7.22	0 – 25
Parent				
Safety	100	4.36	0.86	2 – 5
Kessler Distress	97	9.28	4.84	0 – 24
Chaos	98	7.50	2.07	5 – 13
PVT	100	92.23	9.06	64 – 114
MEFS	98	71.78	15.61	45 – 95
AS Scale	95	5.32	1.60	2.14 – 9
FMSS Warmth	98	3.54	1.00	1 – 5
Parent-Child Interaction				
Autonomy Support	96	3.31	0.92	1 – 5

Note. PVT = Picture Vocabulary Test. MEFS = Minnesota Executive Function Scale. EF = Executive Function. AS = Autonomy Support. FMSS = Five Minute Speech Sample.

Table 2

Bivariate (bottom left) and partial (upper right) correlations among child, parent, and interaction tasks

	1	2	3	4	5	6	7	8	9	10
1. Child Age	1									
2. Child PVT	.67**	1								
3. Flanker	.70**	.60**	1							
4. Child MEFS	.78**	.61**	.68**	1						
5. Gift Delay Part 1	.57**	.55**	.50**	.43**	1					
6. Gift Delay Part 2	.33**	.27*	.34**	.31**	.41**	1				
7. Peg-tapping	.71**	.65**	.76**	.69**	.46**	.36**	1			
8. Letter Word ID	.67**	.55**	.64**	.57**	.44**	.38**	.68**	1		
9. Applied Problems	.82**	.80**	.77**	.77**	.54**	.34**	.79**	.75**	1	
10. EF Composite	.80**	.71**	.86**	.84**	.72**	.58**	.86**	.71**	.84**	1
11. Internalized Cleanup	.06	.21	.20	.16	.25*	.19	.21	.09	.18	.25*
12. Shelter Safety	-.02	-.12	-.07	.05	-.14	.07	.01	-.07	.01	-.02
13. Kessler Distress	.08	.01	.11	.08	-.03	-.04	.15	.06	.12	.10
14. Chaos	.13	.16	.11	.05	.11	-.18	.03	.00	.13	.02
15. Parent PVT	-.09	.07	.15	-.05	-.14	.09	.12	.20*	.09	.03
16. Parent MEFS	.02	.10	.08	.06	-.01	.03	.11	.15	.09	.05
17. AS Scale	.06	.19	.23*	.12	.11	.19	.19	.23*	.20	.23*
18. FMSS Warmth	.15	.20	.27**	.18	.18	.17	.17	.13	.17	.22*
19. Autonomy Support	-.01	.05	.06	.13	-.09	.05	.16	.07	.03	.13

Table 2 continued

Bivariate (bottom left) and partial (upper right) correlations among child, parent, and interaction tasks

	11	12	13	14	15	16	17	18	19
1. Child Age									
2. Child PVT	.22	-.14	-.06	.10	.17	.12	.19	.14	.08
3. Flanker	.22	-.07	.08	-.01	.29**	.10	.25*	.24*	.09
4. Child MEFS	.17	.11	.02	-.08	.03	.07	.12	.10	.21
5. Gift Delay Part 1	.27*	-.16	-.09	.05	-.12	-.03	.09	.12	-.11
6. Gift Delay Part 2	.18	.08	-.07	-.24*	.13	.03	.18	.13	.05
7. Peg-tapping	.24*	.03	.13	-.09	.27*	.14	.21	.10	.23*
8. Letter Word ID	.06	-.07	.00	-.12	.36**	.19	.26*	.05	.09
9. Applied Problems	.23*	.05	.08	.04	.28**	.13	.26*	.09	.06
10. EF Composite	.33**	-.01	.05	-.13	.17	.05	.30**	.17	.22*
11. Internalized Cleanup	1	.24*	.01	-.05	-.01	-.09	.20	.02	.12
12. Shelter Safety	.24*	1	-.17	-.21*	.10	-.09	.00	-.15	.06
13. Kessler Distress	.02	-.17	1	.20*	.21*	.12	-.14	.13	-.09
14. Chaos	-.04	-.21*	.21*	1	.04	.09	.06	-.18	-.12
15. Parent PVT	-.01	.10	.20	.03	1	.23*	.20	.18	.29**
16. Parent MEFS	-.09	-.09	.12	.10	.23*	1	-.01	.16	.12
17. AS Scale	.20	.00	-.14	.06	.19	-.01	1	-.05	.19
18. FMSS Warmth	.03	-.15	.14	-.16	.16	.16	-.04	1	.19
19. Autonomy Support	.12	.06	-.09	-.12	.29**	.12	.19	.19	1

Notes. Partial correlations controlling for child age (pair-wise deletion).

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

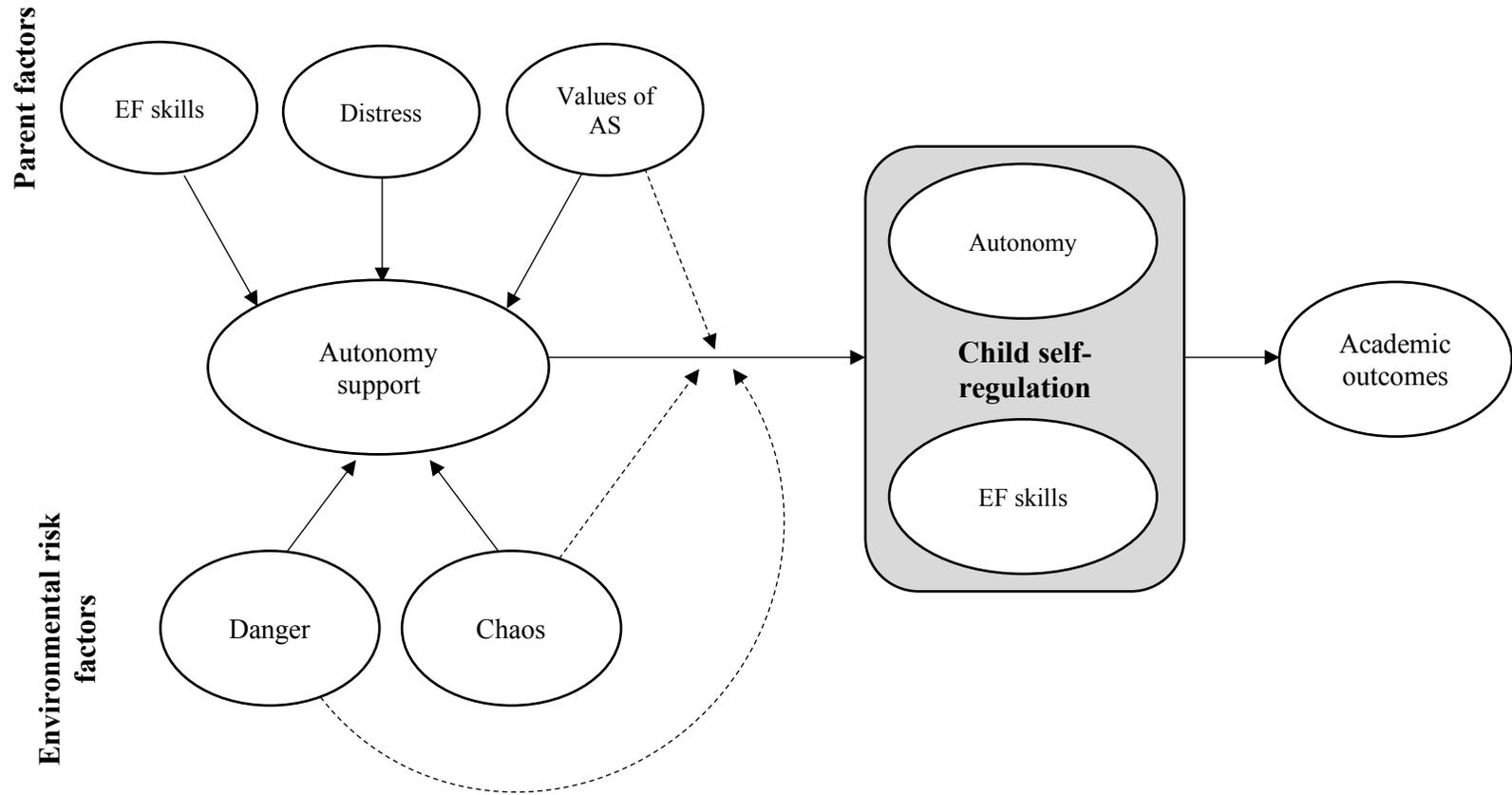


Figure 1. Conceptual model of the hypotheses tested in Study 2.
 Note. AS = Autonomy Support. EF = Executive Function

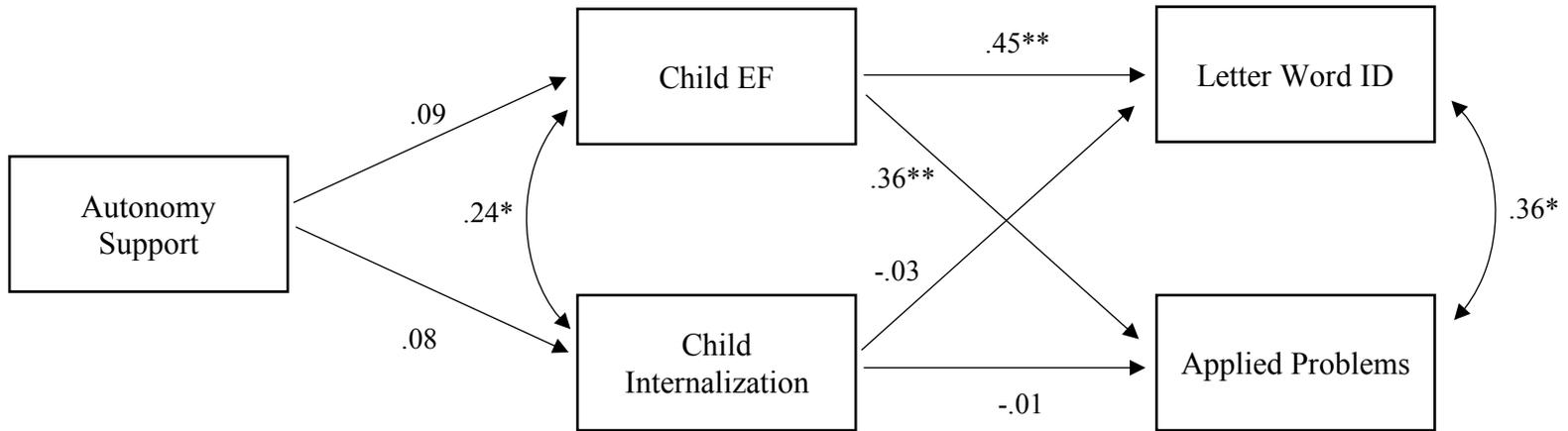


Figure 2. Path model displaying the relations among autonomy support, child EF and internalization, and child academic outcomes ($N = 100$).

Notes. Values represent standardized estimates. Paths for the control variables (child age, PVT, and parental warmth) are omitted from the figure for simplicity.

EF = Executive Function. PVT = Picture Vocabulary Test.

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

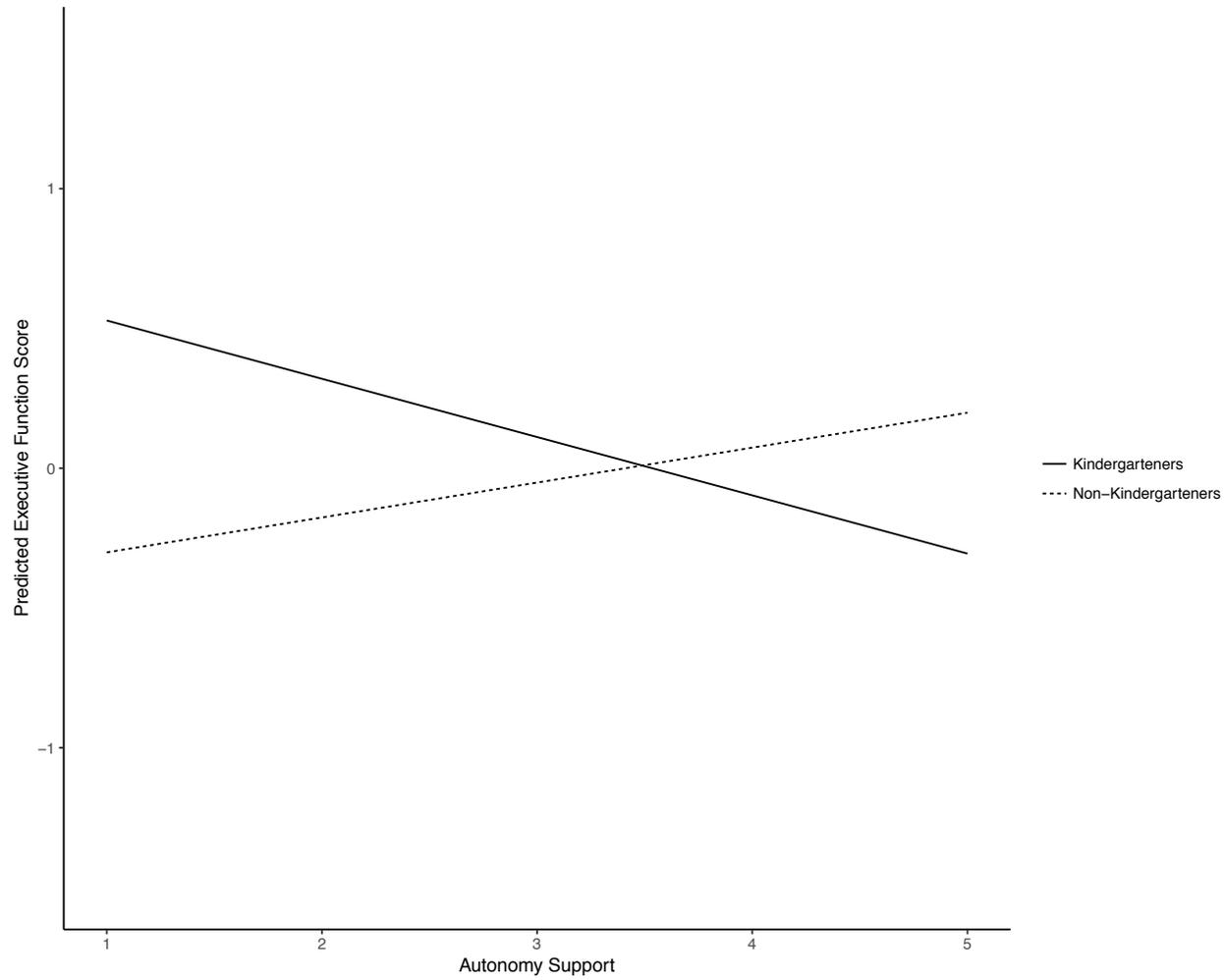


Figure 3. Interaction between autonomy support and kindergarten completion predicting children's EF composite score.

Appendix 1

(Questions about socialization goals)

1. Describe the qualities you would like your children to have as adults.
 - a. Describe a child you know that has at least the beginnings of those qualities.
2. Describe the qualities you would not like your children to have as adults.
 - a. Describe a child you know that has at least the beginnings of those qualities.

(Questions about self-regulation development)

1. How do your children learn to control (or manage) their behaviors?
2. In what ways do you help your children learn to control (or manage) their behaviors?
3. Has staying at [emergency shelter name] changed the ways you help your children control (or manage) their behaviors?
 - a. *(If yes)* How so?

(Questions about autonomy-supportive behaviors)

1. In what ways can parents help children learn to do the right thing on their own?
2. What do you think about offering young children chances to make their own choices?
 - a. *If they say a single word answer, like “good” or “bad,” probe why they think it is good or bad.*
3. What do you think about trying to explain to young children why they cannot do certain things?
 - a. *If they say a single word answer, like “good” or “bad,” probe why they think it is good or bad.*
4. What do you think about listening to young children’s point of view?
 - a. *If they say a single word answer, like “good” or “bad,” probe why they think it is good or bad.*