

THE EVALUATION OF AN EARLY CHILDHOOD INTERVENTION

PROGRAM: A LONG-TERM FOLLOW-UP STUDY



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ABSTRACT

The Evaluation of an Early Childhood Intervention Program:

A Long-Term Follow-up Study

Children, who experience poverty and poor parenting in a low-stimulus environment in their first years of life, are at great risk for developmental problems. The home visitation interventions are promising to enhance parenting skills and child development among at-risk samples, yet, the evaluations of sustained benefits are scarce in the literature. The aim of the current study was to conduct a 3-year follow-up evaluation for Istanbul95 Family Guidance Program, and to examine the sustained benefits in a subsample of intervention mothers and their 5-year-old children from the original study. Firstly, the intervention children were expected to receive higher scores on developmental skills than the control children at age 5. Secondly, the intervention mothers were expected to display stimulating practices more frequently towards their 5-year-olds compared to the control group mothers. Lastly, the stimulating parenting at 18-months of age was expected to mediate the relationship between intervention status and child outcomes at age 5. The results indicated that there was no statistically significant difference between the intervention and control groups in terms of parenting and child development, except for vocabulary size. Also, when intervention children were enrolled to a preschool, they showed better performance in school readiness skills, yet the same pattern was not found among the control children. The results were discussed in light of the past research and suggestions regarding to research design and program implementations were made.

ÖZET

Erken Çocukluk Dönemi Müdahale Programı Değerlendirmesi:

Uzun-Dönem İzleme Çalışması

Yaşamlarının ilk yıllarında düşük uyaranlı bir ortamda yoksulluk ve kötü ebeveynlik deneyimleyen çocuklar, gelişimsel alanlarda sorunlar geliştirmeye yatkındır. Ev ziyareti temelli müdahaleler, dezavantajlı ailelerde ebeveynlik becerilerini ve çocuk gelişimini destekleme konusunda umut vericidir, ancak program faydalarının kalıcılığına ilişkin değerlendirmeler nadirdir. Çalışmanın amacı, İstanbul95 Aile Rehberlik Programı için 3 yıllık bir izleme çalışması gerçekleştirerek müdahale anneleri ve 5 yaşındaki çocuklarından oluşan bir alt örnekleme elde edilen faydaların kalıcılığını incelemektir. Müdahale çocuklarının gelişimsel alanlarda kontrol çocuklarından daha yüksek puan alması öngörülmektedir. İkinci olarak, müdahale annelerinin kontrol grubu annelerine kıyasla 5 yaşındaki çocuklarına karşı destekleyici ebeveynlik uygulamalarını daha sık sergilemeleri beklenmektedir. Son olarak, ebeveynlerin 18 ay-destekleyici ebeveynlik davranışlarının müdahalenin çocukların 5 yaşındaki sonuç davranışlarına etkisinde aracılık etmesi beklenmektedir. Ebeveynlik ve çocuk gelişimi açısından müdahale ve kontrol grupları arasında çocukların kelime dağarcığı dışında istatistiksel olarak anlamlı bir fark bulunmamıştır. Ayrıca okul öncesi eğitime kaydolun müdahale çocukları okula hazırlık becerilerinde daha iyi performans göstermişlerdir, ancak aynı örüntü kontrol çocukları arasında bulunmamıştır. Sonuçlar geçmiş araştırmalar ışığında tartışılmış ve araştırma tasarımı ve program uygulamalarıyla ilgili önerilerde bulunulmuştur.

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To my beloved family...

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CHAPTER 1

INTRODUCTION

The first three years of life constitute a critical period for child development.

Children who experience malnutrition, poor parenting, and poverty are at heightened risk for poor development in various domains such as physical health, social and cognitive development (Black et al., 2017; Robertson et al., 2019). On the other hand, a supportive environment for children such as sensitive and responsive parenting acts to buffer the negative role of environmental adversities in those years (Lee et al., 2020). In line with this, meta-analyses and review papers indicated that intervention programs targeting parenting skills have so far provided promising evidence to enhance developmentally supportive caregiving and environmental conditions (Black et al., 2017) with moderate effect sizes (Jeong et al., 2021a; Macbeth et al., 2015), especially for at-risk children such as immigrants or for those who live under disadvantaged conditions (Fischmann et al., 2020; Jeong et al., 2021a). Specifically, one recent meta-analysis showed that home visitation (HV) interventions targeting positive parenting strategies in the first years of life enhance at-risk children's development in cognitive, language and motor domains in the short-term, but the effect sizes are small (Jervis et al., 2023).

On the other hand, there are some differences among programs with respect to their long-term effectiveness because the programs differ in terms of the target child's age and length of exposure, the targeted developmental areas, the intervention methodology, or demographics of the participants (Tanner et al., 2015). For example, children with more severe conduct or emotional problems (Leijten et al., 2018) or mothers with depressive symptoms (Gardner et al., 2010) benefited more from the

parenting interventions. Also, Tanner and colleagues (2015) also pointed out that null results for the long-term benefits of HV interventions do not necessarily suggest that the program was ineffective. Rather, the long-term impact evaluations of such programs typically have low statistical power, high levels of attrition or unexpected external problems (i.e., societal problems or natural disasters). These factors limit the long-term evaluation of HV intervention programs' effectiveness (Tanner et al., 2015). For example, even though the benefits of some HV parenting intervention programs for at-risk children were found to be sustained from childhood to adulthood (Belfield et al., 2006; Chazan-Cohen et al., 2009; Gertler et al., 2021; Jones-Harden et al., 2012; Olds et al., 1995; Walker et al., 2010; 2022), there is also contradictory evidence that demonstrate faded benefits in the long-term in different samples (Andrew et al., 2018; Ramey & Ramey, 2023; Vogel et al., 2013). Thus, the few available long-term follow-ups of HV intervention programs along with contradictory results limit our comprehension as to whether children continue to benefit from the HV intervention programs in subsequent years.

Between 2018 and 2020, Istanbul95 Family Guidance Program was implemented in collaboration with four local district municipalities in Istanbul as a pilot early childhood intervention via home visiting. This home visitation intervention program targeted socioeconomically disadvantaged families and was implemented by the municipality staff, who visited mothers biweekly in their homes from the last trimester of their pregnancy until their infants turned 18 months old. The main purpose of the program was to enhance maternal parenting skills with regular supervision, and in turn, to support healthy child development in terms of social, behavioral, and language domains. Even though benefits of the program have been found immediately after the program ended (Çorapçı et al., 2022; 2024), it was

unclear whether these benefits would be sustained in later years. Therefore, the main aim of the present study was to conduct a 3-year follow-up evaluation of this HIV program to examine the sustained benefits of the program in a subsample of intervention mothers and their 5-year-old children from the original study.

1.1 Poverty in early childhood years

Poverty includes multiple risk factors such that parents' inability to meet basic needs (e.g., to provide adequate nutrition to family), social exclusion from the community (e.g., facing discrimination), inaccessibility to services, adverse neighborhood conditions, and poor parenting including maltreatment (e.g., neglect and abusive parenting) (The Canadian Poverty Institute, 2017). Also, UNICEF (2021) defines poverty with the following six elements: having difficulty in meeting the needs of education, health, shelter, nutrition, water and sanitation. The two latest Lancet Series indicated that 43% of children under the age of 5 (Lu et al., 2016) and 53% of children under the age of 18 (The Lancet Child & Adolescent Health, 2023) in low- and middle-income countries live in poverty that constrain them from reaching their developmental potential. Importantly, children aged 0-9 years are the most negatively affected age group from adverse effects of poverty (The Lancet Child & Adolescent Health, 2023). Childhood poverty is not only caused by the low-level economic development of a country. Ironically, as countries get wealthier, children are more negatively affected from poverty (The Lancet Child & Adolescent Health, 2023). Moreover, among the developing countries, where 556 million children under the age of 18 live under poverty, childhood poverty rate is much higher than adult poverty. These children are deprived from accessible health services, education, nutrition and optimal living standards (The Lancet Child & Adolescent Health, 2023).

Poverty co-occurs with low levels of parental education and family income. Low-levels of parental education and family income are mostly conceptualized as low socioeconomic status (SES) in the literature (Oakes & Rossi, 2003). The low-SES, especially the low income, limits the families' and their children's accessibility to necessary resources such as healthy nutrition, medical care, stimulating materials, and rich neighborhood environment for optimal development in cognitive, behavioral, and social domains (Ayoub et al., 2018; Dailey & Bergelson, 2022; Yeung et al., 2002). Therefore, low SES is strongly related to preterm birth (McHale et al., 2022) and physical health problems from childhood throughout to adulthood (Spencer et al., 2013). Besides health risk factors, children of disadvantaged groups have less access to learning materials and rich environmental stimulations (i.e., complex language) that are crucial for school readiness skills and for later academic success (Duncan et al., 2010; Reardon, 2011). Moreover, growing-up in low-SES home environment in early years contributes to chronic and multiple stressors (e.g., chaotic environments, separation from caregivers) and poor parenting and caregiver-child interaction quality (Chaudry & Wimer, 2016).

Cross-sectional studies consistently indicate that children from economically disadvantaged families show higher levels of developmental delays during infancy (Troller-Renfree et al., 2022), more internalizing and externalizing problems (Hosokawa & Katsura, 2018), and higher levels of impulsivity and emotional dysregulation in preschool years (Doom et al., 2022), as well as heightened problems with peer relations in adolescence (Goosby, 2007). In addition, Lee and Zhang (2022) investigated the effects of poverty on children's socioemotional problems longitudinally. The results showed that low-SES children exhibited more problem behaviors (i.e., depressive symptoms, antisocial behaviors, social withdrawal), and

both their problem behavior scores and the SES-related gap among children increased between the ages of 5 and 12.

Research has also revealed that children with poorer social-emotional skills have poorer reading comprehension (moderate effect size; Yu et al., 2023), and poorer achievement (moderate effect size; Quilez-Robres et al., 2021). In line with these findings, the positive relationship between SES and school-related competencies (e.g., school readiness, academic achievement) is a robust finding in multiple studies and meta-analyses. For example, recent meta-analysis studies reveal a positive relationship between SES and academic achievement of school-aged children with a moderate effect size with samples from across the world (Liu et al., 2022), and a positive relationship with small-to-moderate effect size sample from developing countries such as India, China or Jamaica (Kim et al., 2019). Another meta-analysis has also shown a significant and positive association, yet with a small effect size, between SES and reading as well as linguistic skills from kindergarten to high school (Li et al., 2023).

Mastery in school-related and socioemotional skills is critical for preschoolers because school readiness predicts academic performance such as GPA in elementary (Ricciardi et al., 2021) and in middle school (Jozsa et al., 2022) as well as socioemotional development at 6th grade (Gregory et al., 2021). Therefore, improving preschoolers' school readiness, especially among low-SES children, might significantly contribute to their academic success in later years.

To summarize, disadvantaged conditions in terms of parental income and education, are related to grater problems in children's health, cognitive, social, and school-related outcomes, both concurrently and longitudinally. Without any intervention delivered to at-risk children, these negative outcomes are likely to

continue across the school entry years, and thus, the gap between advantaged and disadvantaged children more likely to get wider. However, if those disadvantaged children would experience intervention to promote their school-related skills, they might overcome the negative influence of low-SES on their academic performance and socioemotional well-being in later years.

1.2 Theoretical frameworks of the stimulation-based parenting programs

As the studies mentioned above indicate, poverty is a critical risk factor that negatively affects child development in various domains. In this section, prominent models will be presented to understand how and through which mechanisms poverty affects child outcomes.

According to the Family Investment Model and the Family Stress Model, the familial processes must be investigated to understand the effects of poverty on child development (Yeung et al., 2002). The Family Investment Model suggests that investment in materials such as a stimulating environment is related to cognitive development. According to the Family Stress Model parental psychological well-being and positive parenting are the main determinants of child outcomes, and those parenting behaviors could mediate the relationship between poverty and child problems.

The Nurturing Care Framework complements the Family Investment and Stress Models and points to the most important needs of children in the early years of life and how parents can address those needs (World Health Organization [WHO] et al., 2018). Accordingly, children need physical and psychological safety, good health, nurturance, developmentally appropriate environment, and good nutrition in early

years of life for healthy brain development as well as development in all domains (e.g., physical, cognitive).

The research on poverty and parenting quality generally support the predictions of these theoretical frameworks. As noted in the Nurturing Care Framework, parenting practices are one of the critical determinants of children's well-being from the early years throughout the adolescence (Daelmans et al., 2021; Kalra & Shah; 2023; Liew et al., 2018). Indeed, parenting has been shown to be an important mediator in the relationship between poverty and child development.

Research shows that children of disadvantaged groups such as minorities or low-SES have less opportunity to access nurturing care, learning materials and rich environmental conditions (e.g, complex language), which in turn impair their school readiness skills such as language comprehension, executive function ability (e.g., working memory capacity or inhibitory control) or social competence (Duncan et al., 2010; Reardon, 2011).

Lending support to the Family Stress Model, longitudinal studies have shown that poverty in the child's first year of life is negatively related to maternal mental health (e.g., parental stress), positive parenting (e.g., stimulating activities, warmth, supportive behaviors, positive discipline), and child's development (e.g., cognitive, language and behavioral development) from toddlerhood to school-aged years (Coley et al., 2021; Gard et al., 2020; Justice et al., 2019; Sosu & Schmidt, 2017).

The same relationship pattern between poverty, maternal well-being and child development was found among samples from diverse cultural backgrounds such as African, Hispanic and Asian immigrants or people live in far-east countries (Iruka et al., 2012; Shin & McCoy, 2022; Wu et al., 2020; Zhang et al, 2020), which supports the generalizability of these theoretical frameworks.

On the other hand, when low-SES children are exposed to high quality parenting (e.g., responsiveness, warmth, consistency, stimulation), they are less likely to experience poverty-related stress, and thus, more likely to display optimal development in self-regulation and executive function (Blair & Ku, 2022; Blair & Raver, 2012; 2015; Johnson et al. 2018) and this relationship is even stronger for children who experience extreme level of poverty (Brown et al., 2020). More specifically, when low-SES preschoolers experienced cognitively stimulating practices from their mothers, they performed better in school readiness and social maturity (McGroder, 2000), cognitive and language development (Lurie et al., 2021; Rosen et al., 2020), math, literacy and reading skills (Cabrera et al, 2020; Turnbull et al, 2022), and overall school readiness status (Okado et al., 2014) compared to their peers who experience fewer stimulating activities. Similarly, recent research conducted with Chinese preschoolers showed that low-SES children are more likely to have delayed cognitive school readiness skills (i.e., language), but, if they have experienced high level involvement from their parents, the negative influence of SES no longer exists (Xia, 2025). Available longitudinal research also shows that nurturing, stimulating and sensitive parenting in the first years of life contributes to toddlers' self-regulation and working memory skills (Kok et al., 2022), preschoolers' self-regulation, language development and social competence (Conway, 2020; Russell et al., 2016), and working memory and inhibitory control skills during early and middle childhood period (Khurana et al., 2024).

In summary, this growing body of evidence suggests that adverse conditions such as low-SES or risky environments both directly and indirectly (e.g., via parenting stress or parenting practices) impact the child's developmental domains. These findings also suggest that when parents display nurturing, warm and

stimulating parenting and build a strong relationship with their children during the early childhood period, children are more likely to have better cognitive, language, motor, and socioemotional development in later years with small to moderate effect sizes (Dreyer, 2020; Saitadze & Lalayants, 2020; Zhang et al., 2021). These findings imply that parenting is a promising target for preventive programs, especially for disadvantaged families with at-risk children (Clincy & Mills-Koonce, 2013; Molloy et al., 2021). In other words, if caregivers' well-being and parenting practices are supported, they would be more likely to provide nurturing care to their children (i.e., be able to meet the basic needs of health, safety, nurturance, cognitive stimulation), which would then increase the chances for children to reach their full developmental potential (WHO et al., 2018; Yeung et al., 2002).

1.3 The role of parenting programs on caregiving quality and child development

According to the findings presented above, it can be concluded that training families for nurturing care and stimulating practices should be primary elements of parenting interventions in early childhood period. Indeed, reviews on this topic indicate that the early childhood intervention programs, which provide cognitive stimulation and supportive parenting practices, are effective for at-risk children's healthy physical, cognitive, and social development in long-run (Jeong et al., 2021a; Tanner et al., 2015). Parenting programs developed to promote mothers' stimulating activities and supportive behaviors contributed to child development especially for at-risk children (e.g., immigrants or for those who live under disadvantaged conditions) with small and moderate effect sizes (Black et al., 2017; Fischmann et al., 2020; Jeong et al., 2021a; Jervis et al., 2023; Macbeth et al., 2015).

Growing research also shows that early parenting programs are cost-effective (Heckman, 2006; 2007; WHO et al., 2018), and they are more likely to provide successful outcomes than parenting programs delivered in later years, partly because brain is highly malleable in response to environmental conditions during early years of life (Black et al., 2017; Evans, 2001; Piccolo & Noble, 2019). Furthermore, it is easier to intervene in all child development domains before problem occur in any of these developmental domains. In other words, teaching toddlers to follow the rules is easier than intervening later when behavioral problems have become more resistant to change in later years. In addition, children, who received intervention in early years are more likely to end up as healthy adults, who earn optimal income and show positive parenting practices to their own children (Tanner et al., 2015; WHO et al., 2018). Therefore, to develop and apply early childhood development (ECD) programs for disadvantaged families and their children has begun to take a priority place on the agenda of researchers, policy makers and governments in the last decades (Çorapçı et al., 2024).

1.4 Home Visitation (HV) programs in early childhood years

The ECD programs differ regarding the delivery method that include visiting families and children in their own home settings or implementing an ECD program in out-of-home settings such as clinics or community service places, or a combination of both methods (Çorapçı et al., 2024; Jeong et al., 2021a). The effect sizes of the intervention delivery methods do not significantly differ from each other (Jeong et al., 2021b), yet there are some important differences between two methods that should be pointed out. In their nature, HV intervention programs have been designed to visit the at-risk and vulnerable families in their home regularly, starting

mostly before or immediately after birth and lasting about 2 to 3 years. These programs mainly target the caregivers in terms of supporting their positive parenting practices, consider parents as partners due to their critical impact on their child's lives, provide opportunity to home visitors to observe family dynamics in their daily environment to eventually enhance parent-child interaction and child well-being (Bornstein et al., 2022; Olds et al., 2000; van Assen et al., 2020). Moreover, the collaboration with community services is one of the important factors that provides success for HV programs in early childhood years (Britto et al., 2017; Duffee et al., 2017).

The home visitation programs can be grouped under two main parenting practices in terms of the methods used to enhance the targeted child outcome behavior. Some of the HV programs are mainly attachment-based and mostly focus on the children's socioemotional development as targeted child outcome. The home visitors in these intervention programs provide guidance to mothers about the importance of being sensitive, responsive and warm toward their infants and toddlers to have high quality parent-child interaction and securely based attachment relationship (Bakermans-Kranenburg et al., 2003; Mountain et al., 2017). Other HV programs aim to increase parents' cognitively stimulating practices to enhance parent-child interaction as well as children's development. The home visitors in these programs support and provide guidance to mothers in terms of playing styles, the importance of talking with and reading to the child, and how mothers could support their children regarding talking. The children of families receiving intervention within the scope of these stimulation-based programs generally show improvements in language and cognitive development (Alves et al., 2024; Miller et al., 2023; Shah

et al., 2016). Since the home visitation program examined in the current study is stimulation-based, more such programs will be reviewed in the following sections.

Even though they differ in procedure, intervention strategy, and sample characteristics, HV intervention programs during the first years of life enhance family functioning (Al et al., 2012; Duffee et al., 2017; Molloy et al., 2021), improve maternal sensitivity and attachment (Bakermans-Kranenburg et al., 2003; Mountain et al., 2017), increase parents' cognitively stimulating practices and parent-child interactions (Alves et al., 2024; Jervis et al., 2023; Shah et al., 2016) and enhance child language, socioemotional and behavioral development (Duffee et al., 2017; Jervis et al., 2023; Molloy et al., 2021; van Assen et al., 2020) with small to moderate effect sizes.

In their systematic review and meta-analysis, Jeong and colleagues (2021a) have examined the parenting interventions conducted for at-risk families in the first three years of child's life in 33 countries with randomized controlled trials. Even though these interventions were found effective for both parenting practices and child outcomes, the effect sizes of the programs were greater for parenting outcomes (medium-to-large effect sizes) compared to child outcomes (small effect size) (Jeong et al., 2021a). Moreover, the parenting interventions in early years were more beneficial for children's cognitive and language development rather than socioemotional development, and the programs were more promising in low-and-middle income countries compared to high-income countries (Jeong et al., 2021a ; Jervis et al., 2023; Zhang et al., 2021).

The OPRE 2019 Report and the Home Visiting Evidence of Effectiveness (HomVEE) are very comprehensive reports and reviews that compare different home visiting parenting interventions in terms of their strategy and outcomes (Paulsell et

al., 2010). Based on the OPRE 2019 Report, which consists of the comparison of four different home visiting early childhood programs (Early Head Start, Healthy Families America, Nurse-Family Partnership, and Parents as Teachers), these programs had promising positive results for child and parenting outcomes, though the effect sizes were smaller than the earlier studies (Michalopoulos et al., 2019). Moreover, there was no consistency in terms of child outcomes. For example, while some of these programs were found to benefit children's school readiness skills, others showed no long-term effects in this regard. However, it is important to note that the effectiveness of home visitation programs did not vary across different types of families, such as those of different nationalities or immigration statuses, indicating the programs' broad and global impact (Michalopoulos et al., 2019).

On the other hand, the HomVEE have examined 46 home visitation parenting interventions with randomized controlled trials (Sama-Miller et al., 2019; Supplee & Duggan, 2019). There are some critical points that should be pointed out. Firstly, the HomVEE has indicated that home visiting programs were effective for both parenting and child outcomes among at-risk families, albeit with small effect sizes. The drop-out rate of families was high after 1-year from the enrollment of the program. The fact that programs implemented in different samples had very similar strategies and procedures, makes it difficult to determine which variables play more critical role for which family dynamics (Paulsell et al., 2010; Sama-Miller et al., 2019; Supplee & Duggan, 2019). However, despite their small effect sizes and aspects that need improvement among these early childhood home visiting interventions, it can be stated that these programs are promising for at-risk families and their children. So, it is critical to examine whether these promising results are sustained or fade out in the following years after the interventions have ended.

1.5 Research on the long-term follow-ups of parenting interventions

To conduct long-term follow-ups is of great importance to understand the actual impact of an intervention as to whether the intervention effect was sustained in the following years, and why and how the effect of intervention was maintained or not (van Aar et al., 2017). In general, the three main patterns stand out based on the results of interventions with follow-up assessments: (1) sustained effects, meaning that intervention effects for parents and children remained over time, (2) fade-out effects, meaning that intervention effects for parents and children no longer exist, (3) or sleeper effects, meaning that the intervention effect for parents and children is not immediate upon the completion of the program but rather delayed and emerges over time as a self-enhancing mechanism like a snowball effect (Jeong et al., 2021b; van Aar et al., 2017).

If the reasons of those three patterns could be understood, revisions can be applied for the next parenting interventions to improve the ultimate benefits of these programs. For example, there could be several reasons for the fade out of positive impacts over time. First of all, as time passes, the child's developmental needs and milestones change due to his/her growing age (Vandell et al., 2006). For this reason, the effect of the home and family environment, where the intervention takes place, may differ as the child grows older or may dissipate over time. Secondly, some interventions adapt waiting list control design, which means that the control group families and children receive intervention after immediately the program has ended (Leijten et al., 2013). Although the control group families do not receive the same intervention in terms of length or comprehensiveness, they still experience support in terms of parenting practices. Therefore, the follow-up assessments lose the

randomized controlled trial design and the between group comparisons are not reliable in the follow-up assessments just as the post-test assessment.

On the other hand, follow-up assessments provide researchers an opportunity to detect potential sleeper effects of an intervention when the difference between the intervention and control children increases in time or a group difference exists in the follow-up assessment that was not found immediately after the intervention ended (Vandell et al., 2010). For example, Vandell and colleagues (2010) found that the higher child-care quality in early childhood period was positively linked to cognitive and language development and academic achievement in the adolescence period rather than earlier in development. It is likely that children who experienced high quality care showed greater improvement in cognitive development in the following years, and thus, the better cognitive functioning resulted in better academic achievement in adolescence period (Vandell et al., 2010). So, based on the long-term follow-up assessments results, researchers have a chance to understand the underlying mechanism that leads to improved developmental skills in later years.

As indicated above, even though home visiting early intervention programs are effective to increase positive parenting and facilitate better child outcomes for at-risk families and children, we know less about the long-term effectiveness of the home visiting programs. For example, in their review paper, Jeong and colleagues (2021b) indicated that the benefits of parenting intervention programs including home visitation programs, are likely to fade over time, especially in medium-term (4-9 years) and long-term (10+ years) across low- and middle-income countries, whereas short-term (1-3 years) benefits are more likely to be protected.

The parenting interventions via home visitation for at-risk families can be grouped based on the target children's age; from birth (or prenatal period) to age 3,

between the ages of 3-5, and from birth to school entry (Raikes et al., 2013). Among those programs, the Nurse Family Partnership and Early Head Start (from birth to age 3), the Perry Preschool Program (from 3 to 5 years of age), and the Abecadarian Project (from birth to school entry) investigated whether children in the treatment group had better outcomes in following years compared to the control group children.

The Nurse Family Partnership (Olds et al., 1995) and Early Head Start (Raikes et al., 2013) intervention programs are similar in terms of providing home visitation, recruiting participants during pregnancy or immediately after birth, lasting about until the child age of 24 to 36 months, providing regular visits and assessments, and targeting both parenting practices and child development for low-SES families. They differ with respect to the options of either home- or center-based care, and with respect to the characteristics of implementers (nurses vs. trained program staff). According to the post assessments of the Nurse Family Partnership and Early Head Start programs, children in the intervention group had more experience with stimulating materials, less physical injury, better home learning environment and better cognitive and behavioral outcomes compared to the control group children (Olds et al., 1995; Vogel et al., 2013). Also, the mothers in the intervention group displayed more supportive and less controlling parenting behaviors toward their toddlers than the control group mothers when the program has ended (Love et al., 2005; Olds et al., 1995; Vogel et al., 2013). Even though significant positive impact of the programs was obtained, the result of the long-term effectiveness is mixed. For example, Vogel and colleagues (2013) indicated a significant group difference for attentional and behavioral outcomes, whereas no difference was found for language and academic skills between groups when child

age 5 years old in the Early Head Start program. Similarly, the significant group differences were obtained with regard to harsh parenting, child abuse and children's behavioral adjustment at 9-year follow-up of the Early Head Start program, whereas no significant gain was obtained for intervention parents' well-being and family functioning (Fergusson et al., 2013). On the other hand, sustained benefits among the Early Head Start programs were documented for children's emotional regulation and school readiness at age 5 (Chazan-Cohen et al., 2009; Jones-Harden et al., 2012; Lin & Faldowski, 2023), and for positive parenting outcomes during middle childhood and adolescence (Green et al., 2020; McKelvey et al., 2015; Vogel et al., 2011).

The Nurse Family Partnership intervention program provided evidence for the long-term follow-ups over three-to-nineteen years for intervention mothers such that reduced alcohol and drug problems, better partner relationship, and longer time break between the first and second pregnancy. There were also long-term benefits for intervention children such as fewer arrest rates and conviction problems, and less juvenile and childbearing problems during adolescence compared to the control children (Eckenrode et al., 2010; Kitzman et al., 2000; Olds et al., 1998; Olds et al., 2010).

The Perry Preschool Program is a pioneering project for preschoolers. The program provided high quality preschool education for low-SES African American children by age 3 (Schweinhart, 2003). Children were randomly assigned to either the treatment group or the control group, and data was collected annually from 3 to 11 years of age, with an additional five more assessment points until the participants' age of 40. Different than Early Head Start and Nurse Family Partnership parenting interventions, the Perry Preschool Program targeted only children and aimed to educate them in a center-based care after age of 3. According to the annual and long-

term follow-up assessments, children in the treatment group showed better performance during school entry and school years, greater education performance, higher wages, and less arrestment throughout childhood to adulthood than control group children (Belfield et al., 2006; Schweinhart, 2003). In addition to immediate and long-term positive child outcomes, Belfield and colleagues (2006) also made cost-benefit analysis and concluded that the program cost is much less than the benefits because enrolled children are more likely to have higher monthly earnings and less likely to engage in crime, which are benefits for participants as well as for the general public.

Another randomized controlled trial intervention program with long-term evaluation is the Abecadarian Project for at-risk children from the first year of life until preschool period (Ramey & Ramey, 2023). Like Early Head Start and Nurse Family Partnership parenting interventions, children as well as parents are involved in this program. The original Abecadarian Project is a center-based intervention, which provides education and care to children in treatment group, whereas Project CARE includes a third group (in addition to control and Abecadarian early education group) in which children and parents receive home visits until 5 years of age. The results showed that in the original program, children in the treatment group got higher scores on cognitive and IQ tasks compared to the control group and this statistically significant difference emerged around 18 months of age and continued until the age of 5. In the replication Project CARE, the home visitors made weekly regular home visits to families in home-visit intervention group and trained them about the early education practices and provide them home stimulating materials for 3 years. Surprisingly, children in Abecadarian early education group (center-based intervention group) showed greater development in every assessment time points for

5 years than the control and home visiting group. There was no statistically significant difference between control and home visiting groups in terms of the child development. The researchers pointed out the importance of interaction with others and quality environment as a reason for the pattern of these result. It is much more possible to provide “8 hours / day, 5 days / week, 50 weeks / year” quality education to children in a center compared to parents’ efforts in the home (Ramey & Ramey, 2023). The follow-ups with regular intervals also indicated that the Abecadarian Project is very promising for center-based early education group from childhood to adulthood (until age 40). Children in the Abecadarian early education group had better academic achievement and lower retention rate throughout the adolescence, and higher employment rate, higher education level and cognitive scores, increased brain size, better social skills, and fewer physical health problems throughout the adulthood than the control group children (Ramey & Ramey, 2023).

As described above, even though both child and parenting center- and home-based interventions are promising to improve parenting behaviors and child development in different domains, the results about the sustained benefits of the programs are mixed. In the next section, the Reach Up and Learn Home Visitation parenting intervention program, which is the main focus of the current thesis study, will be examined in terms of immediate and long-term results.

1.6 The Reach Up and Learn Early Childhood Parenting Intervention Program

The Reach Up and Learn Early Childhood Parenting Intervention Program was developed in Jamaica in 1980s (Grantham-McGregor et al., 1991). This relationship-based HV parenting intervention targets nurturance and cognitive stimulation in the parent-child interactions to promote early child development (Grantham-McGregor

& Smith, 2016; Tamis-LeMonda et al., 2001). In this home visitation-based program, trained home visitors make regular and weekly or bi-weekly home visits and give training to mothers about how to talk, play, and interact with their children. They also communicate about the importance of reading early on and encourage parents to make their own toys with reusable materials at home. Since the program was developed, it has been adapted across the world in more than 10 countries, including Bangladesh (Tofail et al., 2013), India (Andrew et al., 2020; 2024; Grantham-McGregor et al., 2020), China (Zhou et al., 2022), South America regions (Araujo et al., 2021; Attanasio et al., 2014), the Middle East regions (Swing Wilton et al., 2021), and the South Africa regions (Galasso et al., 2019). The adapted versions of the Reach Up and Learn program targeted at-risk families and children in their first years of life, and the intervention duration ranged from 18-months to 36-months with the aim of enhancing child outcomes, or both the child and parenting outcomes together.

Growing evidence suggests that the intervention group participants showed significant gains in child development domains (e.g., cognitive, language, socioemotional, and motor development), parenting behaviors (e.g., stimulating parenting), and maternal well-being (e.g., maternal depressive symptoms) compared to the control group participants in Jamaican, Bangladeshi, Indian, Chinese, and South American samples when the program has ended (Andrew et al., 2020; 2024; Araujo et al., 2021; Attanasio et al., 2014; Grantham-McGregor et al., 2020; Grantham-McGregor et al., 1991; Tofail et al., 2013; Zhou et al., 2022). On the other hand, even though no significant gains have been documented in the Middle East and the South African regions due to the challenges of conjuncture of the region and program adaptation issues, there was still a trend in child development gains (Galasso et al., 2019; Swing Wilton et al., 2021) and stimulating parenting (Swing

Wilton et al., 2021). Both the original program in Jamaica (Grantham-McGregor et al., 1991) and adapted versions of the program in different regions (Andrew et al., 2020; Araujo et al., 2021; Attanasio et al., 2014; Galasso et al., 2019; Grantham-McGregor et al., 2020; Tofail et al., 2013; Zhou et al., 2022) had either cluster-randomized control trial or randomized control trial, with the exception of the adapted program in Middle East (Swing Wilton et al., 2021).

The original program conducted in Jamaica with randomized control trial indicated that among the total of 129 infants, children, who received both nutritional supplementation and stimulation intervention via home visitation, showed significant gains in weight and height growth, motor and language development, while their mothers' stimulating practices increased compared to the control groups within one-and-half year period (Grantham-McGregor et al., 1991). In a recent meta-analysis, Jervis and colleagues (2023) have reviewed 18 Reach Up and Learn program evaluations that were conducted with randomized-controlled-trials of 0-to-36 months of enrollment age. They found that the Reach Up and Learn early childhood intervention program was effective for young children's cognitive skills (with moderate effect size), language (with small effect size) and motor development (with small effect size) as well as for better stimulation in the home environment (with small effect size) across different countries. Moreover, it was found that when children enrolled to the intervention program after the age of 1, they benefited more in terms of development in cognitive, language, and motor development domains. Also, the programs that lasted less than 12 months were more effective than programs with longer duration, which it is probably due to the initial gains as soon as the program began. The mediational role of home stimulation was also found, albeit with a small effect size. The Reach Up and Learn intervention program that

increased the home stimulation environment was found to be more effective for child outcomes compared to maternal parenting or maternal well-being outcomes. Another important finding of the review was that undernourished children were the ones who benefited the most from the Reach Up and Learn program. Even though very few studies examined whether benefits of the program sustain over the years, two studies found sustained benefits (6 and 30 years of age in the original Jamaican sample), whereas researchers in Columbia did not find any sustained impact after 2-years. Finally, this review illustrated that the Reach Up program is as effective as when delivered via home visits or group sessions, which is a critical finding for cost-effectiveness.

More specifically, the sustained benefits were observed among the intervention group of Jamaican sample for cognitive gains such as higher IQ scores, for socioemotional gains such as less depressive symptoms of children in their adulthood years, for behavioral gains such as less risky behaviors, for educational gains such as higher scores on vocabulary and reading tasks, for economic gains such as earning higher wages between the ages of 6 and 30 years (Gertler et al., 2021; Walker et al., 2005; 2010; 2022). The treatment effect for IQ scores and risky behaviors was moderate, whereas the effect was large for depressive symptoms of children in their adulthood years. Moreover, the Bangladeshi intervention children without anemia showed improvement in mental development six years after the program ended compared to the control group, whereas no sustained benefits of intervention were found for undernourished children (Hossain et al., 2023). On the contrary, the follow-up studies of the Reach Up and Learn indicated that the benefits of the program for child outcomes were not sustained for Columbian (Andrew et al., 2018) and Indian (Andrew et al., 2024) samples. The researchers noted that,

compared to the program in Jamaica, the program's immediate effects in Columbian and Indian samples were too small to be sustained, their home visitors received less supervision, and the children in the Columbian sample were less disadvantaged than children in Jamaica. Therefore, more research is needed to examine the sustainability of the program impact and possible hindering factors for the benefits.

1.7 Poverty and early childhood intervention programs in Türkiye

In the case of Türkiye, one of the developing countries, the poverty rate is quite high; nearly half of the children under the age of 6 experience poverty (Dayıoğlu & Şeker, 2016). Osinubi and Olomola (2020) indicated that both economic (i.e., foreign investment) and social (i.e., enhancement in communicative and informative technologies) globalization have increased the income inequalities in Turkey from 1980 to 2018. According to the Organisation for Economic Co-operation and Development (OECD) report of 2023, income inequality and poverty rate in Türkiye is higher than average income rate of OECD countries, and Türkiye is the third country with the highest child poverty among OECD countries (OECD, 2023). Also, the report indicated that the inflation is high in the country, thus, the economic growth within the following years is expected to be relatively slow (OECD, 2023). Türkiye has also the lowest rate of early childhood education (between the ages 2 and 5) among all the other OECD countries, which is considered as very critical factor for academic achievement in later years (OECD, 2023). Türkiye has a very low spending rate for education, and the majority of young people are uneducated or unemployed (OECD, 2023). Moreover, as stated in the Deep Poverty Network report (2023), more than half of the children aged 3 and over in Türkiye do not receive early childhood education. Thus, even though Türkiye is one of the developing

countries, it still faces with high poverty rate, childhood poverty, income inequality, and low-level education.

The consequences of SES disparities for young children in Türkiye has been well-documented in the literature. For example, a study with infants and their mothers found that SES was positively linked to positive parenting behaviors (i.e., sensitivity, stimulating behaviors), and positive parenting was linked to high quality joint attention (mother-infant shared experience) (Koşkulu et al., 2021). Moreover, the mediating role of maternal behavior was found in the relationship between SES and mother-infant interaction. High-SES Turkish mothers showed more sensitive, stimulating and positive behaviors towards their infants, and in turn, the mother-infant quality shared experiences lasted longer (Koşkulu et al., 2021). In addition, children from high-SES family background displayed more pointing behaviors during infancy (Ger et al., 2023) and had better language development (i.e., vocabulary and lexical knowledge) during toddlerhood (Aksu-Koç & Aktürk Arı, 2022) compared to their low-SES peers. Similarly, in the study of Baydar and Akçınar (2015), a representative sample of 3-year-old children from different SES backgrounds were compared to examine the effects of SES on language development, externalizing problems, and prosocial behaviors. The SES groups were identified according to maternal education and family income. It was found that SES disparities were related to parenting practices as well as child developmental outcomes. Low SES Turkish mothers were less likely to present learning materials, and to display less stimulating and responsive behaviors to their children (Baydar & Akçınar, 2015). Also, children in the low SES group had lower scores on receptive vocabulary, prosocial behaviors, and higher scores on externalizing problems compared to children from high SES families (Baydar & Akçınar, 2015).

In the Turkish education system, all children who have completed 72 months are required to start primary school education. However, although preschool education is recommended by the Ministry of National Education, there is no obligation for schooling. For this reason, school readiness studies are very important for Turkish literature. The few available research conducted with Turkish preschoolers indicated the relationship between low-SES and stimulating parenting and school readiness. For example, according to the comprehensive report of early childhood development research in Türkiye, when low-SES parents provided more verbal input and cognitively supportive materials (e.g., books, pencils), their preschool-aged children had more likely to have better language skills compared to children who experienced fewer stimulating practices (Baydar et al., 2010). Similarly, a longitudinal study investigated the relationship between parenting practices and preschoolers' school readiness status among a nationally representative Turkish sample (Baştürk, 2013). It was found that stimulating parenting practices (e.g., providing books, use of elaborative talking, encouragement to learn numbers) about 53 months of age positively predicted children's school readiness status including language and numeracy skills and social competence one year later. A more recent cross-sectional study with the sample from low-SES background indicated that parenting stimulation mediates the relationship between poverty and preschoolers' school-readiness status (e.g., literacy and numeracy skills) (Okur-Ataş & Kazak Berument, 2023). The more families live in disadvantaged conditions, the less parents display stimulating practices, which in turn, contribute to children's poorer school readiness skills. All these findings together point out to the importance of stimulating parenting to enhance children's development as well as early intervention to reduce the negative influences of disadvantaged conditions.

The ramifications of SES inequalities were also found in different developmental domains of older children. Preschoolers from low-SES families had lower scores in mathematical knowledge (Polat Unutkan, 2007; Tok & Ünal, 2020), displayed lower-level attentional skills (Uyanık Aktulun & Keser, 2021), and had lower scores in vocabulary knowledge both concurrently and one year later (Ekerim & Selçuk, 2018) compared to their high SES peers. Also, being in the low SES group was strongly related to lower academic achievement in adolescents in reading, science, and mathematics domains (Erdem & Kaya, 2023). Besides the adverse role of low SES on child development across all developmental phases, low SES mothers were less likely to display positive parenting and responsive behaviors to their infants (Koşkulu et al., 2021), preschoolers (Baydar & Akçınar, 2015), and school-aged children (Gülseven et al., 2018).

According to a review paper by Şengönül (2022), even though high SES parents display more parental involvement (e.g., stimulating parenting, encouragement, quality interaction,) toward their children, those practices are particularly protective for low SES children. In other words, when low SES mothers' involvement strategies are enhanced, their children benefited more and showed greater increases in academic achievement compared to their high SES counterparts (Şengönül, 2022). So, parenting practices can be considered as one of the most promising elements to reduce the negative influence of poverty in early childhood period.

Taken together, being in the low SES relates both directly and indirectly (via parenting behaviors) to child development outcomes in a negative way from infancy to adolescence. This also necessitates the early prevention programs for both children and their families, and the examination of their short- and long-term effects. There

have been several attempts and policies to fight with poverty in Türkiye, yet the programs targeting children under the age of 3 are still scarce (Çorapçı et al., 2022). In the following sections, the intervention programs conducted in Türkiye that included home visitation and aimed to enhance parenting skills as well as child's well-being during early childhood period will be outlined.

1.7.1 Turkish Early Enrichment Project

The Turkish Early Enrichment Project (TEEP) was the most comprehensive early intervention program for at-risk families and their children conducted between 1982-1986 (Kağıtçıbaşı, 1997; Kağıtçıbaşı et al., 2001; 2009). This 4-year longitudinal intervention was delivered to families from low socioeconomic background in five districts of Istanbul. The program was implemented as a home based or center-based program, aimed to intervene at-risk children among their family environment by strengthening the positive parenting practices and well-being of the parents. At the end of the program, as well as in following years, the impact of this program was examined with respect to the children's academic and socioemotional skills.

During the first year of the program, preschool-aged children were assessed regarding their cognitive and socioemotional skills and their mothers were evaluated in terms of child-rearing practices and worldviews (Kağıtçıbaşı, 1997). During the second and third year of the study, the intervention was delivered to mothers in the intervention group whereas control group mothers received no training. The last year of the program was to assess and evaluate both children's cognitive and socioemotional development and their mothers' parenting skills. The training program for mothers had two main components: cognitive and mother-support. The cognitive component was adapted from the Home Instruction Program for Preschool

Youngster (HIPPY) of Lombard (1981) and was designed to enhance children's preliteracy and prenumeracy skills to make them ready for school by focusing on the language and problem-solving strategies. The cognitive component of the program was delivered to mothers via biweekly home visits and also group sessions were organized for mothers to communicate and discuss with each other about nutrition, parenting and spousal roles, and child's development. The mother-support component, on the other hand, included group discussion meetings in every 2 weeks. During these meetings, the mothers were trained about how to promote their children's socioemotional skills, and to be sensitive both their children's and their own needs (Kağıtçıbaşı, 1997).

At the end of the 4-year intervention program, the children of trained mothers showed better cognitive (i.e., higher academic grades, higher IQ scores) and social development (i.e., less aggressive behaviors, better school adjustment). On the other hand, intervention program increased mothers' attentiveness and responsiveness toward their children and their cognitively stimulating practices within 4-year period (Kağıtçıbaşı, 1997; Kağıtçıbaşı et al., 2001).

The benefits of the program were examined after 7- (Kağıtçıbaşı et al., 2001) and 19-years (Kağıtçıbaşı et al., 2009) later to see whether child- and maternal-related benefits would be sustained or not. The 7-year follow-up showed that children, whose mothers received four-year training, had higher school attainment rates and higher school grades in math and Turkish, and stated better peer relationship during adolescence compared to the control group children with no maternal training. On the other hand, mothers, who received training during the program, indicated better communication and interaction with their children and better family adjustment (Kağıtçıbaşı et al., 2001). The researchers concluded that

TEEP is a promising intervention program for low-SES families and their children and the benefits from the program are likely to be sustained for 7 years.

Nineteen years later, a long-term follow-up was conducted to examine whether a) the participants' cognitive gains would be sustained or not; b) there is a group difference in terms of socioeconomic status; c) there is a group difference in terms of life satisfaction, family relationship and parenting practices (Kağıtçıbaşı et al., 2009). The results showed that there was no significant advantage of participants, whose mothers received training, in terms of cognitive achievement, socioeconomic success, and family adjustment. However, there was a trend that participants, whose mothers received training, were more likely to enroll to a college and had a job with better salary compared to the control group participants. Even though the significant developmental gains were not sustained, this finding was not too surprising due to the long-time break of the program.

Based on the research results of the TEEP, the program was revised and transformed to an adult education program within following years (Kağıtçıbaşı, 1997). With the revisions and different components of project, the program was named as Mother Child Education Program. With the collaboration of researchers, nongovernmental organizations, Ministry of National Education and UNICEF, the program was disseminated around the different regions of Türkiye. As a result of the large dissemination of the program to with positive results, the Mother-Child Education Foundation (AÇEV) was established in 1993 (Vural Yüzbaşı & Buğan Kısır, 2023). Since its establishment, AÇEV has actively continued its activities for parents and their children with the aim of spreading throughout Türkiye, but mainly through center-based programs for economically disadvantaged mothers.

1.7.2 Video Feedback Intervention

One recent home visitation program, the Video Feedback Intervention for Positive Parenting (VIPP; Juffer et al., 2008) program has been evaluated with respect to its effectiveness for enhancing mothers' sensitivity and infants' (age ranged 9-to-33 months) attachment security with families live in Ankara and İstanbul (Alsancak-Akbulut et al., 2021; Sümer et al., 2020). In this attachment-based home visitation program, the mothers and their infants were randomly assigned to the intervention or control groups. The mother-child interactions at home were video recorded in the intervention group. From the videotaped interactions, the intervention mothers received both positive personal feedback for their parenting and playing styles as well as structured information about parenting and discipline strategies. The results indicated that intervention mothers benefited from the attachment-based VIPP in terms of sensitive parenting and sensitive discipline, and their physical intrusive behaviors decreased compared to the control group mothers. Also, the benefits of intervention remained stable at the 4-month follow-up assessment (Sümer et al., 2020).

1.7.3 İstanbul95 Family Guidance Home Visitation Program

İstanbul95 is an early childhood initiative, funded by Bernard van Leer Foundation and implemented by multiple partners such as universities, non-governmental organizations and urban designers. İstanbul95 combined the Urban95 and *Parents+* initiatives of the Bernard van Leer Foundation with the idea of enhancing both the proximal (family environment) and distal (neighborhood) contexts to support optimal child development (Çorapçı et al., 2022).

The initiative had three main goals: neighborhood mapping, home visitation, and family friendly public space transformations when looking at the cities from 95 cm that is the average height of a healthy 3-year-old child. The first component of the initiative was to develop a mapping system to identify at-risk neighborhood and to find the families in need for intervention. For this purpose, Turkish Economic and Social Studies Foundation and Kadir Has University Istanbul Studies Center worked in collaboration and revealed the number of children by region and their family income. By this way, the most disadvantageous children in İstanbul could be targeted for early intervention. The second component of Istanbul95 initiative was the transformation in the neighborhood for infants and toddlers to live in child-friendly streets or playgrounds.

Finally, the third component of the initiative was a home visitation program, entitled the Family Guidance Home Visitation Program, that was developed based on the Reach Up and Learn program (Walker et al., 2018), for economically disadvantaged families (Çorapçı et al., 2022). This home visitation program aimed to increase sensitive and stimulating parenting practices to promote healthy child development for families who live under disadvantaged conditions. Beyoğlu, Maltepe, Sarıyer and Sultanbeyli were four local district municipalities of Istanbul that were selected for the home visitation program. Starting from the prenatal period throughout the child's 18-months of age, bi-weekly home visits were implemented to families. Each visit was implemented by a trained municipality home visitor and included providing coaching to the mother for supportive parenting based on the adapted version of the Reach Up and Learn curriculum (Walker et al., 2018). The HV program also included a module for psychosocial support for the psychological well-being of mothers based on the Thinking Healthy (WHO, 2017) intervention program,

and provided handouts for healthy child nutrition based on the recommendation of Ministry of Health of Turkish Republic, UNICEF, and Physical Activity Towards Health (PATH) guidelines (Çorapçı et al., 2022).

One of the most critical targeted outcomes of the program was to increase mothers' stimulating parenting practices to promote better child development in cognitive, social, and language domains. For that purpose, home visitors demonstrated mothers about how to talk and play with their children using toys with recyclable materials, how to look at books and pictures, and encouraged them to make their own toys with recyclable materials. During home visits, mothers were asked to play with their children in the presence of home visitors, who then provided them positive feedback to encourage them and to improve their self-confidence. Home visitors also encouraged mothers to use everyday activities as a tool to talk and play with their children, and to show love and affection towards them.

As a second goal of the home visitation program, home visitors aimed to support mothers' psychological well-being to reduce the possibility of post-partum depression to eliminate the parenting stress within 6-months after the childbirth. The adaptation of Thinking Healthy (WHO, 2017) intervention program was delivered to mothers to improve their thinking strategies, emotional bonds to their children, and self-care practices as well as to reduce stress related to child-care. Lastly, to prevent the malnutrition in the first years of life, home visitors delivered handouts to mothers about the healthy nutrition and feeding practices at the end of each visit. The targeted areas were as follows; healthy feeding practices during pregnancy, the importance of breastfeeding, inculcating healthy eating habits when child was 6-months of age, and information about hygiene during feeding. The program was held between January

2018 and August 2020, with biweekly visits to families in the intervention group each lasted about 40 minutes.

Istanbul95 Family Guidance intervention program had a quasi-experimental group design and randomization was not possible because the municipalities aimed to reach every possible family until the quota for the home visits was full (Çorapçı et al., 2024). The intervention and control group mothers were also from different districts to avoid any possible interaction between the two groups in daily life. Moreover, since most of the families were invited to program during pregnancy, the pretest scores for parenting behaviors and child's developmental status were not available (Çorapçı et al., 2024). Data was collected from 526 intervention and control mothers as baseline score at the beginning of the study. At the end of the 18-months program period, data were available from 224 intervention mothers and 221 control mothers. During the intervention program, families in the intervention group received a comprehensive training and support from home visitors as described above, whereas the control group families were provided only developmental screening as part of the research evaluation. The baseline demographics, environmental and family risk factors, home chaos, maternal depression and parenting attitudes were collected in prior to the intervention (pretest). Both the mother- (i.e., postpartum symptoms) and child-related (i.e., language development) variables as well as the information about the home environment were collected at 9-months (midway through the intervention), and 18-months of age (post-test).

Midway through the intervention, the feedback from mothers indicated that they were mostly satisfied with the program and with visitors and reported positive experiences about the training and support they have received (Çorapçı et al., 2022). In addition to initial feedback from mothers, quantitative evaluations were also

conducted. According to the 18-months assessment scores, the intervention mothers displayed stimulating practices more often to their toddlers compared to control group. Also, the mediational role of stimulating parenting was found for toddlers' development. HV intervention improved intervention mothers' practicing stimulating behaviors toward their 9-months of infants, and in turn, their toddlers had better expressive language development, social competence and lower score on aggressive behavior compared to control group at 18-months assessment (Buğan Kısır, 2023; Çorapçı et al., 2024).

1.8 The purpose of the study

The main purpose of the current study was to examine the long-term role of the Istanbul95 Family Guidance Home Visitation Program for parenting and child outcomes as a 3-year follow-up study when children were at school entry. This follow-up study was conducted by reaching out to a subsample of the program's intervention and control group participants to evaluate mothers' current stimulating practices and their children's school readiness indicators. The first goal of the study was to investigate the group difference between the intervention and control preschoolers with respect to socioemotional development, vocabulary size and school readiness indicators. The second goal of the study was to investigate the group difference of the intervention and control group mothers' stimulating parenting practices. The third goal was to explore whether mothers' stimulating practices at 18-months would mediate the relationship between intervention status and children's development with respect to socioemotional development and school readiness at 5-years of age (see Figure 1 and 2 below).

1.8.1 The hypotheses of the present study

First, since the intervention children had better vocabulary skills and behavioral development (e.g., higher level social competence and lower level aggressive behavior) than the control children at 18-month assessment, a similar group difference in children's socioemotional development and school readiness indicators was expected. Secondly, according to the 18-month post-test assessment, the intervention mothers' stimulating practices were significantly higher than the control mothers and stimulating parenting at 9 months of age mediated the relationship between program participation and child outcomes at 18 months of age (Buğan Kısır, 2023). Therefore, a similar group difference as well as the mediating role in mothers' stimulating practices was expected in the follow-up study.

Considering the previous research, the hypotheses of the present study are listed below:

Hypothesis 1: Children in the intervention group were expected to have higher scores on school readiness skills, socioemotional development, and vocabulary size at 5-years of age compared to children in the control group.

Hypothesis 2: Mothers in the intervention group were expected to engage cognitively stimulating parenting practices more often when their children at 5-years of age compared to the control group mothers.

Hypothesis 3: Stimulating parenting practices at 18-months of age was expected to mediate the role of the intervention program on children's school readiness skills and socioemotional development at 5-years of age.

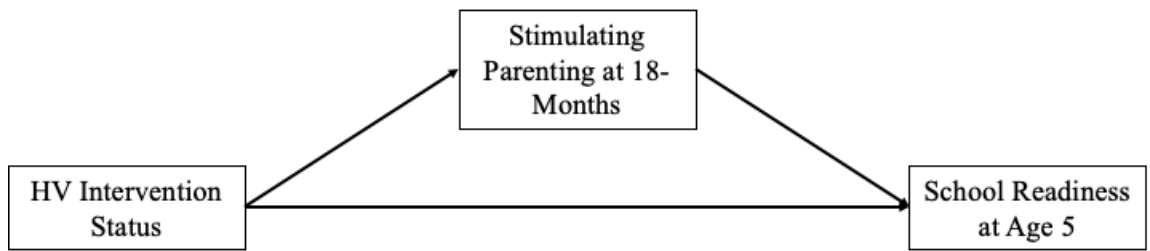


Figure 1. The hypothesized mediational model of the study for school readiness at age 5.

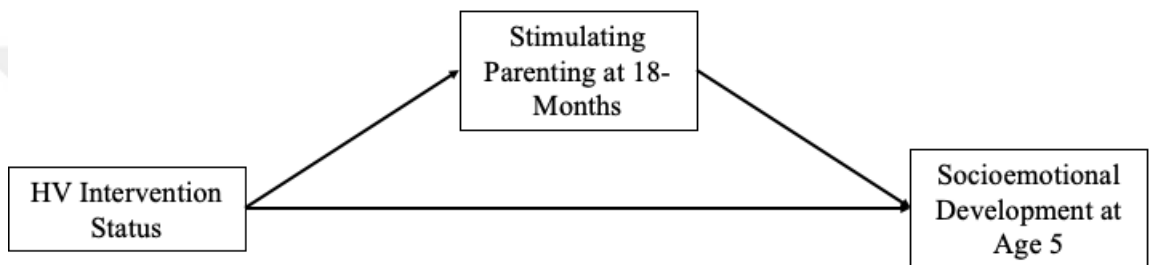


Figure 2. The hypothesized mediational model of the study for socioemotional development at age 5.

CHAPTER 2

METHOD

2.1 Participants

In the original Istanbul95 Family Guidance Home Visitation program that included Sultanbeyli, Maltepe, Beyoğlu and Sarıyer districts, there were 445 families ($N_{\text{intervention}} = 224$, $N_{\text{control}} = 221$) who participated in the program until their children reach 18 months of age. The sample for the present follow-up study came only from the participants living in Sultanbeyli given that the ease of collaboration with the district municipality.

Among 95 intervention and 87 control families who originally participated in the home visitation program in Sultanbeyli, 45 mothers from the intervention group ($M_{\text{age}} = 33.38$, $SD = 6.02$) and 41 mothers from the control group ($M_{\text{age}} = 34.92$, $SD = 6.18$) participated in the present study. The attrition rate from the end of the study when children were 18 months (T2) to the follow-up study at child age 5 years (T3) were 53% for the intervention group and 52% for the control group in Sultanbeyli. Please see the Attrition Analysis section for detailed analyses.

Most of the mothers (93% for the intervention and 80% for the control group) had less than high school degree. The majority of them (i.e., 95% in each group) were housewives. All mothers were married. An aggregated socioeconomic status (SES) score was computed with the standardized scores of mothers' and fathers' educational level and family income that were obtained in the baseline prior to the HV implementation (T1). The intervention and control groups in the current study did not differ with respect to this SES variable. According to the series of Welch's *t*-tests, among the other demographic variables, only fathers' age was significantly

different between the two groups in the current follow-up study such that control fathers ($M = 39.10$, $SD = 6.15$) were significantly older than intervention fathers ($M = 36.40$, $SD = 5.84$), $t(1,81.19) = 4.26$, $p = .04$.

A total of 34 children from the intervention group ($M_{\text{age}} = 63.62$ mos, $SD = 2.37$, range = 60-69 mos) and 34 children from the control group ($M_{\text{age}} = 62.47$ mos, $SD = 1.88$, range = 60-66 mos) participated in the follow-up assessment. Eleven children from the intervention group and seven children from the control group refused to participate in testing. A series of Welch's t -tests revealed that participant children in the intervention group ($M = 63.62$, $SD = 2.37$) were significantly older than children in the control group ($M = 62.47$, $SD = 1.88$), $t(1,62.69) = 4.88$, $p = .03$. On the other hand, children in the control group ($M = 2.35$, $SD = 1.10$) had significantly more siblings than children in the intervention group ($M = 1.82$, $SD = .80$), $t(1,60.21) = 2.28$, $p = .026$. For more information about the family and children's demographics, please see Tables 1 and 2.

2.2 Recruitment to the follow-up evaluation

Given that the current study is a follow-up evaluation, the previous participants of the program from the Sultanbeyli district were invited to participate. Mothers who were either in the intervention or control group as participants in the Istanbul95 Family Guidance Home Visitation program from the onset until the end in 2020, were invited when their target child was at least 60 months of age. In recruiting the families, the Sultanbeyli municipality initially sent a text-message to the mothers informing them about a call from a research team member in the following days. Thereupon, the researcher called the mothers, described the follow-up study and asked whether they would like to participate or not. Once a number of mothers have

agreed to join, a meeting date was set and a subsequent call was made to invite the consenting mothers to the municipality center with their children to participate in the follow-up study. The follow-up sessions were conducted between May and October 2023. Intervention and control mothers were invited to different sessions.

Table 1. Demographics of Parents in the Intervention and Control Groups

	Intervention Group (N=45)	Control Group (N=41)
	Mean (SD) or N (%)	
Mean age of mothers (SD)	33.38 (6.02)	34.92 (6.18)
Mean age of fathers (SD)	36.26 (5.84)	39.36 (6.15)
Employed mothers	2 (4.4%)	2 (4.9%)
Employed fathers	41 (91%)	39 (95%)
Mothers' education level		
Below than primary school	9 (20.9%)	12 (29%)
Primary school degree	21 (46.6%)	15 (36.6%)
Middle school degree	10 (22.2%)	4 (9.8%)
High school degree	3 (6.7%)	8 (19.5%)
Fathers' education level		
Below than primary school	3 (6.7%)	3 (7.3%)
Primary school degree	27 (60%)	21 (51.2%)
Middle school degree	7 (15.5%)	9 (22%)
High school degree	4 (8.8%)	4 (9.8%)
University	1 (2.2%)	2 (4.8%)
Mothers' education in years (SD)	6.05 (3.33)	5.80 (4.23)
Fathers' education in years (SD)	6.56 (2.80)	7.07 (3.46)
SES (SD)	-.08 (.71)	-.22 (.73)
Marital status		
Married	45 (100%)	41 (100%)
Mean number of total people living at home (SD)	5.2 (1.58)	5.44 (1.18)

Table 2. Demographics of Children in the Intervention and Control Groups

	Intervention Group (N=34)	Control Group (N=34)
	Mean (SD) or N (%)	
Gender (girl %)	16 (47%)	16 (47%)
Mean age in months (SD)	63.62 (2.37)	62.47 (1.88)
School status at the time of assessment		
Preschool	13 (38.2%)	19 (55.9%)
Religious Preschool (Subyan Mektebi*)	3 (8.8%)	3 (8.8%)
No attendance in early education	18 (53%)	12 (35.3%)
Mean number of siblings (SD)	1.82 (.80)	2.32 (1.15)
*Religious preschool is an informal child course held by mosques that aims to teach religious practices as well as age-appropriate activities.		

2.3 Procedure

The follow-up study involved the administration of the questionnaires for the mothers and standardized testing for the children followed by a seminar about children's school readiness. This seminar was offered as an incentive to encourage mothers' participation in attending the follow-up evaluation. Small groups of mothers (5-10 mothers) and their children came to the Sultanbeyli municipality center for participation. Upon their arrival to the center, mothers signed the informed consent form, and children were asked to give verbal assent (see Appendix A, B, C, & D). Next, children were taken in a nearby separate room, where trained undergraduate and graduate psychology students conducted standardized tests to evaluate children's school readiness, while mothers filled out a pack of questionnaires about family demographics, parenting and well-being, and their children's school readiness and socioemotional skills. After that, mothers listened to a seminar about school readiness presented by the researcher, and they had a chance to ask questions regarding child-rearing practices, especially about their children's school issues. At the end of the session, children were given stickers, and mothers received a food

support package as incentives. A total of 18 seminar sessions were conducted. The ethics approval for the present study was obtained from the Boğaziçi University Institutional Review Board (see Appendix E).

2.4 Measures

2.4.1 Mother report

2.4.1.1 Stimulating parenting

The items that were developed by HV program academic team for the main Istanbul95 Family Guidance program were used to measure mothers' stimulating parenting behaviors. Mothers were asked to answer questions by considering the last week and they rated each parenting behavior on a 4-point scale (1 = *never*, 4 = *5-7 days*) (see Appendix F). Six questions that were used in the 18-month posttest (T2) were kept the same to compare whether mothers' stimulating parenting behaviors changed over time. These questions included the frequency of (1) reading a book to the child, (2) playing with the child, (3) singing for the child, (4) talking with child during the chores, (5) giving crayons and notebook to the child, and (6) praising the child within the last week period. At child age 5-year follow-up (T3), three age-relevant questions (e.g., frequency of going out, counting numbers, and naming the objects around) were added to this questionnaire as indices of stimulating parenting in early childhood. The previous six questions were used to examine the pattern of change in stimulating practices from T2 to T3, whereas the average score of all nine items was used to examine the intervention and control group differences at T3. The Cronbach's alpha and the McDonald's Omega of this scale at T2 were .70 and .73 respectively, whereas both internal consistency measures for this scale in the current study (T3) were .80.

2.4.1.2 Child's socioemotional development

To measure children's socioemotional development, 14 questions from the UNICEF-Multiple Indicator Cluster Survey (MICS) Questionnaire for Children and Adolescents Age 5-17 (UNICEF, 2023) was used. The mothers answered questions about children's functioning such as getting dressed without help, playing with friends without having trouble for a while, and whether their children have difficulty in remembering things or not on a 4-point scale (1 = *never*, 4 = *always*) (see Appendix G). The Cronbach's alpha was .64 and the McDonald's Omega was .58 in the current study.

2.4.1.3 Child's school readiness

Children's school readiness was evaluated by asking 27 questions to mothers about their children's age-appropriate skills such as knowing their name, surname, age, address, some body parts, and colors (see Appendix H). The questions were taken from the Brigance Early Childhood Screen II (K & 1) (Brigance, 1992), which aims to screen kindergarteners' and first graders' physical, language, and academic/cognitive development that related to school readiness abilities. Mothers rated each item as *Yes* (1), *No* (0) or *Don't Know* (0). The sum of these 27 questions was used as mother-reported (M-R) school readiness score in further analysis.

2.4.1.4 Family demographics

Mothers answered questions about the family demographics, including their own and their husband's employment and marital status, as well as their children's preschool attendance, and number of siblings. The information about parental age and education level were taken from the baseline evaluation. In addition to these

demographic questions, those mothers in the intervention group reported their enrollment in the program (before or after pregnancy), how many months they have been participated, and whether their home visitor made visits regularly or not. These questions were asked to ensure the balance between mothers in terms of start time, frequency of visits and duration of the program.

2.4.1.5 Home visitation program evaluation

To assess the intervention mothers' satisfaction with the HV program that they attended retrospectively and their perceived program-related positive changes in their own parenting and children's development, a total of six questions were asked. The five questions inquired mothers to indicate as to whether the HV program provided knowledge and skills to provide their children healthy nutrition, to ask for social support for their own psychological well-being, how to play with their child more actively, and whether they consider themselves as a better mother. In the sixth question, they evaluated that whether their home visitor provided the support they needed for. They rated all questions using a 6-point Likert scale (1 = *totally disagree*, 6 = *totally agree*). They also answered two open-ended questions about the most helpful information and practices they have learned from their home visitor when they think in retrospect, and what knowledge and skills they still use from the HV program. They also evaluated the program duration, (i.e., as to whether the duration of the home visits should be shorter, longer, or whether the duration was enough) (see Appendix I).

2.4.1.6 Needs assessment for home visitation

Control group mothers, on the other hand, answered two open-ended questions about their challenges and needs after they gave birth (e.g., *“In what areas of child care did you have the most difficulty during the first three years after your child was born?”*) and whether they would prefer a support from a trained professional (e.g., *“Would you like to receive professional guidance/support regarding child care in the first three years after your child was born? How would you like this guidance/support to be provided to you (via a home visit or center-based activities) and about which specific topics?”*) (see Appendix J).

2.4.2 Assessment with children

2.4.2.1 Children’s school readiness

A total of 23 questions were asked to children to assess their general knowledge and developmental abilities that prepare them for school (Brigance, 1992). These were the same questions that mothers have also responded to in their questionnaire package. The questions pertained to the child’s knowledge about his/her name, surname, age, address, basic knowledge about math (i.e., counting to 10), body parts, and colors (see Appendix H). Trained undergraduate and graduate students administered this school readiness test to children and scored the child’s answers as either *Correct* (1 point), *Wrong* (0 point), or *Don’t Know* (0 point).

Due to the high standard deviations and variance of the subscales, the items that were too easy (i.e., 90% of children answered correctly) and those that were too difficult (90% of children answered wrong) were deleted. As a result, two questions about general information (saying the name and address), one question about the body-part knowledge (i.e., show me your nose) and seven questions about colors

(i.e., naming the red, blue, green, yellow, purple, black, pink) were deleted. The analyses were conducted with the shortened scale items as well as with the original scale items. Since there was no difference when using the shortened or the original scale scores, the total score of the 23 questions was used when analyzing the child-reported (C-R) school readiness level.

Children's school readiness was also assessed via the Metropolitan School Readiness Test (Hildert et al., 1965), which was adapted to Turkish by Oktay (1980). Three subscales were used for the present study: matching (12 items), numbers (24 items), and copying (10 items) (see Appendix K). Due to the high standard deviations and variance of the subscales scores, the items that were too easy (i.e., 90% of children answered correctly) and those that were too difficult (90% of children answered wrong) were deleted. Five questions from the numbers subscale (to write 9 in the box with the bird, to mark 12 buttons, to sum 4 and 4, to divide 1 lira into 10 kuruş, and to multiply 2 and 3), and one question from copying subscale (to draw the square) were deleted. The analyses were conducted with the shortened scale as well as with the total sum score of the original scale. Since there was no difference, the total number of correct answers of 46 questions was used in further analysis for the Metropolitan-school readiness level.

2.4.2.2 Children's vocabulary size

Children were shown a picture that included a daily life scene with people and animals, such as birds on the trees or children who are helping other adults (see Appendix L). Upon the presentation of this picture, children were asked two questions: (1) *What do you see in the picture?* (2) *What do you think these people are*

doing? Children's replies to these questions were transcribed verbatim for later coding of their vocabulary size.

To evaluate children's responses to the wordless-picture card, a narrative sampling method was used that involves counting the word groups, total words and unique words (Acarlar, 2005). Two coders blind to the children's intervention or control group status, in addition to the researcher of the current study, calculated the number of total words, unique words, names, adjectives (e.g., old, young), pronouns (e.g., they, nobody), adverbs (e.g., slowly), and verbs (e.g., read, sit, talk) for each answer. The total number of names, adjectives, pronouns, adverbs, and verbs was named as a "word group." The number of total words refers to all meaningful words that children said including word groups, conjunctions, as well as repetitive words. The number of unique words, on the other hand, refers to the total number of unique words children used during the conversation. More specifically, when children said the word "house" three times, it was counted as "3" for the number of total words, but it was counted as "1" for the number of unique words. The Intraclass Correlation Coefficients (ICC) between the researcher and two coders ranged between .98 (number of word groups) to 1.00 (number of total words).

The narrative sampling method measures preschoolers' vocabulary size and richness (Heilmann et al., 2010). This method provides the opportunity to evaluate a child's expressive language performance (Küçük Doğaroğlu, 2014). There are various studies in the literature that evaluated the preschool and school-aged children's language performance and examined its relationship between language, reading and academic achievement both concurrently and longitudinally by using narrative sampling method (Canlı, 2022; Channell et al., 2018; Karlsen et al., 2021; Murphy et al., 2022; Piştav Akmeşe & Başkan Çelikli, 2021). All these studies

indicated that the narrative sampling method is a reliable technique to measure children's expressive language, to predict children's academic performance in the following years, and there are replicable findings with higher test-retest reliability in the literature with different sample characteristics (e.g., children with intellectual disabilities). This method has also been found to be compatible with the standardized tests such as the Peabody Picture Vocabulary Test and Expressive Vocabulary Test (Acarlar, 2005). In addition, compared to standardized measurement tools, the narrative sampling method provides opportunity to detect the actual performance of children, who have floor level abilities (Channell et al., 2018) and allow children to behave comfortably as if they are holding a conversation in an everyday situation (Acarlar, 2005). Therefore, the narrative sampling method was preferred in the current study.

CHAPTER 3

RESULTS

3.1 Data analysis strategy

Firstly, the attrition analysis was conducted to see whether there is a significant difference between drop-out participants and follow-up participants in terms of demographics, parenting and child variables. Then, the 18-months post-test assessment (T2) scores were compared between follow-up intervention group and control group of Sultanbeyli district to investigate the T2 equivalence between groups. Since the mother-reported and child-reported variables in the current study had different sample sizes, the correlation coefficients were reported in two categories: mother-reported and child-reported. The Spearman rho (r_s) was reported as correlation coefficients between variables in the current study because it was found more robust for psychological research with high variance compared to Pearson correlation coefficients (de Winter et al., 2016). Also, r_s was found as more reliable statistic than Pearson correlation coefficient for small sample sizes, which is the case for the intervention and control groups in the current study (de Winter et al., 2016). Moreover, due to the small sample sizes of as well as the unequal variances between the intervention and control groups, the attrition analysis and group comparison in stimulating parenting and child outcomes were obtained based on the Welch's t -test, which is a better way to control of Type 1 error rates in social sciences compared to the Student's t -test (Delacre et al., 2017).

Finally, to examine the underlying mechanism whether and how the intervention program impacted the mothers' parenting and children's developmental outcomes at the time of follow-up (T3), the mediational models were run with

PROCESS Macro v4.2 for SPSS 25.0. The intervention status was a dichotomous variable (0 = Control, 1 = Intervention) and treated as predictor. The indirect effect of the HV intervention through the 18-month stimulating parenting (T2) on children's developmental outcomes (T3) was examined in addition to direct effect of the program. Maternal education (in years) was used as covariate in the hypothesized mediational models in the current study as this variable was positively and marginally associated only with children's socioemotional development ($r_s = .34, p = .06$) in the intervention group, and it was positively and significantly associated with children's socioemotional development ($r_s = .46, p = .003$) and the Metropolitan school readiness ($r_s = .41, p = .017$) in the control group. Finally, to understand the intervention mothers' satisfaction with regard to HV program, and the control mothers' need for assistance and guidance in previous years, the common contents of their answers to the open-ended questions were examined.

3.2 Preliminary analysis

Prior to main analyses, the data were screened for minimum and maximum values, normality (skewness and kurtosis), and outliers for the whole sample as well as for the intervention and control groups separately. Among both parental (stimulating parenting) and child outcome variables (socioemotional development, child's school readiness scores, vocabulary size), the skewness (< 2) and kurtosis (< 7) values were in acceptable ranges (Bryne, 2010; Hair et al., 2010). In addition to the skewness and kurtosis values, each variable was also screened for whether they have any excess value of z-score. Tabachnik and Fidell (2013) and Kim (2013) suggested that the cut-off point of z-score should be ± 1.96 for small sample sizes ($n < 50$). Based on the z-score values, one score of stimulation parenting and two scores of children's

socioemotional development were lower than the cut-off point (-1.96). Therefore, winsorizing was applied and these three scores were recoded with the next lowest score (Tabachnik & Fidell, 2013; Tukey & McLaughlin, 1963; Wilcox, 2017). The remaining parental and child variables showed normal distribution.

3.3 Attrition analyses

In the current study, attrition percentages in the subsample from the Sultanbeyli district from the end of the study to the follow-up study were 53% for the intervention group and 52% for the control group over 3 years since the last evaluation at the child age of 18 months. Since approximately 50% attrition rate is considered as acceptable for early childhood home visitation intervention programs (Brand & Jungmann, 2014; Gomby, 2005), the attrition rates in this study can also be considered as acceptable due to the long-time break. Twenty-six mothers from the intervention group and 14 mothers from the control group were unreachable since their mobile phone numbers were not used anymore. Furthermore, 26 mothers (25%) from the intervention group and 32 mothers (36%) from the control group explicitly stated that they did not want to participate in the follow-up study. A series of Chi-square tests of independence and Welch's *t*-tests were conducted to see whether mothers who participated in the present follow-up study and those who did not want to participate differed significantly from each other in terms of participants' demographics (parents' age, parents' education, child gender, SES) and previous post-assessment scores (T2) (i.e., 18-month assessments of stimulating parenting, child's problem behaviors, social competence, and language development). For the intervention group, a Welch test indicated that the mothers who participated in the current study had spouses with fewer years of schooling ($M = 6.76$, $SD = 3.01$) than

those who withdrew ($M = 8.46$, $SD = 2.76$), $t(1, 56.650) = 5.68$, $p = .02$. For the control group, a Welch test indicated that the mothers who participated in the current study reported higher levels of child problem behaviors at the 18-month post-assessment ($M = 0.42$, $SD = 0.11$) compared to mothers who refused participation ($M = 0.36$, $SD = 0.14$), but this difference was only marginally significant, $t(1, 53.98) = 3.67$, $p = .06$. Other demographics and study variables were not significantly different from each other, neither in the intervention nor in the control groups.

An additional attrition analysis was conducted to examine whether there is a difference between all 445 main study participants (224 intervention and 221 control families) and 86 current study participants (45 intervention and 41 control families) in terms of demographics (parents' age, parents' education, child gender, sibling) and study outcomes (i.e., 18-month assessments of stimulating parenting, child's problem behaviors, social competence, and language development). A series of Chi-square tests of independence and Welch's t -tests were conducted for the intervention and control groups separately. For the intervention group, the Welch tests indicated that the follow-up mothers ($M = 5.95$, $SD = 3.25$) and fathers ($M = 6.76$, $SD = 3.01$) had fewer years of schooling than the original study mothers ($M = 7.35$, $SD = 3.38$) and fathers ($M = 7.97$, $SD = 3.17$), $t(1, 62.52) = 6.24$, $p = .015$, and $t(1, 63.13) = 5.39$, $p = .023$, respectively. On the other hand, the follow-up intervention children had significantly lower problem behaviors ($M = 12.55$, $SD = 3.90$) compared to the original study children ($M = 20.08$, $SD = 8.52$), $t(1, 140.53) = 75.72$, $p < .001$. Further, the follow-up intervention children ($M = 14.69$, $SD = 2.31$) had also significantly lower scores in social competence compared to the original study children ($M = 16.18$, $SD = 3.91$), $t(1, 101.46) = 10.57$, $p = .002$. Among the control group, the follow-up children ($M = 13.03$, $SD = 3.37$) had significantly lower

problem behavior score than the original study children ($M = 19.54$, $SD = 10.06$), $t(1, 181.34) = 51.73$, $p < .001$. Moreover, the follow-up mothers ($M = 3.68$, $SD = .45$) reported that they displayed significantly more stimulating practices towards their children compared to the original study mothers ($M = 3.09$, $SD = .92$), $t(1, 112.68) = 35.72$, $p < .001$.

3.4 Testing the intervention and control group equivalence at T2 assessment

As a first step, data at T2 (18-month assessment) upon the completion of the HV program was compared for the intervention and control mothers who agreed to participate in the follow-up study. Children's expressive language measured by the Turkish Communicative Development Inventory (Türkçe İletişim Gelişim Envanteri; Aksu-Koç et al., 2019), which is the Turkish version of McArthur-Bates Communicative Development Inventory (MB-CDI; Fenson et al., 2000), as well as problem behavior and social competence scores measured by the Turkish version of the Brief Infant-Toddler Social and Emotional Assessment Scale (BITSEA; Briggs-Gowan & Carter, 2002; Karabekiroğlu et al. (2009), were not statistically different between this subgroup of follow-up intervention and control groups at child age 18 months. The Welch's t -tests also indicated that there was no statistically significant difference in stimulating parenting between this subgroup of follow-up intervention and control mothers at the 18-month assessment.

3.5 Bivariate correlations

Table 3 shows bivariate correlations among the demographics, parenting and child outcome variables for mother-reported variables, whereas Table 4 shows bivariate correlations among the child-reported variables. It is important to note that the

variables that relied on mother ratings came from 45 intervention mothers and 41 control mothers. Yet, since some children refused to participate in the follow-up assessment, the sample size for child-reported variables came from 34 children in each group. The upper side of each table shows the Spearman rho (r_s) correlation coefficients in the intervention group, whereas below the diagonal shows the Spearman rho (r_s) correlation coefficients in the control group.

3.5.1 Mother-reported variables

Among the intervention group, the child's age was significantly and positively correlated with preschool enrollment and mother-reported school readiness. Preschool enrollment was also significantly and positively correlated with mother-reported school readiness. Accordingly, older children scored higher on mother-reported school readiness than younger children. Also, older children were more likely to be enrolled in a preschool than younger children. Moreover, children who were enrolled in a preschool got higher scores on mother-reported school readiness compared to unenrolled children. Child sex, maternal education, stimulating parenting and children's socioemotional development were not significantly associated with any other variables (See Table 3).

Among the control group, child age was significantly and negatively correlated with mother-reported school readiness. Mothers of older children reported lower school readiness skills compared to mothers of younger children. This finding was inconsistent with existing literature. The possible reason for this inconsistent finding might be the high variance of the variables and low sample size. Maternal education was significantly and positively correlated with children's socioemotional development. Stimulating parenting was positively and significantly correlated with

children's socioemotional development and mother-reported school readiness.

Children whose mothers displayed more cognitively stimulating practices got higher scores on both socioemotional development and school readiness skills compared to children whose mothers displayed fewer stimulating practices. Lastly, there was a significant and positive association between children's socioemotional development and mother-reported school readiness. Child sex and preschool enrollment were not significantly correlated with any other variables (See Table 3).

3.5.2 Child-reported variables

In the intervention group, child age was positively and significantly associated with preschool enrollment, mother-reported school readiness, and child-reported school readiness. Preschool enrollment was positively and significantly correlated with mother-reported school readiness and Metropolitan school readiness. Children who were enrolled in a preschool were more likely to get higher scores on school-related skills compared to those who were not enrolled. Maternal education was positively, though marginally, associated with children's socioemotional development. All three school readiness scores (Mother-reported, Child-reported, Metropolitan) were positively and significantly correlated with each other. Finally, all three vocabulary size scores (number of word group, number of total words, number of unique words) were positively and significantly correlated with each other only. Child sex was not significantly correlated with any other variables (See Table 4).

In the control group, child age was significantly but negatively correlated with mother-reported school readiness. Mothers of older children tended to report more negatively their children's school readiness skills compared to mothers of younger children. As indicated above, the possible reason for this inconsistent

finding might be the high variance of the variables and low sample size. Maternal education was positively and significantly associated with Metropolitan school readiness. For the school readiness scores, Metropolitan school readiness was positively and significantly correlated with both mother- and child-reported school readiness, whereas there was no significant association between mother-reported and child-reported school readiness scores. Finally, child-reported school readiness and Metropolitan school readiness were both significantly and positively associated with the vocabulary size scores, yet with different patterns. Child-reported school readiness was positively and significantly associated with number of word groups and number of unique words, but not with number of total words. Metropolitan school readiness was positively and significantly related with all three vocabulary size scores (number of word group, number of total words, number of unique words), yet the significance of the association with number of unique words was marginal. On the other hand, there was no significant relationship between mother-reported school readiness and three vocabulary size scores. Child sex, preschool enrollment, and children's socioemotional development were not significantly correlated with any other variables (See Table 4).

Since the three vocabulary size scores was computed from the same set of items, there is multicollinearity between these three variables both in the intervention and the control groups.

Table 3. Bivariate Correlations Between Demographics, Parenting and Mother-Reported School Readiness and Socioemotional Development at Child age 5-Year Follow-Up (N = 86; N_{Intervention} = 45, N_{Control} = 41)

Variables	1	2	3	4	5	6	7
1. Child age	-	.12	.51***	-.23	-.26	-.22	.52***
2. Child sex	.28	-	.03	.29 [†]	.14	.16	.26
3. Preschool enrollment	.25	.10	-	-.17	-.22	-.12	.37*
4. Maternal education	.05	-.06	.13	-	.07	.22	.23
5. Stimulating parenting	-.22	-.28	-.16	.24	-	.23	.06
6. M-R Socioemotional development	.08	.03	-.09	.46**	.42**	-	.14
7. M-R school readiness	-.43**	-.05	-.17	.29	.41**	.35*	-

Note. Child sex: 1 = boy, 2 = girl. Preschool enrollment: 0 = not enrolled, 1 = enrolled. M-R = mother-reported. The results for the intervention group were shown above the diagonal and the results for the control group were shown below the diagonal.

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4. Bivariate Correlations Between Demographics and Child Outcomes at Child age 5-Year Follow-Up (N = 68; N_{Intervention} = 34, N_{Control} = 34)

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Child age	-	.27	.46**	-.20	-.08	.55***	.36*	.24	-.15	-.29	-.22
2. Child sex	.26	-	.06	.27	.14	.28	.20	-.01	.15	.01	.15
3. Preschool enrollment	.14	.04	-	-.18	-.10	.44**	.27	.40*	.09	.04	.02
4. Maternal education	.14	.01	.24	-	.34 [†]	.28	.16	.13	.10	.13	.21
5. Child's socioemotional development	.18	.01	-.06	.42	-	.20	.24	.23	.14	.06	.20
6. M-R school readiness	-.42*	-.05	-.07	.19	.15	-	.64***	.46**	.07	.01	.06
7. C-R school readiness	-.12	.01	.19	.17	-.04	.16	-	.50**	-.24	-.30	-.24
8. Metropolitan school readiness	.20	.09	.15	.41*	.25	.38*	.40*	-	.21	.06	.19
9. Verbal skill – # of word group	-.01	-.09	.17	.07	.06	.17	.36*	.37*	-	.86***	.98***
10. Verbal skill – # of total words	-.06	.07	.08	.27	.29	.16	.32	.38*	.89***	-	.87***
11. Verbal skill – # of unique words	-.01	.02	.19	.25	.20	.20	.35*	.33 [†]	.96***	.95***	-

Note. Child sex: 1 = boy, 2 = girl. Preschool enrollment: 0 = not enrolled, 1 = enrolled. M-R = mother-reported. C-R = child-reported.

The results for the intervention group were shown above the diagonal and the results for the control group were shown below the diagonal. [†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

3.6 Change in stimulating parenting from posttest (T2) to age 5-year follow-up (T3)

To examine the change in mothers' stimulating practices from the period of child age 18 months to child age 5 years, the same six questions from the post-test assessment were asked again to intervention and control mothers in the follow-up assessment. Firstly, the analysis to examine the change in stimulating parenting were conducted for the intervention and control mothers separately to examine the overall change of pattern between two time points. Then, an additional 2x2 Mixed Model ANOVA was conducted to examine whether the change in stimulating parenting was similar across the intervention and control groups by testing the Time by Group Interaction.

The paired sample *t*-tests indicated that mothers' stimulating practices significantly decreased from the 18-months post-test assessment (T2) to the 5-year follow-up (T3), both in the intervention group ($t(44) = 3.60, p < .001$) and in the control group ($t(40) = 6.08, p < .001$) (See Table 5).

A series of paired sample *t*-tests were conducted for each item of stimulating practices to see age-appropriate difference clearly. As seen in Table 5 below, each stimulating practices significantly decreased from T2 to T3 in the intervention and control groups, except for the "giving paper-pencil to the child." The score of this item has significantly increased in the intervention group only ($t(44) = -2.46, p = .018$). Furthermore, the decrease in stimulating practices from T2 to T3 was less in the intervention group than the control group for overall score and for the items concerning reading, playing, singing, and talking with the child.

Table 5. Mean Scores of Stimulating Parenting at T2 and T3 in the Intervention and Control Groups

	Intervention Group T2	Intervention Group T3	<i>t</i>	Control Group T2	Control Group T3	<i>t</i>
Reading books	3.20	2.63	$t(44) = 2.55$ $p = .014$	3.29	2.41	$t(40) = 4.36$ $p < .001$
Playing	3.89	3.29	$t(44) = 4.29$ $p < .001$	3.85	3.10	$t(40) = 4.61$ $p < .001$
Singing	3.67	3.00	$t(44) = 3.11$ $p = .003$	3.70	2.88	$t(40) = 4.86$ $p < .001$
Talking	4.00	3.59	$t(44) = 3.30$ $p = .002$	4.00	3.51	$t(40) = 3.59$ $p < .001$
Praising	3.89	3.22	$t(44) = 3.71$ $p < .001$	4.00	3.32	$t(40) = 4.98$ $p < .001$
Giving paper-pencil	3.00	3.47	$t(44) = -2.46$, $p = .018$	3.22	3.46	$t(40) = -1.10$ $p = .243$
Stimulating practices- Total score	3.62	3.20	$t(44) = 3.60$ $p < .001$	3.68	3.11	$t(40) = 6.08$ $p < .001$

Moreover, a 2x2 Mixed Model ANOVA was conducted to examine the change in stimulating practices from T2 to T3 as a function of group condition. A 2x2 Mixed Model ANOVA was conducted to investigate the main effects of Time (T2 vs. T3) and Group (Intervention vs. Control), and also the Time by Group interaction in stimulating parenting total score. Exploratory analyses were also conducted with each stimulating practice item as a dependent variable as well. Results have shown that there was a significant main effect for Time towards a decrease in frequency in the total score and item-level stimulating parenting, the effect sizes ranging from $\eta_p^2 = .07$ (giving paper pencil) to $\eta_p^2 = .34$ (total score). However, there was neither a Group main effect nor a Time by Group interaction effect in stimulating practices. See Table 6 below for detailed analysis results.

Table 6. Results of the 2x2 Mixed Model ANOVA for the Time and Group Main Effects and Time by Group Interaction

	Effect of Time	Effect of Group	Interaction Effect
Reading books	$F(1,84) = 22.88,$ $p < .001$	$F(1,84) = .16,$ $p = .69$	$F(1,84) = 1.07$ $p = .30$
Playing	$F(1,84) = 39.98,$ $p < .001$	$F(1,84) = 1.18,$ $p = .28$	$F(1,84) = .50,$ $p = .48$
Singing	$F(1,84) = 28.98,$ $p < .001$	$F(1,84) = .09,$ $p = .76$	$F(1,84) = .33,$ $p = .57$
Talking	$F(1,84) = 23.86,$ $p < .001$	$F(1,84) = .18,$ $p = .67$	$F(1,84) = .18,$ $p = .67$
Praising	$F(1,84) = 34.60,$ $p < .001$	$F(1,84) = .96,$ $p = .33$	$F(1,84) = .00,$ $p = .94$
Giving paper-pencil	$F(1,84) = 6.46$ $p = .01$	$F(1,84) = .45,$ $p = .51$	$F(1,84) = .64,$ $p = .43$
Stimulating practices-Total score	$F(1,84) = 43.11,$ $p < .001$	$F(1,84) = .01,$ $p = .94$	$F(1,84) = 1.12,$ $p = .29$

3.7 Hypothesis testing

3.7.1 Group differences for the child outcomes at T3

The first hypothesis of the current study predicted that the intervention children's socioemotional development, school readiness, and vocabulary size scores would be significantly higher than their control group counterparts in the follow-up (T3). The mean scores and standardized deviations of the child outcomes for each group were presented in Table 7. Results of the Welch's *t*-tests revealed that preschoolers in the intervention group and those in the control group did not differ significantly from each other in terms of socioemotional development, $t(1,80) = .04, p = .83$, Cohen's $d = .04$.

Preschoolers' school readiness level based on mother report did not differ significantly between the intervention group and the control group, $t(1,74) = 1.27, p = .26$, Cohen's $d = .24$. School readiness level based on child report (Brigance test scores) also did not differ significantly between the intervention group and the control group, $t(1,66) = .20, p = .64$, Cohen's $d = .11$. Finally, school readiness level measured by the Metropolitan test did not differ significantly between the intervention group and the control group, $t(1,62) = .78, p = .63$, Cohen's $d = .22$.

Next, intervention and control group differences in preschoolers' vocabulary size (i.e., the number of word groups, number of total words, and number of unique words) were examined separately with Welch's *t*-tests. There was a statistically significant difference between the intervention and control children in terms of the number of total words ($t(1,51) = 5.35, p = .025$, Cohen's $d = .59$ (medium effect)) and number of unique words ($t(1,57) = 6.09, p = .017$, Cohen's $d = .63$ (medium effect)). Results showed significantly higher number of total words and unique words among children in the intervention group when describing the picture card

than children in the control group. The number of word groups was also higher in the intervention children compared to the control children, though the difference was marginally significant, $t(1,60) = 3.50, p = .064$, Cohen's $d = .47$ (small effect).

3.7.2 Group differences for stimulating parenting at T3

The second hypothesis of the present study predicted that the intervention mothers would display stimulating parenting practices to their children significantly more frequently than the control group mothers in the follow-up (T3). The analysis was conducted with average score of the 9-item stimulating practices survey. The Welch's t -test indicated that mothers in the intervention group and in the control group did not differ significantly in total score of stimulating parenting practices, $t(1,84) = .09, p = .76$, Cohen's $d = .07$. Another Welch's t -test was conducted with the average score of 3 new age-appropriate questions (e.g., frequency of going out, counting numbers, and naming the objects around). The results indicated that the intervention and the control group mothers did not significantly differ in displaying these practices, $t(1,82.68) = .03, p = .95$, Cohen's $d = .01$ (See Table 7 for details).

3.7.3 The indirect role of the program on the 5-year-old child outcomes via 18-months stimulating parenting

To test the third hypothesis, two separate mediation analyses were conducted with PROCESS MACRO Model4. In the first model, the mediating role of mothers' stimulating practices at 18-months posttest assessment score in the relationship between HV intervention and children's school readiness at 5-years of age were tested by controlling for maternal education. Since 18-months (T2) stimulating parenting was only significantly and positively associated with the Metropolitan

school readiness ($r_s = .39, p = .02$), this variable was used to examine the path through children's school readiness level in the mediational model. The diagram for the first model is shown in Figure 3. The direct path from enrollment in HV program to stimulating parenting and to child's school readiness as well as indirect path of HV enrollment to children's school readiness via stimulating parenting were examined.

Table 7. Mean Scores and Standard Deviations of Child Outcomes and Stimulating Parenting at Child age 5-Year Follow-Up

	Intervention Group	Control Group
Socioemotional development	3.49 (.25)	3.48 (.28)
M-R school readiness	20.93 (4.03)	21.76 (2.60)
C-R Brigance school readiness	16.26 (4.12)	15.82 (3.96)
C-R Metropolitan school readiness	20.38 (7.32)	18.78 (7.18)
Verbal skill - # of word group	27.26 (10.32)	22.64 (9.38)
	Range = 6 - 52	Range = 5 - 48
Verbal skill - # of total words	46.06 (24.36)	34.03 (15.65)
	Range = 6 - 100	Range = 10 - 67
Verbal skill - # of unique words	30.06 (11.95)	23.35 (9.30)
	Range = 6 - 60	Range = 5 - 42
Stimulating practices-9 questions	3.25 (.54)	3.22 (.52)
Stimulating practices-3 questions	3.35 (71)	3.36 (73)
<i>Note.</i> M-R = mother reported, C-R = child-reported.		

Contrary to expectation, the direct as well as indirect effects were not statistically significant. Neither the HV enrollment ($\beta = .23, S.E. = 1.77, p = .34$) nor the stimulating parenting ($\beta = .08, S.E. = 1.84, p = .51$) directly predicted the school readiness. The indirect effect of HV intervention via stimulating parenting for children's school readiness was also non-significant ($\beta = -.08, S.E. = .29, 95\% \text{ CI } [-.67, .56]$).

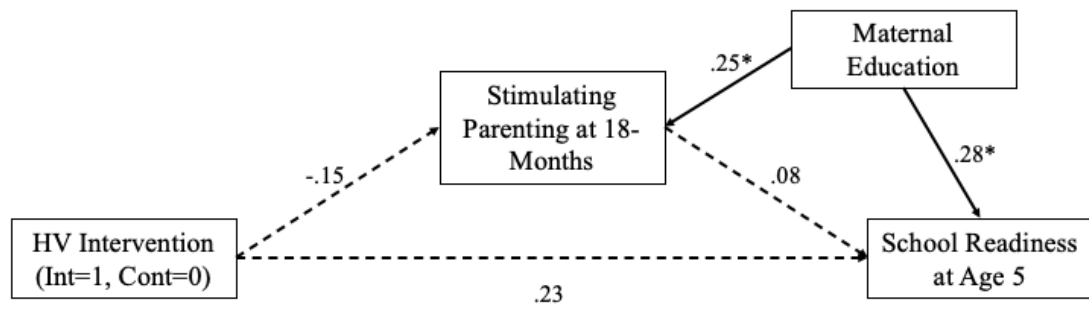


Figure 3. Mediation model for children's school readiness

Note. Standardized beta coefficients were shown in the figure. Nonsignificant paths were shown with dashed lines. HV Intervention: 1=Intervention Group, 0=Control Group. The indirect effect: 95% bias-corrected bootstrapped CI [-.67, .56].

† $p < .10$; * $p < .05$.

In the second model, the mediating role of mothers' stimulating practices at 18-months posttest assessment score in the relationship between HV intervention and children's socioemotional development at 5-years of age were tested by controlling for maternal education. The diagram for the second model is shown in Figure 4. The direct path from enrollment in HV program to stimulating parenting and to children's socioemotional development as well as indirect path of HV enrollment to children's socioemotional development via stimulating parenting were examined.

Contrary to expectation, the direct as well as indirect effects were not statistically significant. Neither the HV enrollment ($\beta = .01$, $S.E. = .05$, $p = .73$) nor the stimulating parenting ($\beta = .13$, $S.E. = .06$, $p = .22$) directly predicted the socioemotional development. The indirect effect of HV intervention via stimulating parenting for children's socioemotional development was also non-significant ($\beta = -.01$, $S.E. = .01$, 95% CI [-.03 .01]).

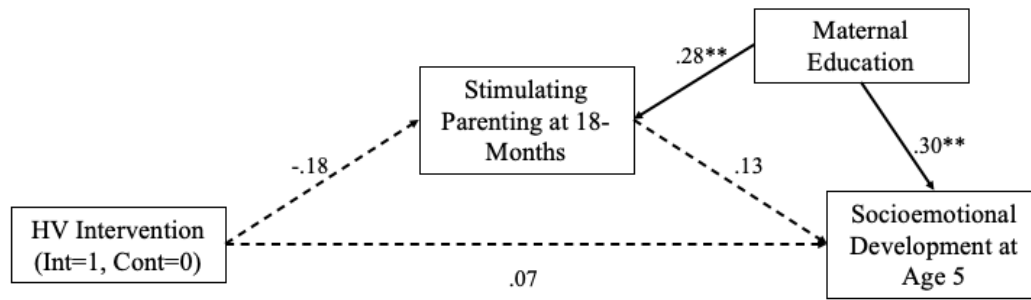


Figure 4. Mediation model for children's socioemotional development

Note. Standardized beta coefficients were shown in the figure. Nonsignificant paths were shown with dashed lines. HV Intervention: 1=Intervention Group, 0=Control Group. The indirect effect: 95% bias-corrected bootstrapped CI [-.03 .01].

† $p < .10$; * $p < .05$; ** $p < .01$.

3.8 Supplementary analysis of preschool enrollment and child outcomes

To test whether there is an effect of the preschool enrollment on the children's school readiness skills, children who were enrolled and were not enrolled to a preschool have been compared in the intervention and control groups. Since the preschool enrollment was only significantly associated with the Metropolitan school readiness in the intervention group ($r_s = .40, p = .02$), this variable was used in these analyses. In the intervention group, the Welch's t -tests indicated that children, who were enrolled to a preschool had better school readiness skills compared to children were not enrolled, $t(1,30) = 6.93, p = .013$, Cohen's $d = .92$ (large effect). However, among the control group, school readiness of children who were enrolled in a preschool and those who were not enrolled did not differ significantly, $t(1,23) = .32, p = .58$, Cohen's $d = .21$ (See Table 8 for means and standard deviations). Finally, a univariate ANCOVA was conducted to examine the interaction effect of Group by Preschool Enrollment on school readiness skills controlling for maternal education. There was no main effect of group on the Metropolitan-school readiness level, F

(1,58) = 1.20, $p = .28$. However, the main effect of preschool enrollment ($F(1,58) = 4.59, p = .04$) as well as the interaction effect ($F(1,58) = 4.26, p = .04$) on children's school readiness level were statistically significant (See Figure 5).

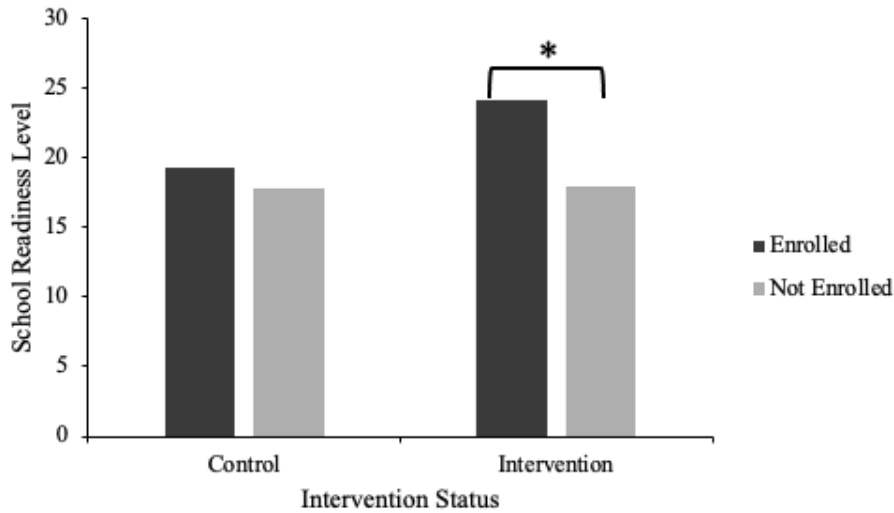


Figure 5. The difference between children's school readiness level with respect to treatment group and preschool enrollment.

The role of the preschool enrollment was also examined for the children's socioemotional development. The Welch's t -test indicated that there was no statistically significant difference between children who were enrolled to a preschool and those who were not enrolled in terms of socioemotional development in the intervention group ($t(1,35) = .63, p = .43$, Cohen's $d = .25$) and in the control group ($t(1,29) = .28, p = .60$, Cohen's $d = .17$) (See Table 8 for means and standard deviations). Since there was no significant effect of preschool enrollment on children's socioemotional development, interaction effect was not examined.

Table 8. Mean Scores and Standard Deviations of Children’s School Readiness and Socioemotional Development based on Preschool Enrollment at Child age 5-Year Follow-Up

	Intervention Group		Control Group	
	Enrolled to a Preschool M (SD)	Not Enrolled to a Preschool M (SD)	Enrolled to a Preschool M (SD)	Not Enrolled to a Preschool M (SD)
C-R School readiness	23.67 (6.00)	17.47 (7.31)	19.33 (7.14)	17.83 (7.46)
Socioemotional development	3.46 (.23)	3.52 (.27)	3.46 (.28)	3.51 (.29)
<i>Note.</i> C-R = child-reported				

3.9 Quantitative and qualitative results about mothers’ satisfaction with the HV program

Intervention mothers in the current study responded to six questions to report their satisfaction with regard to HV program. The average score of the mothers’ satisfaction about the program was 5.32 ($SD = 1.06$, range = 1.50-6.00) (See Table 9 for details of mothers’ responses). Most of the mothers (ranging from 33% to 42% among questions) rated the items as “*totally agree*”, which indicates the highest satisfaction with related question. Overall, intervention mothers were highly satisfied with the HV intervention program and their home visitors. Among six questions, the three highest scoring items were “*I played games with my child more actively*”, “*I started to have a closer relationship with my child*”, and “*I started to see myself as a better mother*”, whereas the three lowest scoring items were “*I learned how to feed my child with healthy nutrition*”, “*I learned that I can ask for support from those around me when I have a difficulty*”, and “*My home visitor was able to provide me the support I needed for*”. In addition to six questions about satisfaction with regard

to HV program, mothers were also asked about their satisfaction regarding duration of the program. Among 45 mothers, 20 mothers (44%) indicated that the program duration was good enough whereas 22 (49%) mothers indicated that they would prefer it to be longer (i.e., until the child is 5 years old).

Table 9. Mean Scores and Standard Deviations of Intervention Mothers' Responses to Questions Regarding HV Program Satisfaction

	<i>M (SD)</i>	Range
I learned how to feed my child with healthy nutrition	5.31 (1.38)	1.00-6.00
I learned that I can ask for support from those around me when I have a difficulty	4.78 (1.82)	1.00-6.00
I started playing games with my child more actively	5.55 (1.03)	1.00-6.00
I started to have a closer relationship with my child	5.48 (1.11)	1.00-6.00
My home visitor was able to provide me the support I needed for	5.27 (1.45)	1.00-6.00
I started to see myself as a better mother	5.56 (1.16)	1.00-6.00
Total Score	5.32 (1.06)	1.50-6.00

In addition, there were also two open-ended questions about the early childhood HV intervention program both for the intervention and control group mothers. Intervention mothers were asked to write down the most helpful information and practices their home visitor taught to them and which of these practices they still use. Control mothers, on the other hand, were asked about the challenges during the first years after they gave birth and their preference for support about childrearing in those years.

Among 45 intervention mothers, 42 mothers (93%) answered the open-ended questions. For the first question, pertaining to the most helpful information and practices they have learned from their home visitor, the answers were classified into three categories: knowledge and/or practices about (1) child development, (2) child-care (e.g., breastfeeding, skin-to-skin contact), (3) parenting (e.g., use of materials for interaction).

In the case of child development, 13 mothers (29%) indicated that their children were good at learning colors, numbers, and self-feeding, and these mothers considered their child's motor, language and cognitive development as better than their peers. They considered themselves as knowing and being competent to evaluate the child development stages. Ten mothers (22%) indicated that they learnt the critical importance of newborn period and the practices they should focus on (e.g., breastfeeding, skin contact, massage), and they learnt to create sleep and bath routines. Pertaining to the third category, 28 mothers (62%) indicated that they learnt how to play and interact with their newborn, to be sensitive and responsive towards the child, and to use the materials they have received from their home visitor such as the blocks and children's picture books. In addition to these categories, 5 mothers (11%) indicated that they have had a close relationship with their home visitor, and two mothers (4%) reported that they were more likely to ask for help from others as a result of what they have learned from their home visitor.

For the second question, the mothers were asked about whether there is any practice they have learned from the HV program and continue to use till this time. Nine mothers (20%) indicated that they still read books and try to talk with their child as much as possible to support their child's development. Seven mothers (16%) reported that they still display feeding practices they have learned from the program,

and they continue to limit their child's screen time. In terms of caregiving, 18 mothers (40%) indicated that they have learned to establish a closer, one-to-one relationship with their child, and have become more sensitive and patient towards their children. These mothers also noted that they feel more self-confident as a result of the program and continue their close and sensitive caregiving with their preschoolers. Lastly, 15 (33%) mothers reported that they still keep and use the materials that their home visitor brought such as the picture books and blocks.

In the control group, 25 mothers (56%) responded to open-ended questions about the challenges in the first year after giving birth to their child. Seven mothers (16%) indicated that their children displayed temper tantrums and excessive crying, and they had difficulty in understanding the reasons for these emotional meltdowns and in dealing with these situations. Seven mothers (16%) noted that they have had difficulties in dealing with delays in their child's language development or toilet training. Thirteen mothers (29%) indicated that they have had difficulty in managing their child's feeding, bath and sleep routines and establishing the toilet training. Four mothers (9%) who had their first babies endorsed that they felt inefficient in their mother role and struggled when trying to keep a balance between their responsibilities for their infant and daily chores. Lastly, two mothers (4%) indicated that their challenges during the first year after their child's birth were mainly financial problems.

In response to the second question as to whether they would have liked to receive a support to enhance their knowledge about parenting and child development in early years, 11 mothers (27%) stated that they would not want to receive any support because the older siblings were helping them with childrearing as well as household chores. Other 14 mothers (34%) stated they would have preferred to

receive support about positive parenting skills such as proper breastfeeding, sleep routines and healthy feeding practices, and limit setting, as well as support in dealing with sibling relationship and limiting screen time. Eight of these fourteen mothers (20%) indicated that they would have preferred home visits, whereas other four mothers (10%) would have preferred psychological support for themselves or support for practical life skills such as learning to read and write.



CHAPTER 4

DISCUSSION

Istanbul95 Family Guidance Program, an early childhood initiative based on the evidence-based Reach Up and Learn (Grantham-McGregor et al., 1991), was implemented between 2018 and 2020 in four local districts of Istanbul (Beyoğlu, Maltepe, Sarıyer, Sultanbeyli) to improve at-risk children's home environment and developmental skills, as well as to empower their parents' caregiving practices.

Home visitors conducted biweekly visits from the prenatal period throughout the children's first 18 months of life to intervene mothers' parenting skills and to provide stimulating materials to infants and toddlers. The aim of the current study was to evaluate whether the intervention mothers and children showed better parenting and child development competencies, respectively, three years after the program has ended compared to their counterparts in the control group. Given the high degree of collaboration of the Sultanbeyli district municipality and given that a relatively large number of participants of the original sample came from this district, mothers from the Sultanbeyli district were invited for the follow-up study when their children were at the age of school entry.

The current study had three main hypotheses. Firstly, children in the intervention group were expected to have higher scores on school readiness skills, socioemotional development, and vocabulary size at 5 years of age compared to children in the control group. The results partially supported the purposed hypotheses. There was no statistically significant difference between the intervention and control group children's school readiness level based on their scores on the Brigance and Metropolitan tests. They also did not differ significantly in

socioemotional development outcomes based on mother ratings. However, when preschoolers' vocabulary size was assessed with a standardized task that relied on narrative sampling (i.e., describing a picture card), the intervention children produced a higher number of words as well as unique words compared to the control children.

Secondly, mothers in the intervention group were expected to engage cognitively stimulating parenting practices more often when their children were 5 years of age compared to the control group mothers. Contrary to the expectation, there was no statistically significant difference between the intervention and control group mothers' stimulating practices. Overall, the frequency of mothers' displaying stimulating practices towards their children decreased from 18-months to 5-years of age, in both the intervention and control groups. Yet, the frequency for giving paper-pencil to the child significantly increased among intervention mothers. The same pattern was not observed among control mothers.

Thirdly, stimulating parenting practices at 18-months of age was expected to mediate the role of the intervention program on children's school readiness skills and socioemotional development at 5 years of age. Contrary to this expectation, there was no indirect role of the HV program on children's outcomes (school readiness and socioemotional development) at school entry through the stimulating parenting at 18-months of age.

Finally, a supplemental analysis has shown that intervention children who were enrolled to a preschool showed significantly better performance on Metropolitan school readiness test compared to children who were not enrolled. However, the same pattern was not observed among the control children.

In the sections that follow, the evaluations of significant and non-significant findings are discussed.

4.1 The program's long-term role on children's school readiness

In support of the first hypothesis, intervention children showed better vocabulary size than control children with medium effect size (Cohen's $d = .59$ and $.63$) when their vocabulary size was measured by counting the number of words they used to describe a picture card, a narrative sampling method, commonly used in the literature to measure children's vocabulary knowledge and richness (Heilmann et al., 2010). This difference was noteworthy given that the significant relationship between vocabulary size at school entry and future child outcomes such as academic achievement (i.e., math and reading ability), self-regulation (i.e., learning behaviors), and emotion regulation in kindergarten and school periods (Clemens et al., 2023; Fields-Olivieri et al., 2024; Ramsook et al., 2020). More importantly, there is evidence from previous studies that the vocabulary size measured by this narrative sampling method in the early childhood period predicted better language competence (Murphy et al., 2022), literacy achievement (Lee, 2011) as well as reading ability (Babayigit et al., 2020) during the school-aged period. In light of this past research evidence, these narrative sampling findings of the present study suggest that the rich vocabulary knowledge of the intervention children may confer them an advantage over the control group children in terms of school readiness.

Also, when enrolled into a preschool, intervention children had higher scores in terms of school readiness skills measured by Metropolitan test compared to the control group children, also enrolled into a preschool. This finding suggests that the intervention children have benefited more from the educational inputs provided in

the preschool setting. Even though this difference cannot be solely due to the HV program, one can argue that intervention children were used to have a relationship with a person like a teacher. Also, their environment during the first years, critical for brain development, had more stimulating features given the materials home visitors brought and due to their encouragement of the mothers to display stimulating practices. The intervention, also, may have increased their ability to learn new skills (Andrew et al., 2024). As a result, when these children attended preschool, one can speculate that they were more open to benefit from these experiences. On the other hand, previous experiences of the intervention mothers might also have played a role. Those intervention mothers who had already experienced the benefits of having a home visitor have most likely learned about the importance of promoting their children's learning skills and have acquired a positive perspective towards schooling (Fridani, 2021). Consequently, they might have been more motivated to enroll their children in preschool and to support their children in terms of learning activities, and this perspective might have indirectly influenced their children's openness to receive educational inputs.

Considering the advantage of intervention children in vocabulary sizes compared to the control children, this finding was partially consistent with past research on the long-term effects of HV programs. In their meta-analysis, Jervis and colleagues (2023) indicated that among 18 studies, only two studies reported sustained benefits (medium- and long-term benefits for Jamaican sample), whereas one study reported no sustained benefit for 2-year follow-up. There was evidence from the Jamaican sample with a randomized-controlled trial that the immediate positive impact of the original Reach Up and Learn HV program implemented from perinatal period to child age at 3-years old was sustained for children's cognitive and

behavioral outcomes measured by standardized tests (i.e., the Wechsler Preschool and Primary Scale of Intelligence, the Peabody Picture Vocabulary Test) at age 6 (Walker et al., 2010), and some benefits were reported till adolescent and adulthood years (Walker et al., 2022). Similarly, the adapted version of Reach Up and Learn for Indian sample (Andrew et al., 2024) has shown positive impacts for toddlers' IQ score, numeracy and literacy skills at 18-month assessment with a clustered randomized controlled trial design. However, the program's positive impact continued for children's numeracy and literacy skills only, not for IQ score, when they were at 7 years of age. The sustained benefits with regard to language performance at school-aged years were obtained for both follow-up studies (Andrew et al., 2024; Walker et al., 2010).

On the other hand, when school readiness was measured by the Metropolitan and Brigance tests in the present study, the intervention and control group children had similar school readiness scores at child age of 5 years. Another long-term evaluation of the Reach Up (e.g., adapted version in Columbia) also did not detect a long-term positive impact when using a randomized controlled design. There was no significant group difference of preschoolers' school readiness-related skills such as cognitive and behavioral development measured by standardized tests (i.e., the Spanish versions of Woodcock–Johnson Tests of Cognitive Abilities and Achievement, the Peabody Picture Vocabulary Test, and the Strengths and Difficulties Questionnaire) 2 years after the program ended (Andrew et al., 2018).

There might be a number of reasons for the null finding. The sustained benefit was only obtained for vocabulary size, which was measured by unstandardized narrative sampling method, but not for school readiness scores that combine different skills such as mathematical skills or general knowledge. So, the

long-term benefit when measured with standardized tests might fade over time for such composite measures. For example, Early Head Start programs, both center- and home-based, that lasted from the perinatal period throughout the first three years of life of at-risk children, have shown immediate positive impact for toddlers' cognitive, language, and socioemotional development with a moderate effect size of the intervention (Love et al., 2022, Administration for Children and Families (ACF), 2002). However, follow-up results of the programs conducted with different samples showed different results. The sustained benefits of the home-based program were found for preschoolers' attentional skills, approaches to learning and behavioral development (Jones-Harden et al., 2012; Vogel et al., 2013), whereas no group difference was found for preschoolers' vocabulary and achievement scores (Vogel et al., 2013) in the national samples. Thus, one can conclude that the sustained benefits of the program vary by child outcomes. Moreover, although the significant differences between the intervention and control groups were sustained from age of 3 to 5 years for attentional, learning and behavioral skills, the magnitude of the difference at age 3 was the same as the magnitude at age 5. Yet, the significant positive impact of the program from age of 2 to age of 3 years was larger than the difference from age of 3 to 5 years (Vogel et al., 2013). So, either the control children closed the gap as they grow older, or the intervention children failed back due to the less stimulating environment after the program ended.

Secondly, the original Istanbul95 Family Guidance Home Visitation program found small effect with regard to intervention benefits on children's behavioral and language development at 18-month assessment. There were 445 participants (224 intervention and 221 control participants) in the original study and the measurement was done with standardized tests for all child outcomes variables, yet the effect was

small. Therefore, an effect that was already small is very hard to be detected in a follow-up assessment with a smaller sample size using unstandardized tests (Jeong et al., 2021b).

Thirdly, some group differences and benefits for parents and children might occur in the following years, after the intervention ended, which is called as sleeper effect (Jeong et al., 2021b; van Aar et al., 2017). Even though follow-up assessments provide researchers opportunity to detect the sleeper effect (Vandell et al., 2010), it is important to note that the sleeper effect for the current intervention program might occur during school-aged periods. In another words, the intervention children's higher vocabulary size might be critical for those children's performance during the first or second grade of the school rather than the performance in the preschool period.

Another reason might be children's nutritional status. For example, when the sustained benefits of adapted version of the Reach Up and Learn for at-risk Bangladeshtian families and their children were examined, the intervention children without anemia showed improvement in mental development, measured by standardized tests (i.e., the adapted version of the Wechsler Abbreviated Scale of Intelligence, the Performance Reasoning Index), right at the end of the program and six years of the program ended (Hossain et al., 2023). This finding suggests that long-term benefits, when measured using standardized tests, are more likely to emerge among well-nourished children. Although the current study did not collect information about the children's nutritional status, Sultanbeyli is the third district with the lowest annual household income and one of the districts with a high number of illiterate women in Istanbul based on the sociodemographic analysis of Istanbul in 2020 (İstanbul Valiliği, n.d.).

Finally, The Metropolitan School Readiness Test was developed in 1965 (Hildert et al., 1965) and adapted to Turkish in 1980 (Oktay, 1980). The questions as well as cut-off points to detect developmental delays have been determined more than 40 years ago. The pictures in the subscales are outdated and hard to understand for children since they do not have exposure these objects in their daily life. Therefore, this inventory needs to be updated in order to measure the school readiness of children born and raised in the age of developing technology more reliably and validly. Since the pictures in the Metropolitan test were hard to understand and outdated, the Brigance Early Childhood Screen II (K & 1) was used as a complementary tool to assess children's school-related abilities. The Brigance Early Childhood Screen II (K & 1) (Brigance, 1992) was developed more than 30 years ago, and no psychometric study has been done with Turkish sample. Therefore, to update the questions and to make standardization of the inventory with Turkish sample could provide more reliable results for evaluation of children's school readiness abilities. Moreover, children might more actively engaged with unstandardized and colored picture card compared to standardized tests. So, they may not have been able to reflect their true performance because of the difference in their motivation and collaboration between tasks.

In summary, based on the follow-up results of the Reach Up and Learn HV program, one can conclude that even though both original and adapted versions of this HV program provided positive outcomes for mothers' stimulating practices as well as children's developmental outcomes upon the completion of the program, the long-term impact of this program have shown contradictory results such that the long-term outcomes varied by child outcomes and by country.

4.2 The program's long-term role on children's socioemotional development

Contrary to expectation, there was no statistically significant difference between the intervention and control children's socioemotional development scores based on their mothers' ratings. Both groups had very similar mean scores that were very close to the maximum score of the scale. So, the similar mean scores indicate a potential ceiling effect and social desirability bias in both groups of mothers.

Moreover, the attrition analysis has shown that the intervention children in the follow-up study had lower scores in social competence compared to the children in the original study (see 3.3 Attrition Analyses section for more details). This means that the children who participated in the follow-up study were not already performing well when they were at 18-months of age. This disadvantage might result in to obtain similar scores with the control group children.

To measure children's socioemotional development, the questions were taken from the UNICEF Multiple Indicator Cluster Surveys (MICS). It is important to note that this questionnaire was created based on the data from diverse cultural backgrounds with mainly from very low-income countries such as Bangladesh, Thailand or Pakistan. Even though children in the current study could be considered from an at-risk population with a low SES background, it is likely that they function better than their counterparts in those countries. This might be one of the reasons as to why there was no group difference and why all these children were rated as highly functioning by their mothers. Besides, after its first application in Türkiye, (UNICEF, 1995), MICS has not been used for another research. Thus, there is a lack of the recent national data to compare participant children and national sample since revised questionnaire has not been applied in Türkiye on a country basis.

Moreover, the Cronbach's alpha was .64 and the McDonald's Omega was .58 for the UNICEF-MICS in the current study. Due to the low-level of the Cronbach's alpha and the McDonald's Omega, this measure might be not good enough to capture the developmental process of children and the group differences between the intervention and control groups for the current follow-up study.

On the other hand, when considering the follow-up results of comprehensive early childhood HV programs, one can speculate that stimulation interventions are more likely to enhance children's cognitive and language development. In their meta-analysis, Jeong and colleagues (2021b) have also found sustained benefits of early childhood parenting interventions for language and cognitive development, but not for socioemotional development. It is likely that parenting interventions need to target reducing harsh parenting strategies and increasing warmth and sensitive parenting for sustained benefits. Indeed, intervention children's advantage over the control children faded over the next two years after the program ended with regard to socioemotional and behavioral development in the Reach Up and Learn program with a Colombian sample (Andrew et al., 2018), and emotion regulation and attentional skills in the Early Head Start program (Vogel et al. 2013). Similar to these previous results, even though the intervention children of Istanbul95 Family Guidance program showed improvement in socioemotional development (i.e., aggressive behaviors and social competence) measured by the Brief Infant-Toddler Social and Emotional Assessment Scale at 18-months assessment (Buğan Kısır, 2023), the benefits faded over three years from the post-test assessment.

On the contrary, the follow-up study of Nurse Family Partnership program indicated sustained improvements in socioemotional development of preschoolers and school-aged children. The positive impact of the Nurse Family Partnership

program has been found for children's reduced aggression levels and increased pro-social skills at the age 6 (Heckman et al., 2017). The analyses have shown that the underlying mechanism for the continued positive impact on child outcomes was actually enhanced home environment and parenting skills (i.e., increased sensitivity, empathy and maternal self-esteem, decreased harsh punishment and maternal anxiety) at child's age at 2 years. So, for the sustained benefits of child development, the mediating role of home environment and parenting was more critical than the intervention itself. In other words, when intervention children experience stimulating home environment and positive parenting strategies from their mothers with low level maternal anxiety during their toddlerhood period, this positive environment and parenting led them to have growth in behavioral and social development in school period compared to the control group children.

4.3 The program's long-term role on the parenting outcomes

Contrary to the second hypothesis, the intervention and control mothers did not differ in terms of the frequency of displaying stimulating practices such as talking reading books. It is noteworthy that the intervention mothers of the Family Guidance HV program displayed more stimulating parenting towards their 18-month-old toddlers compared to the control mothers (Buğan Kısır, 2023). Yet, the follow-up intervention and control mothers' 18-month assessment of stimulating practices scores did not significantly differ from each other. Similar to the 18-month assessment at T2, stimulating practices did not show a group difference at the school entry follow-up (T3). On the other hand, it is important to note that the challenges and requirements of a toddler and the responsibilities of a mother of a toddler might be highly different than those of a preschooler. Mothers and children might

experience the changes in maternal responsibilities, children's independence level (i.e., becoming more mobile compared to a toddler) or birth of a new sibling. Due to these new challenges and responsibilities in this age period, mothers might have limited time to display one-to-one stimulating practices such as reading books to their preschoolers (Galasso et al., 2019). This might be one reason as to why the intervention mothers could not sustain their higher frequency of displaying stimulating practices compared to the control mothers.

In their meta-analysis, Jeong and colleagues (2021b) indicated that the benefits of parenting interventions in early childhood years tend to be maintained within short-term period (1 to 3 years), but the positive impacts of the program are more likely to fade over medium- (4 to 9 years) and long-term (10+ years). Moreover, compared to child outcomes, enhanced parenting outcomes were more likely to be sustained over years (Jeong et al., 2021b). Consistently, when considering the previous follow-up literature, in addition to the immediate positive impact of Early Head Start HV program on mothers' stimulating parenting practices (Love et al., 2002), the long-term effect in parenting was also found when the children were 5 years old (Jones-Harden et al., 2012). Intervention mothers used more elaborative language, engaged more in stimulating activities and provided greater number of books toward their preschoolers compared to the control mothers. Early Head Start benefits regarding the mothers' stress and coping skills were also sustained when the children were 5 and 7 years old, though with a small effect size (McKelvey et al., 2015; Vogel et al., 2011). Thus, the benefits of the Early Head Start HV program remained stable for intervention mothers' different parenting practices and maternal well-being 3 and 5 years later the program ended. However, it should be noted that the Early Head Start ended when the children were 3 years old

and the follow-up study was conducted 2 years later, whereas Istanbul95 Family Guidance Home Visitation program ended when the children were 18 months old, and the follow-up study was conducted about 3 and a-half year later. So, it can be said that the duration of the program (18-months vs. 36 months) might play a key role for long-term stability of the positive outcomes because of the importance of the first 1000 days of life especially for the brain development (Cusick & Georgieff, 2016). Based on the 18-month assessment, there was a small and indirect role of the HV program via stimulating parenting on the children's outcomes (i.e., language development, aggressive behaviors, social competence) (Buğan Kısır, 2023; Çorapçı et al., 2024). Since the initial effect was small, it is hard to detect this previous small effect with small sample size in the current study.

Istanbul95 Family Guidance Program was mainly the adaptation of the Reach Up and Learn HV program that targets caregivers' stimulating practices (i.e., talk, play) along with a maternal mental health module and handouts about healthy nutrition. The meta-analysis indicated that the Reach Up and Learn HV program was effective to increase stimulation at home (measured by Home Observation for Measurement of the Environment and UNICEF's Family Care Indicators) among ten countries with 17 trials with small effect size (Jervis et al., 2023). When evaluating the follow-up results, for example, the adapted version of the Reach Up and Learn HV program in India provided both initial and sustained promising results for parenting outcomes (Andrew et al., 2024). Although not in all parenting practices targeted in the study, it was observed that the group difference with regard to stimulating parenting was sustained. Intervention mothers' displayed stimulating practices more frequently to their child both at the end of the program and at the follow-up (child age at 6 years) compared to the control mothers. Intervention

mothers were also more likely to spend time on education for their school-aged children. However, among Colombia sample, no sustained benefits were obtained for parenting outcomes from adapted version of the Reach Up and Learn program 2 years later. Andrew et al. (2024) speculated that the program with Colombian sample mostly focused on the parental investment, yet the parenting behaviors were the main focus of the program with Indian sample. Therefore, the underlying mechanism of the intervention effect might actually be the improvement in stimulating practices. On the other hand, Andrew and colleagues (2018) suggested that although children were exposed to a variety of stimulating practices in their early years of life, it is highly likely that mothers discontinued providing stimulating materials and engaging in such practices during toddlerhood, leading to a gradual fading of the effects. Therefore, the use of cost-effective strategies to reach these families at regular intervals every few months might be critical to keep the positive impacts stable. For example, sending voice messages or text-messages, and providing informative videos through smart-phone applications have found to be both cost-effective and beneficial with regard to enhance parenting practices and child outcomes among at-risk families (Arteaga & Trias, 2021; Palmer et al, 2023).

Istanbul95 Family Guidance program ended when children were 18 months of age, and no booster sessions was delivered to the intervention families neither face-to-face nor using the digital tools. The fact that no booster sessions were conducted since the program ended may have caused the already small effect to fade over time. Also, even though the original program aimed to deliver weekly visits to at-risk families, home visitors in Istanbul95 Family Guidance Home Visitation program organized biweekly visits. On the other hand, intervention mothers received guidance on practices to meet the needs of a newborn and a young infant such as

breastfeeding or supporting for child's walking. However, the needs of an infant and a preschooler are very distinct from each other. In other words, the parenting behaviors that a mother of a young baby should practice are quite different from the parenting behaviors that a mother of a preschooler practice. Lastly, another important potential factor for nonsignificant effect of the program at the follow-up might be the societal and economical challenges of the participant families. In addition to their low-level education and income during the baseline phase of the main HV program, it is noteworthy that the COVID-19 pandemic emerged in the last few months of the program. Going through the COVID-19 restrictions and health risk along with the pandemic's serious implications for the families' financial and psychological resources, it is likely that the program's effect might have faded within the context of this time of crisis.

On the other hand, there was a positive and strong correlation between mother-reported and child-reported school readiness skills in the intervention group, whereas no significant association was found between these two variables in the control group. Given that mothers and their children responded same questions with minor modifications (e.g., "*can your child say his/her name*" to the mother vs. "*what is your name*" to the child), the correlation between these variables might indicate the maternal awareness regarding the child development. So, one might speculate that the intervention group mothers' awareness of their children's development were higher and their knowledge about their children's abilities were more accurate than the control group mothers.

When considering the intervention mothers' answers to open-ended questions about their retrospective program evaluation, they pointed out several parenting skills such as elaborative talking, interacting with the child warmly, and reading

books that they have learned in the HV program that they still continue to use with their preschoolers as well as with their younger children. Therefore, even though the group difference at the follow-up did not reach to significance, the intervention mothers (about 93%) were very pleased to receive highly frequent, informative and regular home visits for their children's well-being and they tried to maintain these practices following years.

4.4 The indirect long-term role of the program for the child outcomes

As noted above, according to the 18-month assessment of the Istanbul95 Family Guidance HV program, the enrollment into the program had significantly indirect role on the toddlers' language and behavioral development via higher stimulating practices at 9-months of age (Buğan Kısır, 2023; Çorapçı et al., 2024). Therefore, the third hypotheses of the current study predicted that the 18-month stimulating practices of the intervention mothers would mediate the relationship between program enrollment and preschoolers' school readiness as well as social skills. However, the third hypothesis was not supported. One of the reasons for this nonsignificant indirect role of the program via T2 stimulating practices might be the similar frequency of the 18-month stimulating practices of these follow-up participants. Also, the follow-up intervention and control children's T3 school readiness and socioemotional development scores did not significantly differ from each other. On the other hand, the Istanbul95 Family Guidance Home Visitation program did not have a randomized design, rather it had a quasi-experimental design. For a better evaluation of a mediational model, a randomized controlled trial is preferred (Pirlott & MacKinnon, 2016). Moreover, the mediational effect at T2 was obtained from 445 participants in total, albeit with small effect size. Thus,

another reason might be the low statistical power to detect such mediational effects with a sample size of 86.

Other studies in the literature with larger samples have actually uncovered mediational mechanisms. Using a randomized controlled trial parenting intervention program from perinatal period to 3-years of age, Chazan-Cohen and colleagues (2009) found that when parenting changed in positive direction during the program enrollment for 3 years, those children showed better development at age 5 years. According to the researchers, what determines the relationship between the early parenting and child outcomes is the change in parenting over time, not the program enrollment (Chazan-Cohen et al., 2009). The meta-analysis of the Reach Up and Learn HV programs indicated a mediating role of home in the relationship between intervention status and child developmental gains in one out of 17 trials, albeit with small effect size (Jervis et al., 2023). In this study, the low-birth weight (LBW) infants were randomly assigned to intervention and control groups, and there was also normal birth weight (NBW) group, with no intervention, to compare the developmental gains in the intervention group (Walker et al., 2004). Intervention mothers received psychosocial stimulation from birth to child's 24 months of age with weekly visits by community health workers. At the end of the intervention, intervention LBW children had higher score on the home stimulation (measured by HOME inventory), the global developmental quotient, performance and hand and eye subscales of the Griffiths Mental Developmental Scales compared to control LBW children, whereas there was no significant difference between the intervention LBW group and NBW group. Also, the home stimulation mediated the relationship between intervention and child's developmental gains. Thus, these findings suggested that the intervention empowered mothers to display more stimulating

practices, which in turn, benefited their children with regard to development. However, not all developmental gains were benefited, and the effect size was small. The researchers concluded that even though psychosocial intervention was effective for LBW infants to close the gap with NBW infants with similar social background, this effect was much smaller than the programs conducted for undernourished, stunting children, who had much greater developmental delay (Walker et al., 2004). So, it is critical to examine the mediating role of the stimulation practices and environment in the early childhood HV intervention programs to better understand the best practices for implementation that would then increase the strength of long-term positive impacts of the program (Jervis et al., 2023)

4.5 Strengths of the study

Considering that 24% of Türkiye population is between the ages of 0-4 (TÜİK, 2024) and 31% of these children live under the child poverty line (Cunedioğlu & Uzunırmak, 2024), implementing and evaluating early childhood development programs is very critical to identify evidence-based program that can help reduce developmental problems related to child poverty. The current study contributes to the literature by conducting a 3-year follow-up of an early childhood HV intervention program, conducted in Istanbul with the municipalities as the implementing body.

The current study has also strengths in terms of measurement tools. Direct assessment with children were conducted to examine the school readiness based on the standardized testing and the narrative sampling method. Previous research found that even though mothers are reliable sources to examine and understand their children, especially for questions about the developmental milestones (Nordahl-Hansen et al., 2014), parent reports might be subjective, and parents may

overestimate their children's abilities (Ozonoff et al., 2011). Thus, the assessment of children's school readiness indicators (i.e., vocabulary size) via direct behavioral observations (testing and narrative sampling method) has been one of the strengths, providing objective and less biased assessment. Finally, this follow-up study included open-ended questions for the intervention mothers to retrospectively evaluate the HV program three years upon its completion. The responses given by mothers to these open-ended questions may shed light on home visitation parenting interventions planned to be developed in the following years.

4.6 Limitations of the study

Istanbul95 Family Guidance Home Visitation program had a quasi-experimental design. Randomization was not possible because the main purpose of the municipalities was to reach every possible at-risk families until the quota for the home visits was full. After that, the control families were selected with similar sociodemographic background. The early childhood HV interventions mentioned above (i.e., the Reach Up and Learn, the Nurse Family Partnership etc.) had either cluster-randomized or randomized controlled trials. When randomization was not possible in the original study, it was very likely not to have significant group difference and significant mediational relationship in the follow-up evaluation.

On the other hand, despite its strengths, there are also several limitations of the current follow-up study. Firstly, due to the nature of follow-up, the sample size decreased about 50% at T3, which has also reduced the statistical power to detect group differences as noted above. Secondly, for follow-up evaluations, it is important to use the same measurement tools with minor modifications only, such as age-appropriate changes in the questions to examine the change in the relevant outcome

variables between the intervention and control groups across different time points (Hill et al., 2016). However, the measurement tools for the child outcomes in the current follow-up study (i.e., socioemotional development and school readiness) were not same as the tools used in the 18-month assessment.

Thirdly, mothers' stimulating practices were the only measured indicators of positive parenting in the current study. However, past research (e.g., McGroder et al., 2000) has found that despite the lower stimulating practices of mothers, when preschoolers experienced nurturance from their mothers, they were more likely to have higher scores in school readiness. Similarly, warmth and responsivity were predictors of low-SES children's language and social development in research conducted with Turkish families (Baydar & Akçınar, 2015). Thus, although an increase in stimulating practices was one of the main targeted outcomes of the Istanbul95 Family Guidance program and the follow-up evaluation mainly assessed such practices, and other parenting dimensions, especially maternal warmth and responsiveness were not measured.

Fourthly, the intervention and control mothers had phone calls from the researcher of the current study three and a half years later the program ended and were invited to the municipality center for a seminar about children's school readiness. Their participation was voluntary, and they had no support for transportation to reach the center. This means that mothers in both groups were highly motivated to receive support with regard to parenting and child development. Fifthly, as in the previous assessment points, the assessment of the mothers' stimulating practices in the present follow-up study was based on maternal self-report, an approach prone to social desirability bias. Due to its subjective nature, mothers have a tendency to overrate their parenting behaviors to show themselves as

more involved with caregiving and to be avoid from any potential judgement in self-report measurement tools (Cano, 2022; Jeong et al., 2019). Therefore, multimethod assessment strategy such as observation of parent-child interaction was missing in the current study. This kind of observational techniques would provide researchers to compare the mothers' responses with observational data and would provide unbiased assessment for parenting practices and child development.

Moreover, the original Istanbul95 Family Guidance Home Visitation program found small effect with regard to intervention benefits on children's behavioral and language development. Small effect is hard to detect in follow-up assessments with small sample size, which may result in null results (Jeong et al., 2021b). Also, the attrition analysis showed that parents in the follow-up study had had fewer schooling in years compared to all participants in the original study (both mothers and fathers) and participants from Sultanbeyli region (only fathers) in the intervention group. Moreover, mothers in the follow-up study reported fewer problem behavior for their 18-months toddlers at T2 compared to all participants in the original study both in the intervention and control groups, whereas intervention mothers also reported lower-level social competence for their toddlers at T2 assessment compared to all participants (see 3.3 Attrition Analysis section for more details). These imbalance between groups with regard to education level and child outcome scores might mislead the results of the current study. Lastly, the main intervention program targeted to intervene mothers' parenting behaviors to enhance the child development, yet the fathers were not included any phase of the study.

4.7 Future directions

Various studies indicated the importance of the first three years of life, especially for children with low socioeconomic status, migration history, or minority status as such conditions act to constrain the developmental potential of infants and toddlers (Black et al., 2017; Robertson et al., 2019). During the last decades, to eliminate the negative impact of the societal and familial risks, various early childhood intervention programs have been created to be implemented from the prenatal period throughout the first three years of life. Despite differences across these programs, existing studies showed that when caregivers of infants receive support and guidance in terms of parenting, nutrition and child development by regular home visits during the child's first years of life, both mothers and children are likely to benefit from these interventions compared to the control group children (Jeong et al., 2021a; Nelson et al., 2024). Yet, the benefits of mothers and children differ in terms of the programs' duration, target outcomes, and target population.

In the following sections, suggestions with regard to research design and program implementation are discussed based on the results of the current follow-up study and previous literature.

The vocabulary size measured by narrative sampling method when child age at 5 years was the only developmental domain where differences between groups were obtained. Even though this method has found to be reliable in the literature and has strengths with regard to its naturalistic nature to detect vocabulary size and richness (Acarlar, 2005; Heilmann et al., 2010), to measure both expressive and receptive language with standardized tests, in addition to narrative sampling method, could provide information about validity of this method to evaluate children's school readiness. Moreover, children's socioemotional and language development were

measured at both 18-month post-test assessment and 5-year follow-up assessment. However, measurement tools at two time points were different from each other. Considering the necessity of long-term evaluations to enhance parenting interventions, future studies should also be planned with the possibility of using questionnaires or other measures that can be repeated at each assessment point with minor age-appropriate modifications in different time periods (Hill et al., 2016).

The current follow-up study only measured stimulating practices for group difference in parenting at child age 5 and used 18-months stimulating parenting score as the mediator in the hypothesized model. However, various meta-analysis and review papers supported the importance of other parenting practices such as warmth or responsivity, parent-child interaction quality and maternal mental health for child outcomes both directly or as a mediator in the relationship between parenting intervention and child outcomes (Ahun et al., 2024; Goodman et al., 2022; Sager et al., 2024; Saitadze & Lalayants, 2020). Thus, researchers should run more mediational analyses to understand the mechanism underlying the relationship between poverty, intervention, caregiving strategies and child outcomes (Jeong et al., 2021a).

The follow-up study also indicated a few important points regarding the program design and implementation. Firstly, one of the common complaints of mothers was the inconsistent parenting behaviors between them and their spouses. This inconsistency may be derived from that fathers did not receive any guidance or training with regard to child development and parenting behaviors during the intervention program. Providing training for fathers in the future intervention programs, although not as frequently as programs for mothers, might have a positive impact on both parents and the child. The most important part at this point is to

ensure the participation of fathers and the continuity of this participation. To ensure this, local employees such as religious figures (e.g., imam) might be included in the process.

Although Jeong and colleagues (2021b) found sustained program effects in short-term follow-up studies, this was not the case in the current study, except for vocabulary size. Therefore, future interventions might consider integrating booster sessions with regular intervals (i.e., sending messages to mobile phones, preparation of podcasts) into their program curriculum to be implemented upon the completion of the study to increase and maintain the effectiveness of the HV program.

Within the scope of this follow-up study, mothers were asked to evaluate the Istanbul95 Family Guidance Home Visitation program, whereas control mothers were asked to indicate the challenges that they had with respect to caregiving following the birth of their child. Those mothers' open-ended answers can give guidance to develop a more culturally sensitive program. One of the most frequent comments of the intervention mothers (15 out of 45 mothers) was that they still use the materials (e.g., picture books, blocks) brought to them about three years ago by their home visitor. The long-term usage of these materials indicates the importance of concrete representation of targeted outcomes. In other words, if home visitors did not give a picture book to these families, their training with regard to importance of reading might be forgotten. Future programs might provide mothers a short handbook with pictures including example conversations to be sensitive, responsive and supportive mother towards their children at the end of the program. In addition, different booklets might be provided to these mothers for children's developmental milestones in following years with regular intervals. These mothers could be informed about how to support their toddlers' and preschoolers' self-esteem, self-

care skills (e.g., to dress yourself), peer relations as well as how to set limits depending on the child's changing age (e.g., to set limits for screen time).

On the other hand, out of 25 control mothers that responded open-ended questions, six of them would prefer center-based intervention during their children's infancy and toddlerhood period. Those mothers indicated that this would be an opportunity to socialize with others for both them and their children. Considering the question that intervention mothers rated lowest in the survey was the question about ask for social support from others, center-based intervention might contribute to mothers' psychosocial well-being and social relationships. Previous studies have shown that center-based stimulation interventions with group sessions as effective as home visits with regard to parenting and child outcomes (Jervis et al., 2023). Therefore, future programs might adapt mixed method in terms of intervention delivery strategy to provide mothers and children opportunity to socialize with others that going through the similar challenges and periods regarding the child-rearing.

Moreover, the program coordinators and home visitors should be aware of the cultural traditions and sensitive issues to increase the effectiveness of the program (Azzi-Lessing, 2011). It is important to point out that the Reach Up and Learn intervention was successful with regard to parenting and child outcomes from end of the program throughout the adolescence period in Jamaican sample, yet the long-term effectiveness was not found some other adapted versions of the program. Even though Istanbul95 Family Guidance program had major revisions in terms of cultural issues, future programs might organize a need assessment phase before intervention began to understand what these at-risk families expect from the program.

4.8 Policy suggestions for policy makers and practitioners

Considering the fact that preschool education is not compulsory in Türkiye, childhood poverty and education inequality is high, and access to preschool education is low, various social policy recommendations can be developed based on the findings of the current follow-up study. These recommendations should be adapted to the local context by considering cultural issues in a way that is inspired by international good practices.

International research strongly highlights the positive impact of early childhood education on children's cognitive, social, and language development (Heckman, 2006). In this context, making early childhood education mandatory in Türkiye would be a significant step toward ensuring educational equity and increasing school readiness levels, particularly among disadvantaged groups. To support this transition, incentive mechanisms targeting low-SES families should be developed.

The findings of the current study indicated that home visitation early childhood intervention programs significantly enhance children's language development, such as their vocabulary acquisition. These programs can be scaled, particularly in rural and disadvantaged areas. By encouraging parental involvement, such programs can aim to raise awareness among parents regarding child development. For example, the existing "Family Education Programs" in Türkiye could be expanded to incorporate these interventions.

In a context where childhood poverty is prevalent, providing free early childhood education services might significantly improve access to preschool education. This may include the establishment of state-funded preschools and childcare centers. Additionally, building infrastructure for education in

disadvantaged regions could be prioritized through pilot projects. Evidence from OECD countries demonstrated the effectiveness of free or low-cost early childhood education services for children's development in various domains (OECD, 2021).

Conditional cash transfer programs targeting families from low-SES and disadvantaged groups might be implemented to increase children's participation in early childhood education. These incentives could serve as effective tools to ensure regular attendance in early childhood programs. The existing "Conditional Cash Transfer for Education" program provides regular cash aid to families in-need to support their children's compulsory education by the Ministry of Family and Social Services. This program could be expanded to preschool education for disadvantaged families.

Nationwide campaigns could be organized to raise parents' awareness of their critical role in supporting their children's language and cognitive development. These campaigns should emphasize the importance of providing quality education to children at an early age. Counseling and support services could also be offered, particularly to families with low income and education levels with the collaboration of local community as well as health services. Also, in the implementation of early childhood education programs, collaboration among educators, psychologists, social workers, and healthcare professionals should be reinforced. Such collaboration can ensure the development of comprehensive interventions that address the multidimensional needs of children.

Lastly, a nationwide data collection and monitoring system should be established to evaluate the impact of early childhood education programs. This system will enable policymakers to assess the effectiveness of the early childhood

home visitation interventions and design future programs more effectively in light of the scientific research results.

4.9 Conclusion

The current study contributes to the early childhood intervention literature with a few critical points. Although the immediate positive impact of the early childhood HV programs for children and their mothers is robust in the literature, it is noteworthy that the evaluation of the program outcomes for following years is scarce, and the existing results are mixed. The current study provided an understanding of sustained and not sustained benefits of early parenting interventions for socioeconomically disadvantaged Turkish families. The sustained benefits of Istanbul95 Family Guidance Home Visitation program is limited to intervention children's richer vocabulary size. However, the intervention children showed better performance in school readiness skills when they were enrolled to a preschool. It is important to note that this is a preliminary finding, and it is not possible to attribute the program as the only underlying mechanism for this result. However, it suggests that the intervention mothers might have continued to provide parenting behaviors such as constantly reading books to the child that promote school related skills. Also, when infants receive intervention in their first years of life, their home environment have become more stimulating, and thus, they became more open to benefit from educational inputs. In addition to all these scientific analyses, the feedback and retrospective evaluations received from mothers during the data collection processes of this study confirmed that this project was also guiding for them in terms of supporting the development of their children. As a result, Istanbul95 Family Guidance Home Visitation program has been supportive in

the development of children in disadvantaged groups. This current follow-up study indicated the promising contents of this project and similar educational content in supporting at-risk families.



APPENDIX A

PARTICIPATION INFORMATION AND CONSENT FORM FOR

INTERVENTION GROUP

The research institution: Boğaziçi Üniversitesi
Title of the study: School Readiness of Children in Preschool Period
Project Advisor: Prof. Dr. Feyza Çorapçı
E-mail address: XXX
Phone number: XXX
Researcher: Beliz Korkut
E-mail address: XXX
Phone number: XXX

Dear Parent,

You participated in the “Sultanbeyli95” home visitation program between 2018-202, which was among the services provided by the Sultanbeyli District Municipality and aimed to support healthy child development in the 0-3 age period.

The purpose of this study that we invited you to is to learn which features of this program that you participated in for 18 months after your baby was born are still beneficial to you after the program ended. We also aim to evaluate your child's level of school readiness within the scope of our study. This study is carried out by Boğaziçi University Psychology Department faculty member Prof. Dr. Feyza Çorapçı and doctoral student Beliz Korkut in collaboration with Sultanbeyli District Municipality. We kindly request your participation to help us with this study.

If you agree to participate in this study, we will ask you to fill out short surveys about your childrearing behaviors and your child’s development. These surveys will allow us to evaluate the program you have attended and will help us better understand the school readiness of preschool children. While you are filling out the surveys, our research assistant will conduct an application with your child to evaluate his/her school readiness. The interviews we will conduct with you and your child will be held in the Sultanbeyli District Municipality Center. It will take approximately 60 minutes for you to fill out the survey and for your child to be interviewed.

This research is conducted for scientific purposes and the confidentiality of participant information is essential. Your identity and personal information will never be shared with anyone. The information we obtain from you will only be accessible to researchers. Your name and the data we obtain from you will not be matched. The data collected will be evaluated collectively, not individually.

Participation in this study is completely voluntary. If you participate, you can stop participating at any stage of the study without giving any reason. If you stop participating, you will continue to benefit from the services provided to you by your municipality as usual. You can leave the questions you do not want to answer unanswered. You have the right to withdraw your consent at any stage of the study

without giving any reason. If you withdraw from the study, the data collected about you will be deleted from the records.

If you would like to receive additional information about the research project, please contact Boğaziçi University Psychology Department Faculty Member Feyza Çorapçı and Research Assistant Beliz Korkut. You can consult Boğaziçi University Social and Human Sciences Masters and Doctoral Theses Ethics Review Committee () () regarding your rights regarding the research.

If you agree to participate in this research project, please sign this form.

I, (name of participant), have read the text above and fully understand the scope and purpose of the study in which I have been asked to participate, and the responsibilities that fall upon me as a volunteer. I have had the opportunity to ask questions about the study. I understand that I can leave this study at any time and without having to state any reason, and that I will not face any negative consequences if I do so.

I have received a copy of the Participation Information and Consent Form.

Under these conditions, I agree to participate in the research of my own free will, without any pressure or coercion. I also agree my child to be interviewed within the scope of the study.

Participant's Name-Surname:

Signature:

Date (day/month/year):/...../.....

APPENDIX B

PARTICIPATION INFORMATION AND CONSENT FORM FOR INTERVENTION

GROUP (TURKISH)

Araştırmayı destekleyen kurum: Boğaziçi Üniversitesi
Araştırmacının adı: Okul Öncesi Dönemdeki Çocukların Okula Hazırbulunuşlukları
Proje Yürütücüsü: Prof. Dr. Feyza Çorapçı
E-mail adresi: XXX
Telefonu: XXX
Araştırmacının adı: Beliz Korkut
E-mail adresi: XXX
Telefonu: XXX

Sayın Veli,

Sultanbeyli İlçe Belediyesinin sağlamış olduğu hizmetler arasında yer alan ve 0-3 yaş döneminde sağlıklı çocuk gelişimini desteklemeyi amaçlayan “Sultanbeyli95” ev ziyareti programına 2018-2020 yıllarında katılmıştınız.

Sizi davet ettiğimiz bu çalışmanın amacı, bebeğiniz doğduktan sonraki 18 ay boyunca katılmış olduğunuz bu programın hangi özelliklerinin programın bitiminden bugüne dek size halen faydalı olduğunu öğrenmektir. Ayrıca çalışmamız kapsamında çocuğunuzun okula hazırbulunuşluk düzeyini de değerlendirmeyi amaçlıyoruz. Bu çalışmayı Boğaziçi Üniversitesi Psikoloji Bölümü öğretim üyesi Prof. Dr. Feyza Çorapçı ve doktora öğrencisi Beliz Korkut, Sultanbeyli İlçe Belediyesi ile işbirliği içinde yürütmektedir. Bu çalışmada bize yardımcı olmanız için katılımınızı rica ediyoruz.

Bu araştırmaya katılmayı kabul ettiğiniz takdirde sizden çocuk yetiştirme davranışlarınız ve çocuğunuzun gelişimi ile ilgili kısa anketler doldurmanızı rica edeceğiz. Bu anketler katılmış olduğunuz programı değerlendirmemizi sağlayacak ve okul öncesi dönemdeki çocukların okula hazır olup olmama durumlarını daha iyi anlamamıza yardımcı olacaktır. Siz anketleri doldururken araştırma asistanımız çocuğunuz ile onun okula hazırlığını değerlendirecek bir uygulama yapacaktır. Sizinle ve çocuğunuzla yapacağımız görüşmeler Sultanbeyli İlçe Belediye merkezinde gerçekleştirilecektir. Sizin anketi doldurmanız ve çocuğunuz ile yapılacak görüşme toplamda yaklaşık 60 dakika sürecektir.

Bu araştırma bilimsel bir amaçla yapılmaktadır ve katılımcı bilgilerinin gizliliği esas tutulmaktadır. Kimlik ve kişisel bilgileriniz kesinlikle kimseye paylaşılmayacaktır. Sizlerden edindiğimiz bilgiler sadece araştırmacıların erişiminde olacaktır. İsminiz ile sizlerden aldığımız veriler birbirleri ile eşleşmeyecektir. Toplanan veriler bireysel değil toplu olarak değerlendirilecektir.

Bu araştırmaya katılmak tamamen isteğe bağlıdır. Katıldığınız takdirde çalışmanın herhangi bir aşamasında herhangi bir sebep göstermeden katılmayı bırakabilirsiniz. Katılımı bırakmanız durumunda belediyenizin size sağladığı hizmetlerden her zamanki gibi faydalanmaya devam edebileceksiniz. Cevaplamak

istemediğiniz soruları yanıtsız bırakabilirsiniz. Çalışmanın herhangi bir aşamasında herhangi bir sebep göstermeden onayınızı çekme hakkına sahipsiniz. Çalışmadan çekilmeniz halinde size dair toplanan veriler kayıtlardan silinecektir.

Araştırma projesi hakkında ek bilgi almak istediğiniz takdirde lütfen Boğaziçi Üniversitesi Psikoloji Bölümü Öğretim Üyesi Feyza Çorapçı ve Araştırma Görevlisi Beliz Korkut ile temasa geçiniz. Araştırmayla ilgili haklarınız konusunda Boğaziçi Üniversitesi Sosyal ve Beşeri Bilimler Yüksek Lisans ve Doktora Tezleri Etik İnceleme Komisyonu'na () () danışabilirsiniz.

Eğer bu araştırma projesine katılmayı kabul ediyorsanız, lütfen bu formu imzalayınız

Ben, (katılımcının adı), yukarıdaki metni okudum ve katılmam istenen çalışmanın kapsamını ve amacını, gönüllü olarak üzerime düşen sorumlulukları tamamen anladım. Çalışma hakkında soru sorma imkanı buldum. Bu çalışmayı istediğim zaman ve herhangi bir neden belirtmek zorunda kalmadan bırakabileceğimi ve bıraktığım takdirde herhangi bir olumsuzluk ile karşılaşmayacağımı anladım.

Katılımcı Bilgi ve Onam Formunun bir örneğini aldım.

Bu koşullarda söz konusu araştırmaya kendi isteğimle, hiçbir baskı ve zorlama olmaksızın katılmayı kabul ediyorum. Çalışma kapsamında çocuğum ile görüşüme yapılmasını da kabul ediyorum.

Katılımcının Adı-Soyadı:.....

İmzası:.....

Tarih (gün/ay/yıl):...../...../.....

APPENDIX C

PARTICIPATION INFORMATION AND CONSENT FORM FOR CONTROL

GROUP

The research institution: Boğaziçi Üniversitesi
Title of the study: School Readiness of Children in Preschool Period
Project Advisor: Prof. Dr. Feyza Çorapçı
E-mail address: XXX
Phone number: XXX
Researcher: Beliz Korkut
E-mail address: XXX
Phone number: XXX

Dear Parent,

Within the scope of the services provided to you by Sultanbeyli Municipality, your child's development between 0-18 months was monitored within the scope of the "Supporting Development in Early Childhood" program. Before starting school, we would like to invite you and your child to our municipality and evaluate how ready your child is for school.

The purpose of this study that we invite you is to investigate the factors that will affect the school readiness of preschool children and to guide you on how to support your child's school readiness. This study is carried out by Boğaziçi University Psychology Department faculty member Prof. Dr. Feyza Çorapçı and doctoral student Beliz Korkut in collaboration with Sultanbeyli District Municipality. We kindly request your participation to help us in this study.

If you agree to participate in this study, we will ask you to fill out short surveys about your childrearing behaviors and your child's development. These surveys will allow us to evaluate the program you have attended and will help us better understand the school readiness of preschool children. While you are filling out the surveys, our research assistant will conduct an application with your child to evaluate his/her school readiness. The interviews we will conduct with you and your child will be held in the Sultanbeyli District Municipality Center. It will take approximately 60 minutes for you to fill out the survey and for your child to be interviewed.

This research is conducted for scientific purposes and the confidentiality of participant information is essential. Your identity and personal information will never be shared with anyone. The information we obtain from you will only be accessible to researchers. Your name and the data we obtain from you will not be matched. The data collected will be evaluated collectively, not individually.

Participation in this study is completely voluntary. If you participate, you can stop participating at any stage of the study without giving any reason. If you stop participating, you will continue to benefit from the services provided to you by your municipality as usual. You can leave the questions you do not want to answer

unanswered. You have the right to withdraw your consent at any stage of the study without giving any reason. If you withdraw from the study, the data collected about you will be deleted from the records.

If you would like to receive additional information about the research project, please contact Boğaziçi University Psychology Department Faculty Member Feyza Çorapçı and Research Assistant Beliz Korkut. You can consult Boğaziçi University Social and Human Sciences Masters and Doctoral Theses Ethics Review Committee () () regarding your rights regarding the research.

If you agree to participate in this research project, please sign this form.

I, (name of participant), have read the text above and fully understand the scope and purpose of the study in which I have been asked to participate, and the responsibilities that fall upon me as a volunteer. I have had the opportunity to ask questions about the study. I understand that I can leave this study at any time and without having to state any reason, and that I will not face any negative consequences if I do so.

I have received a copy of the Participation Information and Consent Form.

Under these conditions, I agree to participate in the research of my own free will, without any pressure or coercion. I also agree my child to be interviewed within the scope of the study.

Participant's Name-Surname:.....

Signature:.....

Date (day/month/year):...../...../.....

APPENDIX D

PARTICIPATION INFORMATION AND CONSENT FORM FOR CONTROL

GROUP (TURKISH)

Araştırmayı destekleyen kurum: Boğaziçi Üniversitesi
Araştırmacının adı: Okul Öncesi Dönemdeki Çocukların Okula Hazırbulunuşlukları
Proje Yürütücüsü: Prof. Dr. Feyza Çorapçı
E-mail adresi: XXX
Telefonu: XXX
Araştırmacının adı: Beliz Korkut
E-mail adresi: XXX
Telefonu: XXX

Sayın Veli,

Sultanbeyli Belediyesi'nin size sağlamış olduğu hizmetler bünyesinde "Erken Çocukluk Döneminde Gelişimin Desteklenmesi" programı çerçevesinde çocuğunuzun 0-18 ay arasında gelişimi takip edilmisti. Okula başlamadan önce sizi ve çocuğunuzu belediyemize davet ederek çocuğunuzun okula ne kadar hazır olduğunu değerlendirmek istiyoruz.

Sizi davet ettiğimiz bu çalışmanın amacı, okul öncesi dönemdeki çocukların okula hazırlığını etkileyecek faktörleri araştırmak ve çocuğunuzun okula hazırlığını nasıl destekleyeceğiniz konusunda sizlere yol göstermektir. Bu çalışmayı Boğaziçi Üniversitesi Psikoloji Bölümü öğretim üyesi Prof. Dr. Feyza Çorapçı ve doktora öğrencisi Beliz Korkut, Sultanbeyli İlçe Belediyesi ile işbirliği içinde yürütmektedir. Bu çalışmada bize yardımcı olmanız için katılımınızı rica ediyoruz.

Bu araştırmaya katılmayı kabul ettiğiniz takdirde sizden çocuk yetiştirme davranışlarınız ve çocuğunuzun gelişimi ile ilgili kısa anketler doldurmanızı rica edeceğiz. Bu anketler okul öncesi dönemdeki çocukların okula hazır olup olmama durumlarını daha iyi anlamamıza yardımcı olacaktır. Siz anketleri doldururken araştırma asistanımız çocuğunuz ile onun okula hazırlığını değerlendirecek bir uygulama yapacaktır. Sizinle ve çocuğunuzla yapacağımız görüşmeler Sultanbeyli İlçe Belediye merkezinde gerçekleştirilecektir. Sizin anketi doldurmanız ve çocuğunuz ile yapılacak görüşme toplamda yaklaşık 60 dakika sürecektir.

Bu araştırma bilimsel bir amaçla yapılmaktadır ve katılımcı bilgilerinin gizliliği esas tutulmaktadır. Kimlik ve kişisel bilgileriniz kesinlikle kimseyle paylaşılmayacaktır. Sizlerden edindiğimiz bilgiler sadece araştırmacıların erişiminde olacaktır. İsminiz ile sizlerden aldığımız veriler birbirleri ile eşleşmeyecektir. Toplanan veriler bireysel değil toplu olarak değerlendirilecektir.

Bu araştırmaya katılmak tamamen isteğe bağlıdır. Katıldığınız takdirde çalışmanın herhangi bir aşamasında herhangi bir sebep göstermeden katılmayı bırakabilirsiniz. Katılımı bırakmanız durumunda belediyenizin size sağladığı hizmetlerden her zamanki gibi faydalanmaya devam edebileceksiniz. Cevaplamak

istemediğiniz soruları yanıtsız bırakabilirsiniz. Çalışmanın herhangi bir aşamasında herhangi bir sebep göstermeden onayınızı çekme hakkına sahiptir. Çalışmadan çekilmeniz halinde size dair toplanan veriler kayıtlardan silinecektir.

Araştırma projesi hakkında ek bilgi almak istediğiniz takdirde lütfen Boğaziçi Üniversitesi Psikoloji Bölümü Öğretim Üyesi Feyza Çorapçı ve Araştırma Görevlisi Beliz Korkut ile temasa geçiniz. Araştırmayla ilgili haklarınız konusunda Boğaziçi Üniversitesi Sosyal ve Beşeri Bilimler Yüksek Lisans ve Doktora Tezleri Etik İnceleme Komisyonu'na () () danışabilirsiniz.

Eğer bu araştırma projesine katılmayı kabul ediyorsanız, lütfen bu formu imzalayınız

Ben, (katılımcının adı), yukarıdaki metni okudum ve katılmam istenen çalışmanın kapsamını ve amacını, gönüllü olarak üzerime düşen sorumlulukları tamamen anladım. Çalışma hakkında soru sorma imkanı buldum. Bu çalışmayı istediğim zaman ve herhangi bir neden belirtmek zorunda kalmadan bırakabileceğimi ve bıraktığım takdirde herhangi bir olumsuzluk ile karşılaşmayacağımı anladım.

Katılımcı Bilgi ve Onam Formunun bir örneğini aldım.

Bu koşullarda söz konusu araştırmaya kendi isteğimle, hiçbir baskı ve zorlama olmaksızın katılmayı kabul ediyorum. Çalışma kapsamında çocuğum ile görüşüme yapılmasını da kabul ediyorum.

Katılımcının Adı-Soyadı:.....

İmzası:.....

Tarih (gün/ay/yıl):...../...../.....

APPENDIX E

ETHICS COMMITTEE APPROVAL

Evrak Tarih ve Sayısı: 11.04.2023-122202

T.C.
BOĞAZİÇİ ÜNİVERSİTESİ
SOSYAL VE BEŞERİ BİLİMLER YÜKSEK LİSANS VE DOKTORA TEZLERİ ETİK İNCELEME
KOMİSYONU
TOPLANTI KARAR TUTANAĞI

Toplantı Sayısı : 42
Toplantı Tarihi : 22.03.2023
Toplantı Saati : 14:00
Toplantı Yeri : Zoom Sanal Toplantı
Bulunanlar : Prof. Dr. Feyza Çorapçı, Doç.Dr. Arhan S. Ertan, Doç. Dr. Senem Yıldız, Dr. Öğr. Üyesi
Yasemin Sohtorik İlkmen, Dr. Öğr. Üyesi Ayşegül Metindoğan
Bulunmayanlar :

Beliz Korkut
Psikoloji

Sayın Araştırmacı,

"School Readiness of Children in Preschool Period / Okul Öncesi Dönemdeki Çocukların Okula Hazır bulunuşlukları" başlıklı projeniz ile ilgili olarak yaptığımız SBB-EAK 2023/33 sayılı başvuru komisyonumuz tarafından 22 Mart 2023 tarihli toplantıda incelenmiş ve uygun bulunmuştur.

Bu karar üyelerin toplantıya çevrimiçi olarak katılımı ve oy birliği ile alınmıştır. Onay mektubu üye ve raportör olarak Yasemin Sohtorik İlkmen tarafından toplantıya katılan bütün üyeler adına e-imzalanmıştır.

Saygılarımızla, bilgilerinizi rica ederiz.

Dr. Öğr. Üyesi Yasemin
SOHTORİK İLKMEN
Öğretim Üyesi

e-imzalıdır
Dr. Öğr. Üyesi Yasemin Sohtorik
İlkmen
Öğretim Üyesi
Raportör

SOBETİK 42 22.03.2023

Bu belge, güvenli elektronik imza ile imzalanmıştır.

APPENDIX F

STIMULATING PARENTING BEHAVIORS QUESTIONNAIRE

Bu kısımda size çocuk yetiştirmeye dair sorularımız olacak. Bu soruların doğru veya yanlış cevabı yoktur. Size en uygun gelen cevabı verin.
(The questions in this section are about child-rearing practices. There are no correct or wrong answers. Please select the answer that is most relevant to you.)

SON BİR HAFTAYI DÜŞÜNDÜĞÜNÜZDE, NE SIKLIKTA... (Considering last week, how many times...)	Hiç (Never)	1-2 gün (1-2 days)	3-4 gün (3-4 days)	5-7 gün (5-7 days)
1. Çocuğunuzla birlikte bir kitaba baktınız, kitap okudunuz veya ona hikâye anlattınız? (Have you read a book or told a story to your child?)	1	2	3	4
2. Çocuğunuzla oyun oynadınız? (Have you played with your child?)	1	2	3	4
3. Çocuğunuza şarkı söylediniz? (Have you sung to your child?)	1	2	3	4
4. İş yaparken çocuğunuzla konuştunuz? (Have you talked to your child while doing chores?)	1	2	3	4
5. Çocuğunuza bir şeyler çizmesi için kalem-kâğıt verdiniz? (Have you given your child paper-pencil to draw something?)	1	2	3	4
6. Çocuğunuzu övdünüz? (Have you praised your child?)	1	2	3	4
7. Çocuğunuzu evden dışarı çıkardınız? (Have you gone out with your child?)	1	2	3	4
8. Çocuğunuzla sayı saydınız? (Have you counted numbers with your child?)	1	2	3	4
9. Çocuğunuza etrafında gördüğü şeylerin isimlerini söylediniz? (örn., top görünce top dediniz mi) (Have you named for objects around your child?)	1	2	3	4

APPENDIX G

UNICEF MULTIPLE INDICATOR CLUSTER SURVEYS

Şimdi çocuğunuzun günlük hayatta neler yapabildiğine dair sorularımız olacak. Size en uygun gelen cevabı verin.
(Now we will have questions about what your child can do in daily life. Please select the answer that is most relevant to you.)

1. Çocuğunuz kendi başına yardım almadan yemeğini yiyebilir mi? (Can your child eat without help?)	HİÇ ZORLUK ÇEKMEZ..... 1 (No difficulty at all) BİRAZ ZORLANIR..... 2 (Has difficulty a little) ÇOK ZORLANIR..... 3 (Has difficulty a lot) KENDİ BAŞINA YAPAMAZ 4 (Cannot do him/herself)
2. Çocuğunuz kendi başına yardım almadan elbiselerini giyebilir mi? (Can your child dress-up without help?)	HİÇ ZORLUK ÇEKMEZ..... 1 (No difficulty at all) BİRAZ ZORLANIR..... 2 (Has difficulty a little) ÇOK ZORLANIR..... 3 (Has difficulty a lot) KENDİ BAŞINA YAPAMAZ 4 (Cannot do him/herself)
3. Evde yaşayan herkes çocuğunuzun söylediklerini zorlanmadan anlar mı? (Can everyone in the house understand what your child says without any difficulty?)	ZORLANMADAN ANLAR 1 (No difficulty at all) BİRAZ ZORLANARAK ANLAR..... 2 (Has difficulty a little) ÇOK ZORLANIR..... 3 (Has difficulty a lot) HİÇ ANLAŞILMAZ 4 (Cannot understand)
4. Aileden olmayan diğer kişiler çocuğunuzun söylediklerini zorlanmadan anlar mı? (Do people outside the family understand what your child says without difficulty?)	ZORLANMADAN ANLAR 1 (No difficulty at all) BİRAZ ZORLANARAK ANLAR..... 2 (Has difficulty a little) ÇOK ZORLANIR..... 3 (Has difficulty a lot) HİÇ ANLAŞILMAZ 4 (Cannot understand)

5. Yaşıtları ile karşılaştırıldığında, çocuğunuz yeni şeyler öğrenirken zorlanır mı? (Compared to the peers, does your child have difficulty learning new things?)	ZORLANMADAN ÖĞRENİR 1 (No difficulty at all) BİRAZ ZORLANARAK ÖĞRENİR..... 2 (Has difficulty a little) ÇOK ZORLANIR..... 3 (Has difficulty a lot) HİÇ ÖĞRENEMEZ..... 4 (Cannot learn)
6. Yaşıtları ile karşılaştırıldığında, çocuğunuz bildiklerini hatırlamakta zorlanır mı? (Compared to the peers, does your child have difficulty remembering what he/she knows?)	ZORLANMADAN HATIRLAR..... 1 (No difficulty at all) BİRAZ ZORLANARAK HATIRLAR 2 (Has difficulty a little) ÇOK ZORLANIR..... 3 (Has difficulty a lot) HİÇ HATIRLAMAZ 4 (Cannot remember)
7. Çocuğunuz sevdiği şeylerle uğraşırken dikkatini vermekte zorlanır mı? (Does your child have difficulty paying attention when doing things he/she loves?)	ZORLANMADAN DİKKATİNİ VERİR 1 (No difficulty at all) BİRAZ ZORLANARAK VERİR..... 2 (Has difficulty a little) ÇOK ZORLANIR..... 3 (Has difficulty a lot) HİÇ DİKKATİNİ VEREMEZ 4 (Cannot pay attention)
8. Yaşıtları ile kıyaslandığında, davranışlarını kontrol etmekte zorlanır mı? (örn., koşturması gereken yerde kurala uyar mı?) (Compared to the peers, does your child have difficulty controlling his/her behavior?)	HİÇ ZORLUK ÇEKMEZ..... 1 (No difficulty at all) BİRAZ ZORLANIR 2 (Has difficulty a little) ÇOK ZORLANIR..... 3 (Has difficulty a lot) HİÇ KONTROL EDEMEZ 4 (Cannot control)
9. Arkadaşlık kurmakta zorlanır mı? (Does your child have difficulty making friends?)	HİÇ ZORLUK ÇEKMEZ..... 1 (No difficulty at all) BİRAZ ZORLANIR 2 (Has difficulty a little) ÇOK ZORLANIR..... 3 (Has difficulty a lot) HİÇ ARKADAŞLIK KURAMAZ 4 (Cannot make friends)

10. Çocuğunuz başka çocuklara veya yetişkinlere vurur, ısırır veya tekme atar mı? (Does your child hit, bite or kick other children or adults?)	HİÇBİR ZAMAN 1 (Never) BAZEN 2 (Sometimes) SIK SIK 3 (Often) HER ZAMAN 4 (Always)
11. Yaşadıklarını basit ve tam cümlelerle anlatır mı? (“Ayşe’yle ben oynadık”, “Anne beni al” vb.) (Does your child describe his/her experiences in simple and complete sentences?)	HİÇBİR ZAMAN 1 (Never) BAZEN 2 (Sometimes) SIK SIK 3 (Often) HER ZAMAN 4 (Always)
12. Çocuğunuz 5 dakika süreyle bir veya daha fazla çocuk ile uyum içinde oynar mı? (Does your child play harmoniously with one or more children for 5 minutes?)	HİÇBİR ZAMAN 1 (Never) BAZEN 2 (Sometimes) SIK SIK 3 (Often) HER ZAMAN 4 (Always)
13. Hayal gücünü kullanarak eşyaları oyuncak olarak kullanır mı? (örneğin, TV kumandasıyla arabaymış gibi oynar mı?) (Does your child use objects as toys using her imagination?)	HİÇBİR ZAMAN 1 (Never) BAZEN 2 (Sometimes) SIK SIK 3 (Often) HER ZAMAN 4 (Always)
14. İstenildiğinde/Sorulduğunda elindeki oyuncakları paylaşmayı kabul eder mi? (Does your child agree to share his/her toys when requested/asked?)	HİÇBİR ZAMAN 1 (Never) BAZEN 2 (Sometimes) SIK SIK 3 (Often) HER ZAMAN 4 (Always)

APPENDIX H

BRIGANCE EARLY CHILDHOOD SCREEN II (K & 1)

Şimdi çocuğunuzun gelişimine dair bazı sorular soracağız. Çocukların gelişimi bu dönemde birbirinden farklılıklar gösterir. Biz de çocuğunuzun şu anda neler yapabildiğini öğrenmek istiyoruz.

(Now we will ask you some questions about your child's development. Children's development varies from one another during this period. We want to know what your child can do now.)

1. İsmi söyleyebilir mi?*	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
2. Soyadını söyleyebilir mi?*	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
3. Sorulduğunda yaşını doğru söyleyebilir mi?*	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
4. Evinizin adresini söyleyebilir mi? (sokak ya da apartman adı)*	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
5. Alfabenin en az 10 harfini tanıyabilir mi?	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
6. Kendi isminin yazılı halini tanıyabilir mi?	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
7. 1'den 10'a kadar sırayla sayabilir mi?*	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
8. 1'den 10'a kadar sayı gördüğünde hepsini doğru tanır mı?	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
HANGİ VÜCUT BÖLÜMLERİNİ İSMİ İLE SÖYLEYEBİLİR?			
(Which body parts can your child name?)			
9. Topuk*	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
(Heel)			
10. Ayak bileği*	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
(Ankle)			
11. Çene*	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
(Chin)			

12. Omuzlar* (Shoulders)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
13. Dirsek* (Elbow)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
14. Popo (Butt)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
15. Bilek* (Wrist)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
16. Bel* (Waist)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
17. Burun* (Nose)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
HANGİ RENKLERİ TANIYIP SÖYLEYEBİLİR? (Which colors can your child recognize and say?)			
18. Kırmızı* (Red)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
19. Mavi* (Blue)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
20. Yeşil* (Green)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
21. Sarı* (Yellow)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
22. Turuncu* (Orange)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
23. Mor* (Purple)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
24. Kahverengi* (Brown)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
25. Siyah* (Black)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
26. Pembe* (Pink)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)
27. Gri* (Grey)	EVET (YES)	HAYIR (NO)	BİLMİYORUM (DON'T KNOW)

* The same questions were asked to the child directly with minor revisions such as instead of “Does your child say his/her name?”, the research assistant asked to the child “What is your name?”

APPENDIX I

PROGRAM EVALUATION QUESTIONS

Belediyenizin sunmuş olduđu Ev Ziyareti programından almış olduğunuz destekten ne kadar memnun kalmıştınız?

(How satisfied were you with the support you received from the Home Visitation program offered by your municipality?)

PROGRAM SAYESİNDE, (Thanks to the program...)	1 Hiç Katılmıyorum (Totally Disagree)	2	3	4	5	6 Tamamen Katılıyorum (Totally Agree)
1. Çocuğumun nasıl daha sağlıklı beslenebileceğini öğrendim (I learned how to feed my child healthier)	1	2	3	4	5	6
2. Bir zorluk yaşadığım zaman çevremden destek isteyebileceğimi öğrendim (I learned that I can ask for support from those around me when I have a difficulty)	1	2	3	4	5	6
3. Çocuğumla daha bilinçli oyun oynamaya başladım (I started playing games with my child more consciously)	1	2	3	4	5	6
4. Çocuğumla daha yakın bir ilişki kurmaya başladım (I started to have a closer relationship with my child)	1	2	3	4	5	6
5. İhtiyacım olan desteği ev ziyaretçim bana sağlayabildi (My home visitor was able to provide me the support I needed for)	1	2	3	4	5	6

6. Kendimi daha iyi bir anne olarak görmeye başladım (<i>I started to see myself as a better mother.</i>)	1	2	3	4	5	6
--	---	---	---	---	---	---

7. Geçmişe dönüp baktığınızda ev ziyaretçinizden almış olduğunuz destekten en çok hangisi işinize yaradı?

(*When you look back, what was the most helpful support you received from your home visitor?*)

8. Geçmişe dönüp baktığınızda almış olduğunuz destekten hala kullandığınız neler var?

(*When you look back, what do you still use from the support you received?*)

9. Programın 18 ay boyunca sürmesine dair ne düşünüyorsunuz?

(*What do you think about the program lasting for 18 months?*)

- Daha kısa olabilirdi. Sizce kaç ay sürmeliydi? _____
(*Could have been shorter*)
- Yeterliydi
(*It was enough*)
- Daha uzun olabilirdi. Sizce kaç ay sürmeliydi? _____
(*Could have been longer*)

APPENDIX J

NEED ASSESSMENT FOR CONTROL GROUP

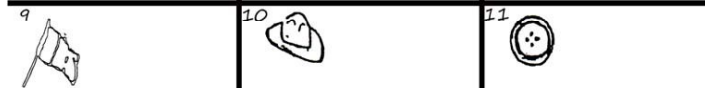
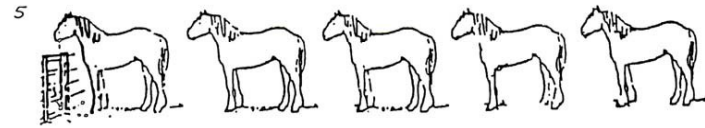
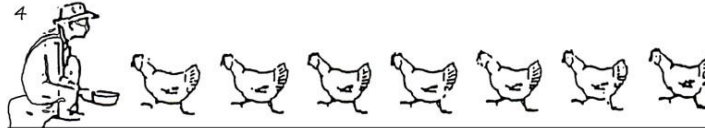
1. Çocuğunuz doğduktan sonraki ilk 3 yıl içerisinde annelik ve çocuk bakımı konusunda en çok hangi alanlarda zorlandınız?
(What were the most challenging aspects of motherhood and childcare in the first 3 years after your child was born?)

2. Çocuğunuz doğduktan sonraki ilk 3 yıl içerisinde annelik ve çocuk bakımı konusunda profesyonel bir yönlendirme/destek almak ister miydiniz? Bu yönlendirmenin/desteğin size nasıl (ev ziyareti veya merkeze davet edilerek) verilmesini ve hangi alanları kapsamasını isterdiniz?
(Would you like to receive professional guidance/support regarding motherhood and child care in the first 3 years after your child was born? How would you like this guidance/support to be given to you (via a home visit or an invitation to the centre) and what areas would you like it to cover?)

APPENDIX K

METROPOLITAN SCHOOL READINESS TEST

TEST 5 SAYILAR

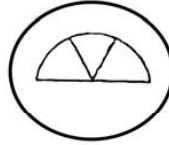
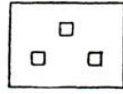
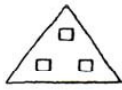


TEST 4 EŞLEŞTİRME

Exc.



Exc.



AO

OK



KO

NO

63/

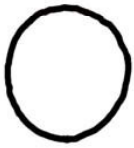
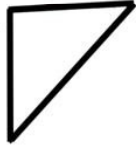
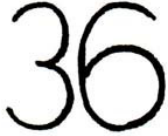
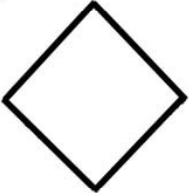
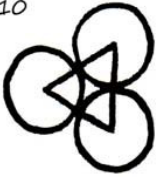
36/



3/6

6/3

TEST 6 KOPYA ETME

1 	6 
2 	7 
3 	8 
4 	9 
5 	10 

16

*Only sample items were presented due to the copyright issues of the Metropolitan School Readiness Inventory.

APPENDIX L

PICTURE SCEN TO EVALUATE CHILD'S VERBAL SKILL



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