ENHANCING MATERNAL WELL-BEING, PARENTING, AND TODDLER'S DEVELOPMENT: FINDINGS FROM A HOME VISITATION PROGRAM

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2023

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Thesis submitted to the

Institute for Graduate Studies in Social Sciences

in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

in

Psychology

by

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2022

DECLARATION OF ORIGINALITY

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ABSTRACT

Enhancing Maternal Well-Being, Parenting, and Toddler's Development:

Findings from a Home Visitation Program

The first years of life have been suggested as times of greatest vulnerability and a unique opportunity in terms of development. The accumulating evidence suggested that early adversity compromises young children's development (Shonkoff et al., 2012). Nurturing and stimulating early care, on the other hand, acts to promote socioeconomically disadvantaged children's development. This, indeed, underscores the importance of early childhood interventions (Duncan et al., 2012). The first aim of this study was to investigate the role of a home visitation (HV) program entitled *The Family Guidance Program*, on various familial and developmental outcomes. Going beyond the extant research, this study also aims to delineate mechanisms through which the HV program plays a role in child development in infancy and toddlerhood. Specifically, maternal self-efficacy and developmentally supportive parenting in the first year of child's life would be examined as intermediary pathways through which the HV program may benefit child development (i.e., general development, expressive language, aggressive behavior, and social competence). The results indicated that the HV program enhanced developmentally supportive parenting, the home environment quality, and infant's general development (marginally) during the first year of child's life. Further, as hypothesized, maternal parenting behaviors mediated the role of the HV program on most of the child outcomes at 12 and 18 months of child's age. The results were discussed in relation past literature and the theory of change the HV program adopted.

ÖZET

Annelerin İyilik Hallerinin, Ebeveynliklerinin ve Bebeklerin Gelişiminin Desteklenmesi: Bir Ev Ziyareti Programından Bulgular

Yaşamın ilk yıllarının hem çevresel uyaranlara hassasiyetin en yüksek olduğu, hem de gelişim açısından eşsiz fırsatlar sunan bir dönem olduğu düşünülmektedir. Sayıları giderek artan çalışmalar yaşamın erken döneminde maruz kalınan güçlüklerin çocukların gelişimini olumsuz yönde etkilediğini göstermektedir (Shonkoff ve ark., 2012). Öte yandan, erken dönemde sunulan destekleyici bakım sosyoekonomik olarak dezavantajlı çocukların gelişimine katkı sunmaktadır. Bu durum, erken çocukluk dönemi müdahale programlarının önemini göstermektedir (Duncan ve ark., 2012). Bu çalışmanın ilk amacı *Aile Rehberliği Programı* olarak adlandırılan ev ziyareti temelli bir erken müdahale programının birçok aile ve gelişimsel sonuç değişkeni üzerindeki rolünü incelemektedir. Ayrıca, bu çalışma, programın bebeklik dönemindeki (12. ve 18. ay) gelişim göstergeleri üzerindeki rolünü açıklayabilecek aracı mekanizmaları araştırmayı amaçlamaktadır. Çocukların yaşamlarının ilk yılında annelerin yetkinlik algısı ve destekleyici ebeveynlik davranışları programın çocukların gelişimini (örn., genel gelişim, ifade edici dil gelişimi, saldırgan davranışlar ve sosyal yetkinlik) destekleyebileceği aracı mekanizmalar olarak incelenmiştir. Çalışmanın bulguları programın destekleyici ebeveynlik davranışları ile çocukların genel gelişimi üzerindeki olumlu rolünü göstermiştir. Ayrıca, programın çocuk gelişimi üzerindeki rolünün annenin destekleyici davranışları aracılığıyla açıklandığı bulunmuştur. Bu bulgular geçmiş çalışmaların bulguları ve bu programın benimsediği değişim kuramı ışığında tartışılmıştır.

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ACKNOWLEDGEMENTS

Firstly, I would like to express my sincerest appreciation to my academic advisor, Feyza Çorapçı for her endless support, motivating talks, and encouragement. Besides the emotional support she provided for me throughout my PhD, she has always been ready to share her immense knowledge and invaluable academic experience with me. Without her constant guidance and insightful feedbacks, this dissertation could not have been completed.

I am also sincerely grateful to Nebi Sümer and Nihal Yeniad Malkamak for accepting being a part of my thesis committee from the very beginning and contributing to all phases of my dissertation with their positive, encouraging, and constructive comments and feedbacks. It is their valuable presence and guidance that brought my dissertation to its final form. I would also like to thank my thesis committee members, Bengü Börkan, Z. Hande Sart, and Yasemin Kisbu for their valuable comments and insightful feedbacks. And Alp Aytuğlu, my dear friend, helped me a lot throughout this thesis particularly in carrying out analyses. I learnt a great deal from him and grateful to all his help.

The Family Guidance program and this dissertation have been made possible through the coordinated efforts of the faculty members, graduate, and undergraduate students at Boğaziçi University, The Bernard Van Leer Foundation, and four municipalities in İstanbul. I would like to thank all those people and institutions for their immense contributions and efforts for the program. And I would also like to thank mothers and their babies who have participated in the program.

I owe my greatest appreciation to Yusuf, my beloved husband, who has always been with me with his endless support and encouragement throughout the good times and the bad. It is his companion that has always encouraged me to never give up. Also, I am deeply thankful to my dear family members, especially my mom and dad, who have always supported me in all my decisions.

Lastly, I would like to acknowledge that I have been financially supported by YÖK with a PhD scholarship, 100/2000 throughout my doctoral studies.

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CHAPTER 1

INTRODUCTION

There is growing evidence that adversity in the first years of life (e.g., poverty) underlines lifelong disparities in learning, behavior, mental, and physical health (Duncan & Magnuson, 2013; Heckman, 2006; National Scientific Council on the Developing Child, 2007; Shonkoff et al., 2012). The effect of early adversity on later developmental outcomes is mainly explained not only by alterations in the caregiving of young children (Conger & Donellan, 2007; Yeung et al., 2002) but also by alterations in brain development (Duncan & Magnuson, 2013; Leijser et al., 2018; Shonkoff et al., 2012). Recent research on brain plasticity has shown that human brain starts to develop prenatally, but much of its growth is completed in the first three years of life during which numerous connections between neurons are established (Shonkoff & Phillips, 2000). Rapid development in the brain and related neurological systems early in the life leaves it sensitive to the effects of early adversity (Leijser et al., 2018; National Scientific Council on the Developing Child, 2007).

On the other hand, the first three years of life also offer a unique opportunity for compensating adversity in the lives of vulnerable young children and their families. Accumulating neuroscientific evidence has revealed that the brain's responsiveness to experience is greatest in the first three years. This indicates the brain's capacity to recover from the devastating effects of early adversity in response to early childhood interventions (Johnson et al., 2016; Leijser et al., 2018; Roth & Sweatt, 2011). In support of the sensitive periods assumption, intervention programs that are developed

for infants, toddlers, and their families are more effective and result in sustained improvements in various indices of family functioning and children's developmental outcomes than programs focusing on later periods of development (Dishion et al., 2008; Doyle et al., 2009; Henwood et al., 2020; Peacock et al., 2013). As programs that target very young children and their families under impoverished conditions have higher returns and sustained positive consequences later in developmental course, such programs have steadily increased in recent years (Cannon et al., 2018; Doyle et al., 2009; Heckman, 2006; Nores & Barnett, 2010; Stoltzfuz & Lynch, 2009). Early interventions have a long tradition in developed countries (Finello et al., 2016; Nores & Barnett, 2010; Sweet & Appelbaum, 2004). In line with this, research that evaluates the efficacy and the effectiveness of these programs on various developmental outcomes as well as their sustained impact has been publicly encouraged (Finello et al., 2016). In recent years, there is an increasing effort towards enhancing early childhood development in low-and middle-income countries (LMICs; Jeong, Franchett et al., 2021; Nores & Barnett, 2010; United Nations Educational, Scientific, and Cultural Organization (UNESCO), 2007). Despite such tendency to invest in early childhood development, there is still a substantial gap with regard to public policy and coordinated mechanisms to promote child development and health in the early years of life (Shonkoff, 2010). To narrow this gap, there is an obvious need for publicly funded, rigorously designed, and well-evaluated early childhood programs in LMICs. Yet, in LMICs, there is limited research to inform early childhood development interventions, although there is a recent growth in this line of research (Grantham-McGregor & Smith, 2016; Jeong, Franchett et al., 2021; Shonkoff, 2010).

The Family Guidance Program is a home visitation (HV) based early intervention program developed in Turkey for socioeconomically disadvantaged families with newborn infants. This HV program aims to improve maternal parenting skills and psychological well-being as well as provide guidance for healthy nutrition in the first three years of life. This study primarily aimed to evaluate the potential benefits of the Family Guidance Program implemented in Maltepe and Sultanbeyli districts of Istanbul. The goal of the study was twofold: (1) to examine the role of the HV program on various parental and developmental outcomes, and (2) to investigate the mechanisms through which the potentially beneficial role of the program on child developmental outcomes take place. In the following section, the important role of early adverse experiences on child development is delineated. In this section, first, the direct relationship between poverty as one of the most important forms of early adversity and child developmental outcomes are reviewed. Next, theoretical frameworks that emphasize familial processes through which poverty exerts its influence on child development are introduced.

1.1 The role of early adversity on child development

1.1.1 Poverty and child development outcomes

Poverty takes a substantial toll on development throughout the lifespan. There is growing evidence from neuroscience and developmental psychology that the timing of poverty is critical (Azma, 2013; Duncan et al., 2012; Duncan & Magnuson, 2013). Compared to later ages, poverty and accompanying adverse conditions are more threatening from the prenatal period throughout the first three years of life, during which the brain undergoes a rapid development that are foundational for subsequent health,

cognitive, and socioemotional outcomes (Duncan et al., 2012, 2017; Heckman, 2006; Shonkoff & Phillips, 2000; Shonkoff et al., 2012). Brain development in the first years of life depends mostly on the early experiences as these years are both times of greatest vulnerability as well as an opportunity for optimal development (Azma, 2013; Britto et al., 2017; Duncan et al., 2012; Leijser et al., 2018; National Scientific Council on the Developing Child, 2007).

It has long been believed that genetics, experience, and the dynamic interplay between them are the drivers of the brain development in the early years of childhood (Johnson et al., 2016). Thus, early experiences are seen as influential as genetics on the organization of the developing brain and related neurological systems. In fact, accumulating scientific evidence has indicated that the role of experience on neurodevelopment is even more pronounced in adverse circumstances. Adversity during early years such as poverty, maltreatment, and family disruption affects deleteriously the structure, function, and the organization of the infant's developing brain. Such marks of early adversity on the brain may have profound and long-lasting influences on several systems such as language, attention, and memory. Recently, epigenetics researchers have demonstrated that early social and psychological experiences induce alterations in gene expression that, in turn produce changes in the structure, function, and the organization of the nervous system (Cicchetti & Blender, 2006; Roth & Sweatt, 2011). Notably, in both human and animal studies, epigenetic changes in the genome have been asserted to be driven mainly by the caregiving environment early in life (Johnson et al., 2016; Roth & Sweatt, 2011).

A number of studies have linked poverty in the first years of life with a variety of adverse developmental outcomes such as elevated behavior problems and lower IQ

scores in early childhood (Smith et al., 1997; Holtz et al., 2015), academic failure, and higher rates of school dropout in middle childhood and adolescence (Brooks-Gunn & Duncan, 1997; Lesner, 2018; Ratcliffe & McKernan, 2010) and less schooling, lower earnings, higher rates of unemployment, increased risk of developing mental disorders, and higher rates of nonmarital birth in adulthood (Brooks-Gunn & Duncan, 1997; Duncan et al., 2012; Lesner, 2018; Ratcliffe & McKernan, 2010).

Poverty affects young children at disproportionately higher rates than it affects any other age group (Duncan et al., 2012). Further, children growing up in poverty early in their lives are less likely to fulfill their potential. Socioeconomic disadvantage becomes cyclical (i.e., moving in and out of poverty) in their lives if not intervened in a timely manner particularly in LMICs (Dayıoğlu & Şeker, 2016; Doyle et al., 2009; Duncan et al., 2012; Ratcliffe & McKernan, 2010). According to Cunha and his colleagues' "skill begets skill" hypothesis, poverty early in life lags children behind their counterparts in terms of early developmental milestones and such early disadvantage widens with age and corresponds with disparities later in life (Cunha et al., 2006). Thus, poverty experienced early in life seem to affect child development more deeply than other developmental periods (Cunha et al., 2006; Ratcliffe & McKernan, 2010).

1.1.2 Bronfenbrenner's bioecological model and the family stress model

The growing recognition that early experience matters for later development brought parenting and early family environment into the center of research attention as these factors are the primary proximal processes in the first years of life. From a theoretical point of view, the idea that parents and family as a whole are integral parts of child development, particularly in the first years of child's life, has been strongly emphasized

in Bronfenbrenner's bioecological theory (Bronfenbrenner & Morris, 2006) as well as in the Family Stress Model (Conger & Donellan, 2007; Yeung et al., 2002).

According to the Bronfenbrenner's bioecological theory, human development occurs within a set of nested structures; some are proximal (e.g., parents) while others are distal (e.g., socioeconomic status) to developing child, and complex interactions among such structures and biopsychosocial characteristics of the child, in turn shape developmental outcomes (Bronfenbrenner & Morris, 2006). In the first years of life, parents are the primary proximal forces interacting with the child's own characteristics and the wider circles of sociocultural environment. The home environment is the first place where these proximal forces exert their influence on a developing child. As a result, parents, and the home environment they provide for their children have particular importance on young children's development.

In a similar vein, the Family Stress Model places a strong emphasis on how distal processes of families' socioeconomic conditions exert their influence on more proximal processes (e.g., parental mental health and parenting), which, in return contribute to child developmental outcomes (Conger & Donellan, 2007; Duncan et al., 2017; Yeung et al., 2002). More clearly, the Family Stress Model explains the relationship between poverty and child outcomes through the mediating family processes. The model states that economic deprivation brings about a multitude of life stressors, which lead to economic insecurity and emotional distress. The feelings of emotional distress may compromise parent's emotional well-being and make parents vulnerable to mental health problems (e.g., loss of control, feeling of ambiguity, and uncertainty). Mental health problems, in return may deplete parental resources and result in parenting behaviors

characterized by low levels of warmth, sensitivity, nurturance, and inconsistent and harsh discipline (Conger & Donellan, 2007).

The Family Stress Model has been tested and supported in several studies. Rijlaarsdam et al. (2013), for instance, indicated that economic disadvantage (e.g., low family income, financial difficulties) in the first months of infancy predicted increases in mother-reported depressive symptoms, which in turn, predicted more parenting stress and higher instances of harsh discipline. Maternal depression and harsh discipline, in turn predicted elevated levels of behavior problems at age 3. Gueron-Sela et al. (2018) also demonstrated that in a predominantly low-income, rural community, maternal depressive symptoms when their children were 2 years of age predicted poorer executive function performance at 4 years of age even after controlling for multiple demographics, parental and child factors. Economic disadvantage may also affect parent-child interaction in early years which has a major role in language development (Perkins et al., 2013; Justice et al., 2019). In a low socioeconomic status (SES) sample, Justice et al. (2019) indicated that parental distress predicted parent-child dysfunctional interactions (i.e., parents' negative perceptions of interactions with their children), which in return linked to poorer receptive and expressive language development at 2 years of child age. Further, in a recent study, Okur-Ataş and Kazak Berument (2022) examined the relationship between poverty and 5-year-old children's school readiness and indicated that perceived maternal rejection mediated the link between family income and children's phonological awareness, and home stimulation mediated the link between food insecurity and children's receptive vocabulary and math skills.

1.2 The importance of early childhood interventions to reduce the negative impact of poverty

1.2.1 Neuroplasticity: Capacity for change

Neuroscientific evidence from both animal and human studies indicated that the effect of early adversity on infant's brain can be somewhat reversed when these infants are provided with "nurturing care" (Johnson et al., 2016; Lipina & Posner, 2012). This malleability in the microstructure and biochemistry of the central nervous system was termed as "neuroplasticity" and received great research and public attention in recent years as its implications in terms of early childhood interventions have been widely recognized (Azma, 2013; Cicchetti & Blender, 2006; Lipina & Posner, 2012; Power & Schlaggar, 2017).

Notably, the nervous system's capacity to change is not without its limits. Evidence from the work in developmental neuroscience points to the "windows of time" or sensitive periods in the postnatal period during which neural plasticity is greatest (Johnson et al., 2016; Roth & Sweatt, 2011). During these sensitive periods, the brain shows heightened sensitivity to the environmental influences and depending on the type of early experience, the child develops either positive (i.e., resilience) or negative adaptation (i.e., risk for later developmental problems and psychopathology) (Roth & Sweatt, 2011). Therefore, increased plasticity in response to positive early experiences, especially in the first three years of life underscores the importance of early childhood development interventions for children's later learning, cognitive, and socioemotional skills (Azma, 2013; Johnson et al., 2016).

1.2.2 Nurturing care framework

Drawing on the accumulating neuroscientific evidence and longitudinal follow up studies showing that various environmental influences are at work prenatally and in the first three years when the brain is highly sensitive to early experience, the publication of the Lancet Early Childhood Development series: *Advancing Early Childhood Development: From Science to Scale* in 2017 introduced the *Nurturing Care Framework* that combines scientific knowledge, policy, and practice. Developed by the World Health Organization, UNICEF, and the World Bank, this framework acknowledges that young children raised in poor families in the first three years of life are at greater risk of experiencing suboptimal development and stunted growth. Considering that approximately 250 million children under age five in LMICs are at risk for suboptimal development (Black et al., 2017; Britto et al., 2017), the main vision of the nurturing care framework is to create "*a world in which every child is able to develop their full potential and no child is left behind*" (World Health Organization, United Nations Children's Fund, & World Bank Group, 2018, *p*.24).

Given that many families experience food insecurity and young children are deprived of adequate nutrition which adversely influences their physical health as well as cognitive development under severe poverty, policies and interventions targeting young children's optimal development must address adequate health care services and nutrition (Black et al., 2017; Britto et al., 2017; WHO et al., 2018). However, these two alone do not suffice for optimal development. Nurturing, responsive, enriching, and stimulating parenting in the early years that provides young children with opportunities for learning, security, and safety together with health and nutrition should characterize an early caregiving environment that support young children to reach their full potential

(Black & Trude, 2019). Hence, the Nurturing Care Framework requires collaboration among many stakeholders (e.g., government, health services, local authorities) to incorporate the elements of nurturing care into policies, programs, and services. This framework aims to create an enabling and supportive environment for families and communities to ensure that young children grow up in a healthy, safe, and secure environment with access to adequate nutrition, responsive caregiving, and learning opportunities (Black & Trude, 2019; Britto et al., 2017; WHO et al., 2018).

Early childhood interventions in LMICs (e.g., Jamaica, Pakistan, Turkey) that included elements of the nurturing care have been shown to have positive influences on children's cognitive and socioemotional development in the short-term and on adult outcomes in the long-term (Gertler et al., 2014; Kağıtçıbaşı et al., 2001, 2009; Yousafzai et al., 2014). More importantly, there is mounting evidence that these multicomponent interventions augmented the positive effects of basic health, nutrition, and protection interventions on child outcomes and yielded better and sustained program effects (Aboud & Yousafzai, 2015; Britto et al., 2017; Gertler et al., 2014; Walker et al., 2004).

1.3 Types of early interventions for young children

Early childhood interventions have a long history in developed countries (Finello et al., 2016; Nores & Barnett, 2010; Sweet & Appelbaum, 2004). The main aim of these interventions was to provide opportunities to disadvantaged young children for school readiness (Finello et al., 2016). Thus, the initial successful examples of early childhood interventions start in the preschool years (e.g., The Perry Preschool Project, The Abecedarian Project, Head Start). Infants and children younger than preschool age were

relatively underrepresented in these early programs (Doyle et al., 2009). In the last two decades, growing neuroscientific evidence on early brain development has altered the timing of early childhood programs. Thus, beginning from the early 2000's, programs capitalize on the evidence that greatest positive developmental outcomes can be achieved for high-risk young children if their parents are supported starting from the prenatal period throughout the first years of life (Mountain et al., 2017; Peacock et al., 2013; Henwood et al., 2020; Sweet & Appelbaum, 2004). This shift in the optimal timing of early childhood development interventions has also been accompanied by a greater focus on early supportive, stimulating, and nurturing relationships as their influence on brain development as well as on children's health, behavior, and learning competence have been recognized by researchers, practitioners, and policy makers (Doyle et al., 2009; Grantham-McGregor & Smith, 2016; Mountain et al., 2017; Finello et al., 2016; Sweet & Appelbaum, 2004).

Despite the importance they attached to the first years of life and early experience, these early childhood programs differ in various other aspects such as the theory of change they adopted (i.e., why an intervention is supposed to work and what outcomes it is expected to achieve), the mode of delivery, duration, target population, and the dosage of intervention (Azzi-Lessing, 2011; Finello et al., 2016; Stoltfuz & Lynch, 2009; Zhang et al., 2021). There are various ways through which early childhood programs can be delivered such as through health care services and professionals, community-based programs, or home visitation programs (Azzi-Lessing, 2011; Aboud & Yousafzai, 2015; Finello et al., 2016; Singla et al., 2015; Zhang et al., 2021). Notably, there has been positive evidence for all these delivery modes on various outcomes pertaining to family and parental functioning, and child development, and each has

certain advantages as well as disadvantages. Hence, none of these delivery modes is considered superior to others. In fact, some programs utilize both or all these modes as they all play a role in optimal early childhood development (Attanasio et al., 2022; Aboud & Yousafzai, 2015; Azzi-Lessing, 2011; Britto et al., 2017; Singla et al., 2015). Below two of the available platforms, namely the health care programs and community programs to provide early childhood interventions were briefly reviewed, followed by a more elaborated section on parent coaching via home visitation (HV), which also constitutes the delivery of the present intervention study.

1.3.1 Health care programs

Primary health care interventions are developed to provide support for maternal, newborn, childhood health (MNCH), and aim to prevent risks for injury, disease, possible death, and disability (Bhutta et al., 2008; McCalman et al., 2017). Health care programs are usually delivered through health care workers who offer services on prenatal (e.g., iron, and folic acid supplementation), antenatal, and postnatal care (e.g., immunizations, prevention of acute malnutrition). Such programs are developed to ensure that families of disadvantaged young children, who are at risk of serious health problems such as low birth weight, birth complications, and stunted development can have an equal access to early childhood development services (Bhutta et al., 2008).

Notably, recent primary health care interventions do not have parent-only or child-only focus, but often adopt a family-centered orientation. Family centered health care approaches offer support and services to the whole family's health and well-being. Further, their support and care often are not confined to health-related issues, the programs also aim to promote parent's skills of caregiving, parental knowledge of child

development, and to enhance positive parent-child interactions (McCalman et al., 2017; Peacock-Chambers et al., 2017). To note, most of these family centered health care programs are implemented and evaluated in Western countries such as Australia, Canada, New Zealand, and the United States, and resulted in positive outcomes in terms of familial and child functioning (McCalman et al., 2017; Peacock-Chambers et al., 2017).

1.3.2 Community-based programs

Community-based programs are another method through which early childhood interventions and parenting programs are delivered to high-risk families (Aboud & Yousafzai, 2015; Singla et al., 2015). Such programs offer services mainly to parents to promote their knowledge on child development, to increase their awareness on the importance of the first years of life and to teach them effective ways of stimulation and sensitive care of their young children (e.g., through play) (Beecher & Van Pay, 2020; Singla et al., 2015). Moreover, services (e.g., therapy-based interventions, parenting groups) to parents for their own well-being and mental health are also incorporated in some of the community-based programs (Morris et al., 2012; Rahman et al., 2008; Singla et al., 2015).

These programs are advantageous for several reasons. First, they are cost effective compared to individualized and/or home-based programs, thus, suitable in rural and low-resource communities (e.g., Uganda and Bangladesh). Since such community programs demand less resource and capacity compared to one-on-one basis programs, it is easier to scale up these programs and implement them to large groups (Beecher & Van Pay, 2020). Second, community-based programs are usually delivered by volunteer

community members or community health workers. Since those people delivering interventions are mainly from the community, they are familiar with the culture. Thus, participant families feel close to them which enhances their engagement with the program (Beecher & Van Pay, 2020; Singla et al., 2015). Third, parents who participate in group sessions have an opportunity to hear from other parents about their experiences, feelings, and concerns. Such an atmosphere enables an exchange of ideas and provide support to parents. Moreover, through this social exchange, stigmatization of parents is less likely to occur (Morris et al., 2012; Singla et al., 2015). Fourth, group sessions in community-based programs provide an excellent opportunity for parents to establish linkages with community resources (Singla et al., 2015). Yet, as a disadvantage, needy families might not get the additional support and guidance for effective behavior change in their parenting skills. For those families, parent coaching programs delivered through home visitation might be a more promising approach as detailed below.

1.3.3 Home visitation programs

Parent coaching through home visitation (HV) is another way through which vulnerable families can be supported and early childhood development can be enhanced. These programs offer services and guidance to parents of infants and toddlers in their homes. As an early preventive intervention strategy, the HV model is based on the idea that a disadvantaged developmental trajectory of high-risk young children can be altered through empowering parents' well-being, efficacy, and positive parenting skills (Howard & Brooks-Gunn, 2009; Lahti et al., 2019; Nievar et al., 2010). The HV model has received an unprecedented attention in both developed and developing countries during

the last few decades (Azzi-Lessing, 2011; Finello et al., 2016; Minkovitz et al., 2016; Sweet & Appelbaum, 2004).

Rather than as a stand-alone strategy, the HV model has recently become integrated into services for the early childhood system. HV programs often target parental (parental well-being, self-efficacy, parenting), familial (e.g., family self-sufficiency) and broad environmental mechanisms that would mediate the impact of socioeconomic disadvantage on child outcomes (Azzi-Lessing, 2011; Lahti et al., 2019; Minkovitz et al., 2016; Sweet & Appelbaum, 2004). HV programs may consist of a variety of services such as screening for abuse and maltreatment, training parents for positive parenting skills and knowledge of child development and providing support to parents with mental health problems, as well as referring parents to educational and job training programs (Avellar & Supplee, 2013; Azzi-Lessing, 2011; Finello et al., 2016; Minkovitz et al., 2016; Nievar et al., 2010; Stoltzfus & Lynch, 2009). In selected preventive interventions, home visitors work with families who deal with a multitude of risk factors such as poverty, parental mental health problems, and child maltreatment (Azzi-Lessing, 2011; Casillas et al., 2016; Howard & Brooks-Gunn, 2009; Minkovitz et al., 2016; Nievar et al., 2010; Stoltzfus & Lynch, 2009). Occasionally, HV programs are combined with other elements of early childhood development interventions such as nutritional supplementation programs (Walker et al., 2004). At times, home visitors also act as liaisons to connect families with community services such as health care when needed (Avellar & Supplee, 2013; Azzi-Lessing, 2011; Howard & Brooks-Gunn, 2009; Lahti et al., 2019). Thus, the common objective of all HV programs is to empower parents with positive caregiving skills to help them promote their young children's development as well as provide support for their own well-being.

Home visits are implemented with varying frequency by either professionals, paraprofessionals, or non-professionals (Avellar & Supplee, 2013; Howard & Brooks-Gunn, 2009; Minkovitz et al., 2016; Stoltzfus & Lynch, 2009; Sweet & Appelbaum, 2004). Home visiting is a particularly valuable strategy for disadvantaged and disenfranchised families, whose access to such services is not as easy as advantaged, high SES families. Moreover, these services are offered to vulnerable families and their young children in their homes. This reduces transportation costs for such families and enhances their engagement to the program (Avellar & Supple, 2013; Brooks-Gunn et al., 2000; Nievar et al., 2010). Next, as the families are met in their familiar and comfortable environment, home visitors have a chance to make natural observations of the interactions between the family members and recognize their specific needs more accurately (Mountain et al., 2017; Nievar et al., 2010; Sweet & Appelbaum, 2004). In sum, HV programs are rather a primary preventive-intervention strategy that offers above mentioned services to high-risk families and their young children to prevent potential future developmental and behavioral problems (Avellar & Supple, 2013; Minkovitz et al., 2016; Stoltzfus & Lynch, 2009).

Despite similarities and common goals, HV programs differ in some ways such as the types of family served (e.g., single mothers, families from minority groups), the age of the target child, familial or developmental outcomes targeted (e.g., parental depression, self-efficacy, parenting behaviors, child maltreatment, cognitive or socioemotional outcomes of children), types of services delivered, and the length and dosage of services (Casillas et al., 2016; Finello et al., 2016; Howard & Brooks-Gunn, 2009; Nievar et al., 2010; Sweet & Appelbaum, 2004). For instance, while some HV programs capitalize on the attachment theory and the importance of maternal sensitivity

in the first years of children's lives (Dozier et al., 2018; Mountain et al., 2017; Sadler et al., 2013), others emphasize the role of stimulation and responsive interactions with children in the early years as key to minimize early inequalities and support children's subsequent cognitive, social, and emotional development, and school readiness (Caldera et al., 2007; Edwards et al., 2020; Grantham-McGregor & Smith, 2016; Greenwood et al., 2017; Guttentag et al., 2014; Jeong et al., 2018, 2019; Jeong, Franchett et al., 2021; Obradovic et al., 2016; Walker et al., 2004).

HV programs with attachment and maternal sensitivity focus (e.g., Attachment & Behavioral Catch-up, Social Baby, Minding the Baby, Video-Feedback Intervention to Promote Positive Parenting and Sensitive Discipline) capitalize on the importance of early, affectionate, and supportive relationships in vulnerable young children's secure attachment, development, future well-being, and the quality of their future relationships (Bernard et al., 2012; Juffer et al., 2017; Mountain et al., 2017; Sadler et al., 2013). They mainly aim to enhance attachment security of infants and increase mother's sensitivity to her child's behaviors, emotions, needs, and cues. Some of these attachment-based programs also aim to encourage mother's reflection of her own mental state in relation to her early relationships and childhood experiences. Such reflective thinking is assumed to shape how a mother perceives her child, her child's attachment quality, and her sensitivity as parent. (Mountain et al., 2017; Sadler et al., 2013; Van IJzendoorn, 1995).

There are also HV programs with a primary focus on psychosocial stimulation and responsive caregiving given that a significant number of children from poor households are exposed to multiple risk factors due to poverty, which can substantially compromise optimal cognitive, social, and emotional development in the early years (Britto et al., 2017). Hence, they are at risks for language delay and self-regulation

difficulties. Such delays and difficulties are closely related to disparities in future learning, school readiness, and academic achievement (Cristofaro & Tamis-LeMonda, 2012; Marchman & Fernald, 2008; Tamis-LeMonda et al., 2014; Valloton & Ayoub, 2011). Thus, HV programs with a focus on stimulation (e.g., Doula home visitation program, Parents as Teachers; The Lady Health Worker Program) often target parents, aim to teach them important skills (e.g., playing, reading, storytelling, talking, and singing) through group sessions, role plays, dyadic activities, and help them create opportunities for learning and organize a caregiving environment that stimulates young children cognitively, socially, and emotionally (Attanasio et al., 2022; Edwards et al., 2020; Guttentag et al., 2014; Jeong et al., 2018; Lahti et al., 2019; Neuhauser et al., 2018; Obradovic et al., 2016; Orri et al., 2019; Raikes et al., 2014; Schaub et al., 2019; Yousafzai et al., 2014).

Of particular interest to the present study is the Reach Up Parenting program. The Reach Up program is a HV program designed for children aged 6 months to 3-years and their caregivers. This program, which is based on an early childhood development intervention, the Jamaican Home Visitation Program, primarily aims to empower caregivers which can set the stage for long-lasting positive changes in the whole family functioning including child development. The program seeks to enhance caregiver's capacity and self-confidence to provide developmentally appropriate, play-based learning opportunities for their children through home visits. Substantial evidence from studies evaluating the Reach Up program indicated both immediate and long-term benefits of the program on child development as well as parenting practices. The program enhanced child development indicators (e.g., cognitive and language

development) and adult outcomes such as education, income, attainment, achievement, and mental health (Grantham-McGregor & Smith, 2016; Gertler et al., 2014).

1.4 Common child outcomes targeted by HV programs

1.4.1 Language development

The majority of HV programs target to promote young children's language development given that optimal language development in the first years of life is foundational to school readiness, academic achievement, reading comprehension, and learning (Cristofaro & Tamis-LeMonda, 2012; Zauche et al., 2016; Marchman & Fernald, 2008; Tamis-LeMonda et al., 2014; Valloton & Ayoub, 2011). Growing neuroscientific evidence have indicated that linguistic abilities are located in brain areas including the amygdala, hippocampus, and prefrontal cortex which also work together in the service of control of emotions and behaviors (often termed as self-control). These brain areas have been known to follow a protracted development; thus, they are quite sensitive to social and environmental influences in the first years of life (Farah et al., 2006; Leijser et al., 2018; Lipina & Posner, 2012; Perkins et al., 2013). Among several neurological systems, adverse effects of poverty and accompanying disadvantageous conditions have most consistently shown for language (Farah et al., 2006; Hackman & Farah, 2009).

Such disproportionate effects of socioeconomic disadvantage on language-related systems are significantly related to limited linguistic experience that young children from poor households have at their homes and close environment (Hart & Risley, 1995; Perkins et al., 2013). Unfortunately, linguistic experience of low-income young children differs both qualitatively and quantitively from those children from

wealthier families and the disparities in linguistic skills of socioeconomically advantageous versus disadvantageous infants and toddlers are observed as early as 18 months age and widen at 24 months of age (Fernald et al., 2013; Greenwood et al., 2017).

On the other hand, several studies have indicated that early language development of high-risk children can be supported greatly by enriching and stimulating caregiving environments (e.g., sensitive, and responsive parents, parental engagement in stimulating activities such as shared book reading, storytelling, playing with language stimulating toys, and the availability of learning materials at home) (Greenwood et al., 2017; Malhi et al., 2018; Perkins et al., 2013; Rodriguez & Tamis-LeMonda, 2011). Thus, raising parent's awareness about the importance of language development in the first years of life and strengthening their capacity and skills to organize the caregiving environment in ways that would support their young children's linguistic skills have long been integrated into public efforts for supporting early childhood development (Beecher & Van Pay, 2020; Greenwood et al., 2017; Neuhauser et al., 2018).

1.4.2 Motor, socioemotional, and behavioral development

Disparities in school readiness and academic achievement was predicted by various indices of development besides early linguistic skills such as motor, socioemotional, and behavioral development (Grissmer et al., 2010; Thompson & Raikes, 2007). Poor growth in full set of developmental skills has been indicated to put young children at greater risk of school failure and amplified socioemotional and behavioral problems (Yousafzai et al., 2014). Moreover, such disparities that have arisen in the first years tend to widen over time (Cunha et al., 2006). Thus, alongside language, efforts to

support development in other areas such as motor skills, socioemotional, and behavioral competence of young children raised in impoverished contexts have been included in majority of early childhood development programs (e.g., early Head Start) (Attanasio et al., 2022).

1.5 Impact of HV interventions

HV is not an early childhood intervention system in itself, it is rather a method of delivery. It does not have one particular type, rather it comes in very different shapes and varies along many dimensions. For that reason, it is somewhat challenging for researchers to evaluate the impact of different HV programs and arrive at an agreed upon conclusion about their effectiveness (Azzi-Lessing et al., 2011; Lahti et al., 2019; Nievar et al., 2010; Sweat & Appelbaum, 2004). Despite such difficulty, a growing number of influential meta-analyses and systematic reviews have provided valuable insights into the degree to which various HV models have affected certain familial, parental, and child outcomes (e.g., Azzi-Lessing et al., 2011; Casillas et al., 2016; Filene et al., 2013; Howard & Brooks-Gunn, 2009; Kendrick et al., 2000; Nievar et al., 2010; Sweet & Appelbaum, 2004).

Available evidence suggests that HV programs have small to moderate, but significant improvements in various targeted outcomes. For instance, in an earlier meta-analysis by Sweet and Appelbaum (2004), small (d = .14-.25) but significant improvements in parenting attitudes and behaviors and children's cognitive and socioemotional development have been reported. No such significant impacts were documented for variables of child abuse (i.e., abuse and parenting stress) and maternal

life course outcomes (i.e., mother's employment and reliance on public assistance). Nievar et al. (2010) also reported moderate improvements (d = .37) in maternal behaviors such as sensitivity, and stimulation. In another meta-analysis of HV programs, Filene et al. (2013) have reported significant mean effect sizes of around .20 for maternal life course outcomes, parenting skills and attitudes, and children's cognitive development, while no significant effect was reported for birth outcomes, child's physical health, and child maltreatment. Peacock et al. (2013) in their systematic review suggested that the HV programs they examined improved maternal parenting behaviors, child development and health but the benefits were more pronounced for some subgroups and under some conditions. Specifically, the HV programs reduced the incidence of harsh parenting particularly if those programs started prenatally, improved child cognition and problem behaviors to a greater extent than the language outcomes and were associated with reduced low-birth weight and health problems in older compared to younger children. In a more recent systematic review, Henwood et al., (2020) specifically reviewed the HV studies in relation their impact on children's language outcomes and found that among eleven HV programs, six significantly improved children's language outcomes with mostly small effect sizes. Henwood et al. (2020), further reported that those programs that started in the prenatal period resulted in the most promising language outcomes.

Although not examined HV programs specifically, in a recent meta-analysis and systematic review, Jeong et al. (2018) documented medium-to-large benefits of early childhood parenting interventions on home caregiving environment, mother-child interactions, and maternal knowledge of child development. In a more comprehensive meta-analysis of parenting interventions delivered during the first three years of

children's lives, Jeong, Franchett et al. (2021) reported small to moderate benefits of the programs on children cognitive development, language development, motor development, and socioemotional development, and reductions in behavior problems. Moreover, these parenting interventions also benefited parenting cognitions and behaviors, and resulted in moderate to large improvements in parental knowledge of child development, positive parenting practices, and parent-child interaction. Jeong, Franchett et al. (2021) further noted that interventions improved children's motor, cognitive and language development, and parenting practices to a greater extent in LMICs than high-income countries and parenting interventions with responsive care component had been found to have significantly stronger effects on children's cognitive development and parenting variables than the interventions with no such component.

It appears from the meta-analytical works and systematic reviews that there are relatively few but inconsistent favorable impacts on child maltreatment (Avellar & Suplee, 2013; Howard & Brooks-Gunn, 2009; Sweat & Appelbaum, 2004). Casillas et al. (2016) suggested that implementation factors such as staff selection, training, supervision, and fidelity monitoring are critical in determining programs' impact on child maltreatment. Thus, in their meta-analysis, they have compiled both published and unpublished work and tested various factors related to program implementation as potential moderators of programs' impacts on child outcomes. They found the greatest effect sizes for positive parenting (d = .26) and child maltreatment (d = .20) and identified reflective supervision and fidelity monitoring as critical factors bringing about favorable impacts particularly for child maltreatment. Further, Howard and Brooks-Gunn (2009) asserted that even though interventions may not reduce child maltreatment directly, improvements observed in positive parenting and parental well-being might

improve child well-being and predict later decreases in child maltreatment. Indeed, many well-known HV programs with rigorous research designs have resulted in significant improvements in parenting behaviors such as unresponsive and detached parenting as well as reductions in parental physical punishment and aggressive behaviors (Avellar & Supple, 2013; Cullen et al., 2010; Howard & Brooks-Gunn, 2009).

In sum, it appears from a number of meta-analytical work and reviews compiling rigorous, experimental studies of HV programs that such programs have mixed but overall favorable impacts (i.e., small to moderate and moderate to large) on a number of targeted outcomes (e.g., child development and parenting attitudes and practices), while they seem to have inconsistent impacts for other outcomes (e.g., child maltreatment). This, indeed, provides clear evidence for the fact that HV is just one method of delivering early childhood interventions and not a stand-alone strategy for ensuring optimal development for disadvantaged young children (Azzi-Lessing et al., 2011; Howard & Brooks-Gunn, 2009). Thus, a more comprehensive system of early childhood interventions integrating various methods of prevention and intervention including HV seem to be required for sound improvements in all targeted outcomes. (Azzi-Lessing et al., 2011; Avellar & Supple, 2013; Filene et al., 2013).

1.5.1 Mediators of the impact of HV programs

Research evidence suggests that HV programs have favorable impacts more consistently on the parenting (e.g., parental responsiveness and supportive presence) and the home environment domain (e.g., organization of the home environment, availability of learning materials) compared to child outcome domain (Howard & Brooks-Gunn, 2009; Kendrick et al., 2000; Obradovic et al., 2016; Orri et al., 2019; Raikes et al., 2014). This

pattern of findings suggests that HV programs act to change parenting behavior first, and changes in child outcomes might emerge later (Howard & Brooks-Gunn, 2009; Raikes et al., 2014). In fact, theoretical models of how socioeconomic disadvantage exerts its' influence on various processes pertaining to child development have also pointed to the important role of parents and the home environment as proximal influences on child development particularly in the early years of childhood. Thus, such theoretical models underscore the potential mediating role of parenting and home variables (Bronfenbrenner & Morris, 2006; Conger & Donellan, 2007; Howard & Brooks-Gunn, 2009). As a result, HV programs capitalize on the theoretical and empirical assumption that improving proximal processes in the microsystem may indirectly and positively influence child development (Howard & Brooks-Gunn, 2009; Sweet & Appelbaum, 2004).

1.5.1.1 Parenting quality

Although improving parents' skills of positive parenting, knowledge of child development and parent-child interactions, and providing support to parents for their own well-being have usually been incorporated into the theories of change in the majority of HV programs, such variables as potential mediators have been infrequently examined (Brooks-Gunn et al., 2000; Brotman et al., 2009; Caldera et al., 2007; Howard & Brooks-Gunn; 2009; Obradovic et al., 2016; Raikes et al., 2014). Particularly, for the first years of life, specific variables of parenting seem to be important proximal mechanisms through which distal influences (e.g., support through early HV services) have their impacts on young children's development (Brooks-Gunn et al., 2000; Nievar et al., 2010).

Supporting this view, Brooks-Gunn et al. (2000) have identified parents and the quality of child's home environment as the engines of positive change in child outcomes as a result of early interventions. Dishion et al. (2008) also reported that parent's positive behavior support (e.g., parental involvement, positive reinforcement, and structuring, and engaged parent-child interaction) at age 2 and 3 years mediated the positive impact of early intervention, the Family Check-up, on the reduction of children's behavior problems. In a later study, Raikes et al. (2014) investigated several parenting constructs as mediators of the impact of Early Head Start programs on 3-year-old children's development. This research suggests that improvements in cognitive and socioemotional development (i.e., child engagement during play) were partly driven by program parent's emotional responsiveness and developmental supportiveness (e.g., home language and literacy support) at age 2. Moreover, stimulating, responsive and supportive parenting (e.g., home learning environment, maternal scaffolding, and engagement in stimulating activities) as well as positive discipline and behavior management strategies acted as significant mediating mechanisms in other early childhood development programs, as well (Altafim et al., 2021; Brotman et al., 2009; Dishion et al., 2008; Guttentag et al., 2014; Jeong et al., 2019; Neuhauser et al., 2018; Obradovic et al., 2016).

1.5.1.2 Parental cognitions

Undeniably, parenting variables are important mediating mechanisms that must be considered in early childhood interventions. Although parenting behaviors are often predicted by cognitions, such parental cognitions are rarely tested in intervention programs as mediating mechanisms (Bornstein et al., 2018; Wittkowski et al., 2016).

Parental cognitions encompass parenting knowledge, satisfaction with the parenting role, and mental representations of parents themselves and parent-child relations. They have been assumed to engender parenting practices and how much time and effort parents would spend for caring their children. Cognitions often give meaning to parenting practices which, in turn, are related to children's developmental outcomes. As such, there is a three-term model that reflects relations between parental cognitions, practices, and child outcomes (Bornstein et al., 2018; Teti & Gelfand, 1991).

Parental self-efficacy as one example of parental cognitions, refers to caregivers' self-referent judgments about their skills, resources, and competence on various parenting tasks (Coleman & Karakker, 2003; Jones & Prinz, 2005; Suzuki et al., 2009; Teti & Gelfand, 1991). Parent's perception of efficacy in parenting role has been shown to be compromised in high-risk families living in impoverished environmental conditions (Çorapçı & Wachs, 2002; Farkas & Valdes, 2010). High-risk parents who have to tackle with a multitude of stressors are more likely to perceive themselves as incompetent in parenting role, which increases the risk for maternal stress and depression (Farkas &Valdes, 2010; Leahy-Warren et al., 2012), low quality parenting, problematic parent-child interaction (Coleman & Karakker, 1998; Sanders & Wooley, 2005), and less adaptive child outcomes (Coleman & Karakker, 2003; Jones & Prinz, 2005). On the other hand, high parental self-efficacy has been documented to have positive relations with enhanced parental mental health and lowered parental stress (Farkas & Valdes, 2010; Law et al., 2019), more positive parenting, and better child cognitive as well as socioemotional outcomes (Coleman & Karakker, 1998, 2003; Jones & Prinz, 2005 Law et al., 2019). As such, it has been asserted that enhancing parental self-efficacy may attenuate the possible negative impacts of a wide array of complex

psychosocial and socioeconomic risk factors on parental functioning and child outcomes (Coleman & Karakker, 1998; Wittkowski et al., 2016).

However, parental self-efficacy has only recently been the focus of research as an important avenue through which socioeconomic disadvantage and related risk factors affect parenting and early child development in non-Western cultures (Suzuki et al., 2009). Thus, in consideration of such a gap in the literature on early childhood interventions, there seems to be a need to examine self-efficacy as a parental cognition, its relationship with parenting, and how parental self-efficacy and parenting are longitudinally associated with each other and with child outcomes in the first years of development.

1.6 Early childhood interventions in Turkey

Poverty is a serious social problem in Turkey. The poverty's effect is much more pronounced for young children aged 0 to 6 as 51.4 % of these children experience poverty. Almost half of these children suffer from severe material deprivation throughout successive years of early childhood (Dayıoğlu & Şeker, 2016). There are fluctuations in poverty status during the first 6 years of life which is characterized more by entry into poverty than exit from it. This is mainly caused by the restricted social assistance provided for young children (i.e., 1% of the GDP). The large part of social assistance is offered to children with a disability or to school-aged children. As such, lifting young children out of poverty depends primarily on their parent's labour market outcomes (Buğra & Keyder, 2006). Accordingly, young children whose parents are young, less educated, unemployed, or work in low-paid, less prestigious (i.e., informal)

jobs are at elevated risks of severe and persistent poverty and material deprivation, and less likely to get out of poverty (Dayıoğlu & Şeker, 2016).

Besides limited social assistance provided for vulnerable young children, enrolling in preschool education that provides these children with stimulating environment for their overall growth and help them catch up with their more advantaged counterparts is also not commonly prevalent in Turkey. Preschool education is not compulsory in Turkey. Although the rate of preschool enrollment has increased in recent years, it is still low particularly for children younger than the age 5, it is 13.3% for 3-year-olds and 33.4 % for 4-year-olds according to statistics provided by the Ministry of National Education for the education year of 2019/2020 (MNE, 2019/2020). Although rapidly increasing in recent years, such a lower preschool enrollment rate in Turkey is assumably caused by the fact that preschool education is not free of charge and not many institutions offering preschool education are available particularly around rural areas, thus, such services are not quite accessible to low SES, vulnerable young children.

As there are limited ways out of poverty for vulnerable young children and their chance of preschool enrollment is low, the importance of reducing the risk factors associated with poverty in the lives of these children and strengthening them and their parents through early childhood interventions have gained a critical importance (Kağıtçıbaşı et al., 2001, 2009). There is, indeed, successful examples of early childhood programs in Turkey with documented positive and sustained impacts for socioeconomically disadvantaged families and their young children. One such outstanding early intervention program is the Turkish Early Enrichment Project (TEEP) which was developed by Kağıtçıbaşı and colleagues (Kağıtçıbaşı et al., 2001, 2009). The TEEP was implemented through 1983 to 1985 to support overall development of 4-6-

year-old children from socioeconomically disadvantaged backgrounds. It offered parental training for mothers to strengthen their skills to engage in educational activities with their young child as well as support these mothers through group meetings and guided discussions. Thus, TEEP basically aimed to improve positive and stimulating parenting skills as well as to enhance children's cognitive and socioemotional development. It also compared the effects of different types of early enrichments on child outcomes; child-centered (educational preschool environment) and mother-centered (home based educational environment). It appeared that regardless of the type of early enrichment, children who received enrichment were superior to their counterparts who received no enrichment in terms of cognitive skills and school adjustment at the end of the program.

Two follow up studies of TEEP have also been conducted to see if program effects were sustained or dissipated over years. The first one of these studies (Kağıtçıbaşı et al., 2001) that was conducted 7 years after the intervention indicated several favorable effects of parent focused, home-based intervention such as better school attainment, higher grades and vocabulary scores, and better family and social adjustment. The second follow up that was carried out 19 years after the intervention had revealed that both home-based and center-based intervention groups or those who received both types of early enrichment had more favorable outcomes in young adulthood than those who did not receive early enrichment. Accordingly, they had better educational attainment, occupational status, adjustment into urban life, and started a gainful employment at later ages (Kağıtçıbaşı et al., 2009).

1.6.1 Current programs for the youngest children (0-3 years) in Turkey

Considering the socioeconomically disadvantaged 0- to 3-year-old children, there are few intervention efforts and as previously stated, children younger than age 5 are relatively underrepresented in the rates of preschool enrollment in Turkey (MNE, 2019/2020). Promising works were carried out by Yağmur et al. (2014), Metin-Orta (2015), Sümer et al. (2020) as they adapted, implemented, and tested the effectiveness of an attachment-based intervention program, VIPP-TM (Video Feedback Intervention for Positive Parenting for Turkish minorities living in the Netherlands; Yağmur et al., 2014) and VIPP-SP (Sensitive Parenting) in Turkish cultural context (Metin-Orta, 2015; Sümer et al., 2020). Its effectiveness in enhancing maternal sensitivity and infant's attachment security and reducing instances of mother's intrusive discipline have been reported in these as well as following studies (Alsancak-Akbulut et al., 2021; Metin-Orta, 2015; Sümer et al., 2020; Yağmur et al., 2014).

A relatively recent HV program*, The Family Guidance Program,* the focus of the present study, has been implemented to provide support and guidance to low-SES families in four districts of Istanbul on developmentally supportive mother-child interaction, maternal psychological well-being, and healthy nutrition habits. The program starts in the prenatal period and provides biweekly home visits until the time children reach 18 months of age. Using longitudinal data, this study will test the role of this HV program on parenting cognition, developmentally supportive parenting behaviors, and developmental outcomes and will examine the role of maternal cognition (i.e., parental self-efficacy) and developmentally supportive parenting behavior as potential mediators of the program's role on child development.

1.7 The present study

The primary aim of this study was to test the role of a HV based early childhood preventive intervention, *The Family Guidance program.* The program was offered to disadvantaged mothers from the last trimester of their pregnancy throughout the first 18 months of child's life and was implemented as part of the Bernard van Leer Foundation's global Urban 95 initiative. Inspired its name by the 95 cm that refers to the height of a normally developing 3-year-old child, Urban95 initiative aims to facilitate 0-3-year-old children's play, interactions, and early experiences as well as their families' access to crucial services in urban areas.

The application of this global initiative started in Turkey in 2016 under the "Istanbul 95" by several stakeholders that included a team of architects for infant-friendly public design, a team of urban designers for data-based decision-making processes, and a team of academicians at Boğaziçi University for parent coaching via HV services. The Family Guidance program was developed with the aim of promoting nurturing, sensitive, and cognitively stimulating mother-child interactions in the child's first three years of life that would foster child development.

The first aim of the present study was to investigate the role of the Family Guidance program implemented by municipality staff on a range of child outcomes at 12 and 18 months of child age. Further, the potentially mediating roles of parental self-efficacy and developmentally supportive parenting behaviors (i.e., stimulating parenting behaviors at 9 months of child age and overall parenting and home environment quality at 12 months of child's age) during the first year of children's lives were examined to better understand the underlying mechanisms through which this HV program was associated with child development (see Figure 1 and 2 for hypothesized models).

Specifically, the present study aimed to examine two mediation models. In the first model, the potentially mediating role of stimulating parenting behaviors at 9 months of child age was tested (see Figure 1 below). The second model aimed to test the three-term longitudinal model (i.e., parental cognitions → parenting behaviors → child development) as proposed by Bornstein and colleagues (2018). Thus, in this second model, of the role of the HV program was first expected to enhance parental self-efficacy at 9 months, which in return was expected to contribute to better parenting quality at 12 months of child age as serial mediators on child functioning at 18 months (see Figure 2, below). The second model specifically tested the temporal precedence of maternal cognition at 9 months to the overall parenting quality at 12 months, thus, more eligible for testing hypothesized longitudinal link between parental cognition and behavior. Further information for specific study hypotheses was provided below.

1.7.1 Hypotheses of the proposed study

In light of previous research reviewed above, the following hypotheses were formulated.

Hypothesis 1: Intervention children were expected to have better general development, expressive language, and socioemotional competencies and lower aggressive behaviors at child age of 12 and at 18 months compared to control children.

Hypothesis 2: Intervention mothers were expected to report stimulating parenting behaviors (e.g., reading, playing, storytelling) and overall parenting quality (e.g., warmth, acceptance, and involvement) more frequently compared to control mothers at child age of 9 and 12 months.

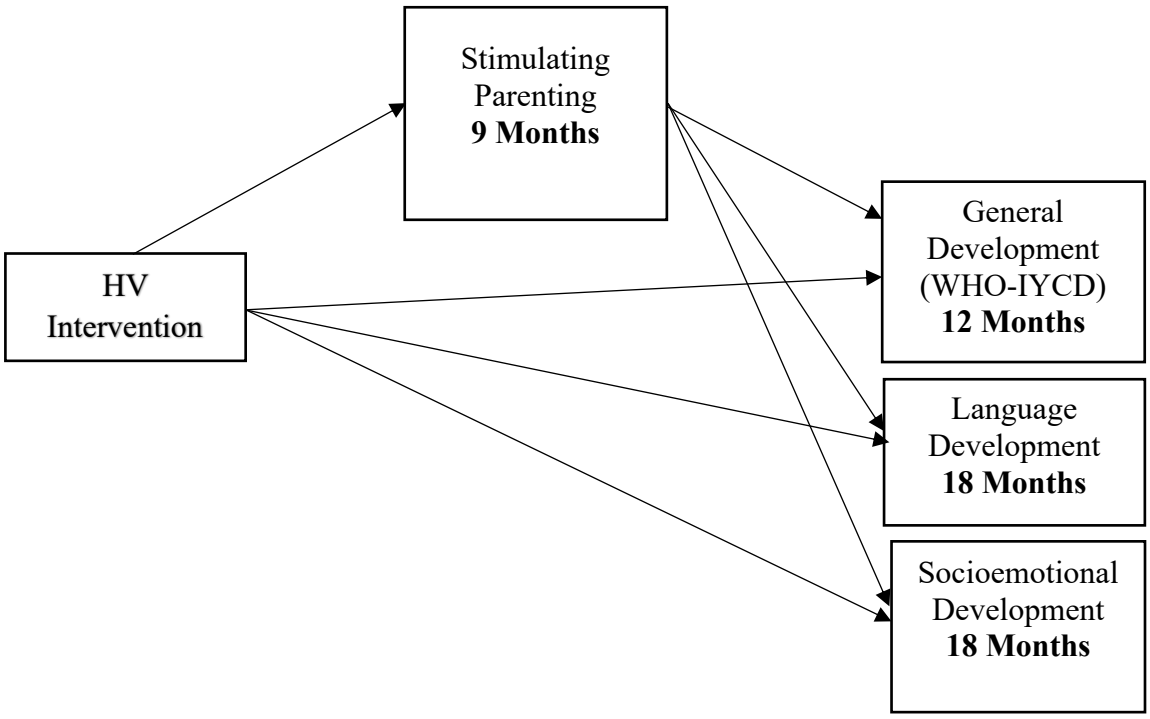

Figure 1. First hypothesized model of the study

Note. HV Intervention was a dichotomous variable in which the intervention families were coded as "1" and the control families were coded as "0". Children's general development was evaluated in four domains: motor, language/cognitive, socioemotional and behavioral. For language development, the size of children's expressive vocabulary was assessed. Social Emotional Development includes both children's aggressive behaviors as well as social competence.

Hypothesis 3: Intervention mothers were expected to have higher parental self-efficacy than control mothers.

Hypothesis 4: Stimulating parenting at child age of 9 months was expected to mediate the role of the HV program on child development indicators at child age of 12 and 18 months.

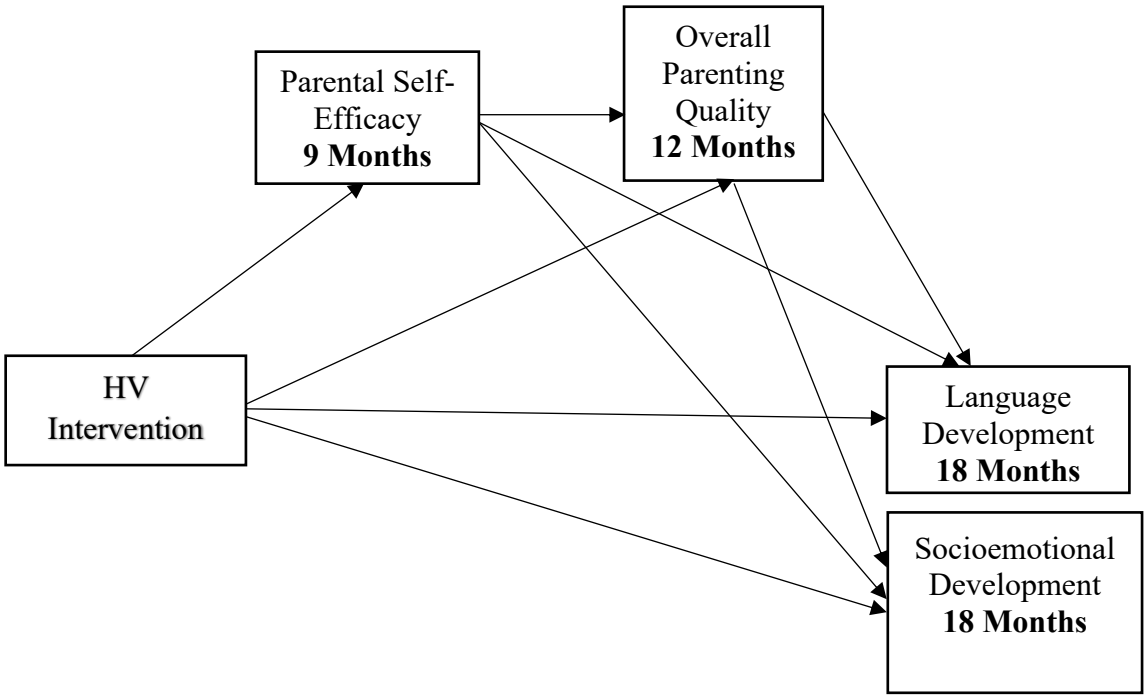

Figure 2. Second hypothesized model of the study

Note. HV Intervention was a dichotomous variable in which the intervention families were coded as "1" and the control families were coded as "0". For language development, the size of children's expressive vocabulary was assessed. Social Emotional Development includes both children's aggressive behaviors as well as social competence.

Hypothesis 5: Parental self-efficacy at child age of 9 months and overall parenting and home environment quality at 12-months were expected to serially mediate the role of the HV program child development indicators at child age of 18 months.

CHAPTER 2

METHOD

2.1 Participants

This study used data from 242 families ($N_{intervention} = 128$; $N_{control} = 114$) living in Maltepe and Sultanbeyli districts of Istanbul. At program enrollment, 71% of the intervention mothers were in the third trimester of their pregnancy, and of those mothers 21% of them were expecting their first baby. The remaining mothers had on average 3-week-old infants at the time of recruitment. At program enrollment, the intervention mothers' mean age was 28.3 years (*SD* = 5.79). 16% of the mothers had a high school degree whereas the remaining mothers had less than a high school degree. The majority of mothers (97%) were housewives. All intervention mothers were married.

Control mothers were on average 29-years-old (*SD* = 6.07) and 60.5% was in the last trimester of their pregnancy at enrollment to the program. The majority of the control mothers had less than a high school degree (81%) and did not work outside home (93%). Similar to the intervention mothers, all control mothers were married and only 18% were first-time mothers. Further information on demographic characteristics of the intervention and control families were presented in Table 1.

2.2 Recruitment

Given that the present study was based on a pre- and post-test control group quasi-experimental research design, two groups of socioeconomically similar families were recruited from both Maltepe and Sultanbeyli districts. Although the Family Guidance

program was implemented in four districts of Istanbul (Beyoğlu, Maltepe, Sarıyer, Sultanbeyli), the reason for choosing only the families from Maltepe and Sultabeyli for the present study was due to the availability of observational data only in these two districts.

Table 1. Sample Characteristics of Intervention and Control Families

Demographics	Intervention (N = 128)	Control (N = 114)	
	Mean (*SD*) or %	*Mean* (*SD*) or %	F / $\chi 2$
Mother's age	28.3 (5.8)	29 (6.07)	.93
Mother's education			1.74
No formal education	12.5%	16.7%	
Below high school	71.9%	64%	
High school	15.6%	19.3%	
Father's education			.32
No formal education	3.9%	2.7%	
Below high school	73.4%	75.2%	
High school and above	22.7%	22.1%	
Subjective Income			2.94
Often not able to meet basic needs	14.8%	13.2%	
Can barely meet basic needs	55.5%	65.8%	
Can comfortably meet basic needs	29.7%	21.1%	
Socioeconomic Status (SES)[a]	.05 (.77)	-.05(.74)	.96
Number of children	1.4 (1.2)	1.7 (1.2)	3.19
Recruitment during pregnancy	71.1%	60.5%	3.01
Parity (primiparous mothers)	23.4 %	18.4%	.91
Child sex (boy)	51%	52%	.03

Note. Intervention and control group families did not significantly differ in any of the demographic variables shown above based on F tests or chi-square tests.
[a] SES was calculated through averaging the standardized scores of mother's and father's education and family income.

The inclusion criteria in the HV program were maternal education with at most high school degree and residence in a low-income neighborhood in the target districts. Based on the age groups and real estate value, Turkish Economic and Social Studies Foundation (TESEV) developed maps showing the distribution of child population as well as education and income levels of families in different districts and neighborhoods in Istanbul (Fidan & Bürge Elvan, 2021). Families that were eligible for the Family Guidance program were recruited on the basis of these maps which enable the identification of neighborhoods in which relatively lower income families with young children were densely populated.

2.3 The family guidance program

The Family Guidance program was designed to enhance parenting skills of disadvantaged mothers by fostering their developmentally stimulating caregiving behaviors and by informing them about stress management techniques to cope with tasks of caregiving. In line with the Nurturing Care framework, another goal of the program was to ensure that infants were provided with a good and healthy nourishment. The *Reach-up* HV program, an empirically tested and validated program implemented through home visiting and center-based parenting groups (Grantham-McGregor & Smith, 2016; Walker et al., 2018), was considered as suitable for the first core element of the program.

The program has a play-based structured curriculum built on the purpose of promoting nurturing and developmentally stimulating caregiver-child interactions. To achieve the program's aims, home visits are organized in a way home visitor guides and

scaffolds caregiver as she engages in play-based learning activities in the families' home. In each visit, home visitor catches up with caregiver on what she has done with her baby since the last visit, then introduces a learning activity, demonstrates it, supports, and praises caregiver while caregiver practices the activity with child. Each visit ends with reviewing the activity introduced in the given visit and caregiver is encouraged to continue practicing the activity with her baby until the next visit.

There is a structured curriculum in the program such that activities of each visit are designed according to the infant age and arranged in order of complexity. Each new activity is built on the skills required by the earlier activities. Activities and play materials are designed specifically for program purposes and made up of easily accessible, affordable materials such as wooden blocks and plastic bottles. Play materials include puzzles, dolls, matching and sorting toys, and books (Walker et al., 2018)

The Family Guidance program aimed to address maternal psychological well-being as well. Therefore, the *Thinking Healthy* program (WHO, 2015) that contains elements on relieving maternal stress was adapted to achieve this second aim of the program. The program adopts a cognitive behavioral approach and targets to enhance maternal parental self-efficacy beliefs, encourage mothers to relate with others for getting support on various issues, and promote mother's self-care behaviors. Finally, the Ministry of Health guidelines for healthy feeding behaviors and nutritional habits were included in the program and modified for making them easier to understand for low SES mothers.

2.3.1 Program implementation

The Family Guidance program has been implemented by four district municipalities in İstanbul (i.e., Beyoğlu, Maltepe, Sarıyer, Sultanbeyli). For program implementation, municipalities have employed supervisors and 18 home visitors who were trained by the academic team about the program content and implementation in a 10-day training program. Home visitors were responsible for delivering bi-weekly home visits throughout first 18 months of children's lives (i.e., a total of 37 home visits). With a quasi-experimental design, data for this study were collected from the intervention and control families prior to the program implementation (pretest) and when infants were 9 months old (midtest 1), 12-months-old (midtest 2), and 18-months-old (posttest).

2.4 Procedure

The impact of the Family Guidance program has been evaluated through a pre-and post-test control group quasi-experimental research design. Questionnaire data were collected prior to the program implementation (pretest), in the midway of the program when infants were 9 months. Data based on interview and observation were also collected when infants were 12 months old. Questionnaire data were again obtained at the completion of the Family Guidance HV program when infants were 18 months.

Approval from Boğaziçi University Institutional Review Board was obtained prior to the data collection and mothers were given consent form to ensure their voluntary participation (see Appendix A, B, C, & D). Data collection based on questionnaires was conducted by trained female field professionals working at an independent research company at the pretest, at 9-month midtest, and at 18-month

posttest. Interview and observation data were collected by advanced undergraduate and graduate students at Boğaziçi University at 12-month midtest. Advanced undergraduate and graduate students were trained by the academic team (2 hr weekly training for 3 months) over a semester for the in-depth assessment of parenting, parent-child interaction, and the home environment as well as infant developmental screening.

2.5 Measures

2.5.1 Family demographics

Intervention and control mothers answered a series of questions about themselves and their families' demographic characteristics such as age, education, marital status, occupational status, and family income in the pre-test assessment. Subjective family income was measured with a single question of "*Considering your family's basic needs, income, and expenditures, which of the following statements best describes the financial situation of your family*? Mothers responded to this question on a 4-point scale (1 = *Often not able to meet our basic needs such as food and rent*, 2 = *Can barely meet our basic needs*, 3 = *Can comfortably meet our basic needs*, 4 = *Have sufficient income to live comfortably*). Subjective family income, mother's level of education and father's level of education were all significantly and positively correlated with each other, both in the intervention group (*r*'s ranging from .27 to .45) and in the control group (*r*'s ranging from .21 to .50). Given these significant correlations, standardized scores of mother's and father's levels of education and family income were averaged to calculate an aggregated score of family socioeconomic status (SES).

2.5.2 Risk measures

A total of 23 items were included in the pretest assessment battery for the purpose of assessing families' baseline risk status based on the previous research (see Table 2). These items pertained to the physical quality of the household, indicators of neighborhood risk (e.g., unhealthy physical environment, environmental hazards, street fights and conflicts), and stressful life events experienced by the families (e.g., migration, serious marital conflict, natural disaster). Each risk item was coded as "1" for the presence of risk or "0" for the absence of risk. Scores of risk items were summed to calculate a cumulative family risk score at the pretest assessment. The average number of risk factors was 4.32 (*SD* = 2.38; range = 0-12) and 2.68 (*SD* = 2.01; range = 0-10) for the intervention and control families, respectively. These sum scores of risk factors had skewness and kurtosis values that were in the acceptable ranges (Bryne, 2010; Hair et al., 2010). In addition to these family risk items, the degree of household chaos which was measured with the short form of the Confusion, Hubbub, and Order Scale (CHAOS: Matheny et al., 1995) was used as another indicator of family risk at baseline. The CHAOS scale has 6 items (e.g., "*You can't hear yourself think in our home*", "*There is often a fuss going on at our home*") rated on a 5-point Likert scale. Mean score of household chaos was 14.48 for the intervention families (*SD* = 4.60; range = 7-28) and 13.30 for control families (*SD* = 4.35; range = 6-25). Household chaos variable did not violate assumptions of normality and had a Cronbach alpha value of .67.

Given that this study relies on a pre-post-test control group quasi-experimental design, the intervention and control families were compared in terms of family risk indicators and household chaos at the pretest to explore if they were significantly

different from one another in terms of risk status at baseline. The intervention families had significantly higher risk at the pretest compared to control families, F (1,240) = 32.98, $p < .001$. Likewise, the degree of household chaos was significantly higher for the intervention families than control families, F (1,240) = 4.17, $p < .05$. To achieve parsimony, bivariate correlation between the sum score of family risk items and household chaos was calculated. Given that these two variables were significantly and positively correlated with each other ($r = .25$, $p < .001$), standardized scores of family risk variable as well as household chaos at the pretest were averaged to calculate an overall score of risk at baseline. Groups were compared in this overall risk score. As a result, the intervention families ($M = .23$, $SD = .80$) had significantly more overall risk than the control families ($M = -.25$, $SD = .70$) at the pretest, F (1,240) = 24.24, $p < .001$. Thus, this overall risk score was controlled in all further analyses to ensure that any significant difference between groups at the mid-and posttest can be attributed to HV rather than to baseline differences between these two groups.

2.5.3 Parental self-efficacy

Mother's self-efficacy in the parenting role were assessed with the Maternal Self-Efficacy Questionnaire (Teti & Gelfand, 1991) at 9-month midtest. The questionnaire was translated to Turkish by the academic team. It consists of 10 items rated on a 4-point rating scale (1 = *Not good at all*; 4 = *Very good*) that measure mothers' perceived efficacy in performing tasks specific to infant rearing such as feeding and playing (see Appendix E).

Table 2. List of Questions for Assessing Families' Baseline Risk

Risk Categories	
Home Physical Quality	1. Do you think your home is well-heated? (RC)
	2. Have you had problems like flooding and water leaking through the roof in your home?
	3. Do the walls in your home get damp and moldy?
	4. Are the windows in your home double glazed? (RC)
	5. Do you think the rooms in your home get enough light? (RC)
Environmental Risk	6. Unhealthy physical environment (e.g. waste, sewage)
	7. Environmental hazards (open pits, unprotected constructions, etc.)
	8. Street fights/conflicts
	9. Theft, extortion, snatching
	10. Drug use or sale
	11. Shooting of a firearm into the air in celebrations (e.g., wedding, circumcision)
Stressful Life Events	12. Migration/ relocation/ moving
	13. Serious marital conflict
	14. Separation/divorce
	15. Being fired/unemployed
	16.Bankruptcy/lien
	17. Serious disease/injury/accident
	18. Arrest/imprisonment
	19. Death
	20. Natural disaster/fire/flood
	21. Alcohol or drug dependence
	22. Disabled, elderly, or sick care
	23. Theft/fraud

Note. Risk items were coded dichotomously as 1 indicated the presence and 0 indicated the absence of risk. RC: Reverse coded items.

The questionnaire has been shown to have adequate reliability (α = .86) and validity properties in previous research (Teti & Gelfand, 1991). In this study, the internal reliability coefficient for this scale was .91 at 9-month midtest.

2.5.4 Stimulating parenting behaviors

Stimulating parenting behaviors (e.g., reading, playing, talking) were measured through a 6-item frequency scale developed by the academic team of the HV program and administered to mothers at 9-month midtest. Sample items for this scale were "*How many times have you read a book or told a story to your baby during last week?"* "*How many times have you played with your baby during last week?*". Items are rated on 4-point scale (1 = *Never*; 4 = *5-7 days*) assessing the frequency maternal stimulating parenting behaviors (see Appendix F). In this study the internal reliability coefficient for stimulating parenting was .62.

2.5.5 Overall parenting and home environment quality

For an in-depth assessment of the quality of maternal nurturance, acceptance and stimulation, and the organization of the child's home environment at 12-month midtest, the Infant-Toddler Version of the Home Observation for Measurement of the Environment Inventory (HOME-IT; Caldwell & Bradley, 1984) was administered. The forms in the HOME-IT were translated into Turkish by the core academic team at Boğaziçi University and back-translated to English by a professional translator. The HOME-IT as a standardized tool has been used frequently for the purpose of assessing various aspects of parenting in early intervention research (Kendrick et al., 2000). It has 6 subscales and 45 items, some of which are structured interview items, while others constitute a checklist for the observation of the home environment. Subscales of the HOME-IT are (1) *Responsivity* (i.e., how well the parent responds to the child verbally and emotionally), (2) *Acceptance* (i.e., the extent to which the parent accepts the child's

undesirable behavior and avoid restriction and punishment), (3) *Organization* (i.e., the predictability and regularity of the family's time outside the home, safety of the child's physical environment and the parent's utilization of the community services), (4) *Learning Materials* (i.e., availability of different types of age-appropriate, developmentally stimulating toys and learning materials to the child), (5) *Involvement* (i.e., the extent to which the parent actively involves in the child's learning and interacts with the child physically), and (6) *Variety* (i.e., the extent to which the parent allows child to interact with people other than the mother such as father and the other family member in daily routine). Sample items were shown in Appendix G. In this study, Cronbach alpha for the total score of the HOME-IT (HOME-Total) was .80.

2.5.6 Infant developmental milestones

For the measurement of infants' development in motor, language/cognitive, socioemotional, and general behavioral domains (e.g., social awareness, attention, and self-regulation/anxiety) at 12-month midtest, the WHO indicators of Infant and Young Child Development (IYCD) for the ages of 0-3 was utilized (Gladstone et al., 2021; Lancester et al., 2018). The instrument was translated into Turkish by the core academic team at Boğaziçi University and back translation was made by a Turkish translator. The translated form of the instrument was approved by the WHO IYCD team. The scale consists of 40 items in motor domain, 30 items in language/cognitive domain, 20 items in socioemotional domain, and 10 items in general behavioral domain with age-appropriate start-stop points. The instrument has a total of 72 items for the 12-month developmental assessment (see Appendix H). While the motor and language/cognitive

domains include items with Yes-No response format, the socioemotional and general behavioral domains have items with a 4-point Likert scale ("I do not know", "never/almost never", "sometimes", "always/almost always"). The scale is administered through interviewing mothers. This instrument's reliability and validity has been established based on field studies in Brazil, Malawi, and Pakistan (Lancaster et al., 2018).

2.5.7 Expressive language development

Children's early communicative and linguistic skills were assessed based on parent ratings on the Turkish Communicative Development Inventory (Türkçe İletişim Gelişim Envanteri, TIGE; Aksu-Koç et al., 2019) at the 9-month midtest as well as 18-month posttest. TIGE is the Turkish adaptation of the McArthur-Bates Communicative Development Inventory (MB-CDI; Fenson et al., 2000), a standardized tool originally developed in English to assess language development between 8 and 30 months of child age. The inventory has two forms. The first form (TIGE-1) measures comprehension and production of early words and gestures of children aged 8-16 months, and the second form (TIGE-2) measures production as well as grammatical skills (e.g., the acquisition of morphology and complexity of sentence structures) of children aged 16-36 months. In this study, children's expressive language development was assessed at the posttest by using the TIGE-2 Expressive Vocabulary subscale (see Appendix I for sample vocabulary). In this form, mothers were asked to report the words from several semantic subcategories (e.g., animals, food, furniture, body parts) that they thought their child

could comprehend and produce. The list includes 375 words in total. In this study, Cronbach's alpha for TIGE expressive vocabulary was 97.

2.5.8 Socioemotional development

Mothers filled out the Brief Infant-Toddler Social and Emotional Assessment Scale (BITSEA; Briggs-Gowan & Carter, 2002) to report on their toddler's socioemotional/behavioral problems and socioemotional competence at the posttest. The BITSEA has a 31-item Problem Subscale to identify children at risk for experiencing behavioral problems (i.e., externalizing, internalizing problems and dysregulation) and an 11-item Competence Scale to assess young children's socioemotional competence (i.e., mastery motivation, prosocial peer interactions, sustained attention, compliance, and empathy). Each item in the scale is answered on a 3-point response format; "*not true/rarely*", "*sometimes true/sometimes*", and *very true/often*. The BITSEA was adapted to Turkish by Karabekiroğlu et al. (2009) and has been shown to be a reliable (α = .80 for The Problem Scale; α = .69 for the Competence Scale) and valid assessment tool to screen socioemotional/behavioral problems and competence among toddlers. For this study, we relied on the factor structure of the BITSEA obtained in a previous, large-scale parenting study (Sümer et al., 2022). Based on this previous study that revealed a 4-factor structure of the BITSEA, subscale scores for internalizing problems, dysregulation, aggressive behavior, and social competence were calculated. Cronbach's alphas for the 4-item aggressive behaviors subscale and 5-item Social Competence subscale were .79 and. 69, respectively. However, due to the low internal reliability coefficients of the 8-item internalizing problems subscale and 6-item Dysregulation

subscale, with Cronbach alphas of .27 and .18 respectively, these subscales were not included into further analyses. Consequently, children's socioemotional development at the posttest was measured with the aggressive behaviors and social competence subscales of the BITSEA (see Appendix J for items).

CHAPTER 3

RESULTS

3.1 Preliminary analyses

Prior to main analyses, data were screened for normality (e.g., skewness and kurtosis), minimum-maximum values, and outliers. Among parenting variables (i.e., parental self-efficacy and parenting), the distribution of mother's parental self-efficacy scores at 9-month midtest was not normal as it had a somewhat high kurtosis value of 3.97. When parental self-efficacy distributions were examined separately for the intervention and control mothers, it appeared that the kurtosis value was 14.29 for control mothers, a higher value than the acceptable range of -7 to +7 (Bryne, 2010; Hair et al., 2010), whereas the skewness and kurtosis values for the intervention mothers were in the acceptable ranges. The excess kurtosis value was mainly due to reduced variability as 79.3% of the control mothers got a mean score of 3 out of 4 on this parental self-efficacy measure. Statistical transformations did not normalize the distribution of this variable either. For this reason, although parental self- efficacy was proposed to be a mediator of the impact of the HV intervention on child outcomes, it was not used in further analyses. Unlike parental self-efficacy, developmentally stimulating parenting at 9 months midtest and overall parenting and home environment quality at 12 months midtest had the skewness and kurtosis values in the acceptable range (Bryne, 2010; Hair et al., 2010).

Among child outcome variables, TIGE expressive language scores at the posttest did not show normal distribution as it had an excess value of kurtosis of 8.80 (Bryne, 2010; Hair et al., 2010). When the frequency table as well as the boxplot of TIGE

expressive vocabulary scores were examined, there were a few outliers both in the intervention and control groups who had extreme scores. Instead of deleting these four outliers, winsorizing was applied and they were replaced with the next highest value (Kwak & Kim, 2017). After winsorizing, skewness and kurtosis values of TIGE expressive language scores returned to an acceptable range which were 1.40 and 2.38, respectively. Further, BITSEA social competence score distribution also had a kurtosis value of 9.031. Three cases in this variable were identified as extreme outliers and winsorizing was applied to as these cases were replaced with the next highest value. After winsorization, the kurtosis value returned to the normal range (Bryne, 2010; Hair et al., 2010) and became 3.103. The remaining child outcome variables; WHO-general development and BITSEA-aggression showed normal distribution.

3.1.1 Attrition analyses

In this study, attrition percentages from the pretest to the 9-month midtest and posttest were 5.4% and 7.9%, respectively. When attrition rates were examined separately for the intervention and control families, it was 7.8% at the 9-month midtest and 10.2% at the posttest for the intervention families, while it was 2.6% at midtest and 5.3% at the posttest for the control families. A series of chi-square tests of independence and analysis of variance (ANOVA) tests were conducted to see whether families who participated in the pretest but withdrew at the mid-and/or posttest differed significantly from those who remained in the study until its end. For the intervention group, families who participated in the pretest but did not participate in the midtest differed significantly from families who participated in both pre- and midtest in terms of child sex and family

SES. Accordingly, among those who withdrew at midtest, the number of families with daughters were higher than the number of families who had sons, $\chi^2(1) = 4.04$, $p < .05$. Further, families who withdrew at midtest had lower SES compared to families who participated in the midtest, $F(1,126) = 4.08$, $p < .05$. For the control group, families who dropped out did not differ significantly from families who participated in the midtest. For the posttest, there were no significant differences between families who withdrew and those who stayed in the study neither in the intervention nor in the control group.

3.2 Evaluating the group equivalence at baseline

Since the pre- and posttest control group quasi-experimental research design was utilized in this study, both groups were compared on the baseline characteristics so that such differences (if exists) can be statistically controlled in data analyses. Thus, groups were compared through a series of one-way analysis of variance tests (ANOVAs) in terms of baseline demographic characteristics. As shown in Table 1 above, groups did not differ significantly in terms of demographic variables. However, as stated previously, they differed in terms of the overall risk status. Accordingly, the intervention families had more overall risk in their lives at the pretest than the control families. Hence, in further analyses, the overall risk composite was included as a covariate.

3.3 Bivariate correlations

All bivariate correlations among demographic, risk, and study variables were shown in Table 3. Correlations below the diagonal indicate relations among the study variables

within the intervention group, whereas those above the diagonal indicate relations within the control group.

3.3.1 Correlations among demographics, child outcomes, and hypothesized mediators

3.3.1.1 Intervention group

Child sex was significantly correlated with expressive language development via TIGE scores only at the posttest. Accordingly, girls (M = 34.07, SD = 22.13) had higher scores on expressive language then boys (M = 26.19, SD = 14.95), F (1,112) = 5.03, $p < .05$. Family SES was correlated significantly and positively with expressive language and negatively with aggression scores at the posttest. Specifically, children from higher SES households had better expressive language as well as lower likelihood of displaying aggressive behaviors than children from lower SES households. Further, children with higher overall risk score at the pretest were more likely to have poorer expressive language at the posttest than children with lower overall risk score. Mother's age was significantly and positively correlated with stimulating parenting at 9-month midtest. Further, family SES was correlated marginally with stimulating parenting at 9-month and significantly with the sum score of the HOME-Total at 12-month midtest. Further, the overall risk score at the pretest was correlated significantly and negatively with the HOME-Total at the 12-month midtest. Thus, mothers from higher risk families endorsed less overall positive parenting behaviors and provided lower quality home environment to their children at 12-month midtest.

3.3.1.2 Control group

Child sex was correlated significantly and positively with expressive language, and negatively with children's aggressive behaviors at the posttest. Accordingly, girls (M = 35.69, SD = 21.28) had higher scores on expressive language than boys (M = 26.96, SD = 12.72), F (1,102) = 6.61, p = .01, whereas boys (M = 2.10, SD = .45) had higher likelihood of displaying aggressive behavior problems than girls (M = 1.80, SD = .46) at the posttest, F (1,106) = 11.420, p = .001. Maternal age was not correlated significantly with any of the study variables. Family SES was correlated significantly and positively with children's general development at 12-month midtest measured with the WHO-IYCD and negatively with their aggressive behaviors at the posttest. Thus, infants from higher SES families had better general development at 12-month midtest and they were rated as displaying lower levels of aggressive behavior at the posttest. The overall risk score at the pretest was significantly and negatively correlated with children's general development and positively correlated with aggressive behaviors and social competence such that children whose family had higher overall risk at the pretest had poorer general development at 12 months and showed higher levels of aggressive behaviors and social competence at 18 months than children who were raised by families with lower levels of overall risk.

Family SES and overall risk at the pretest were correlated significantly and negatively with stimulating parenting at both 9-month midtest and with HOME-Total at 12-month midtest. Thus, higher SES mothers or mothers from families with lower levels of risk at the pretest showed stimulating parenting more often at 9-month midtest and had higher quality parenting and parent-child interaction and provided a better home

environment for their children at 12-month midtest than lower SES mothers or mothers from higher risk families.

3.3.2 Correlations among the hypothesized mediator and child outcome variables

3.3.2.1 Intervention group

Stimulating parenting behaviors at 9-month midtest were significantly and prospectively correlated with all child outcomes at 12-month midtest and at the posttest except for children's aggressive behaviors. Specifically, mothers' stimulating parenting behaviors at 9 months were related to higher scores on the WHO-IYCD developmental screening measure at 12-month midtest and higher scores on the Expressive Language subscale of the TIGE-II as well as the Social Competence subscale of the BITSEA at the 18-month posttest. Further, HOME-Total at 12-month midtest was significantly and positively correlated with the concurrent WHO-IYCD child development scores as well as with TIGE-II expressive language scores at the posttest.

Bivariate correlations among parenting variables at 9- and 12-month midtest assessments were all significant and positive suggesting that the intervention mothers who endorsed stimulating parenting on a questionnaire at 9-month midtest were also rated high at HOME-Total reflecting stimulating and responsive parenting based on interview and observation at 12- month midtest.

Regarding the bivariate correlations among child outcome variables, general development measured via WHO IYCD at 12-month midtest was significantly and positively correlated with expressive language and social competence at the posttest. Thus, the intervention infants showing better general development at 12-month midtest

had better expressive language and social competence at the posttest. Moreover, children's expressive language was significantly and positively correlated with concurrent social competence suggesting that children with better expressive vocabulary were rated by their mothers as socially more competent at the posttest. Lastly, children's aggressive behaviors at the posttest were correlated positively with concurrent social competence.

3.3.2.2 Control group

For control group families, stimulating parenting at 9-month midtest showed a significant and positive relation with children's social competence, but a negative relation with aggressive behaviors at the 18-month posttest. Further, higher HOME-Total scores at-12 month midtest were associated concurrently with better general development, and prospectively with better expressive language as well as less aggressive behaviors at the posttest. Similar to the intervention mothers, bivariate correlations among parenting variables at 9- and 12-month midtest for the control group mothers indicated that stimulating and overall positive parenting behaviors at both time points were significantly and positively associated with each other. Regarding bivariate correlations among child outcomes, children's general development at 12-month midtest via the WHO-IYCD was correlated positively and prospectively with their expressive language score at the posttest. Thus, infants with better general development at 12-month midtest had more advanced expressive language at the 18-month posttest.

3.4 Hypothesis testing

3.4.1 Group differences controlling for the baseline differences

The first three hypotheses of the study pertain to the role of the HV program on child outcomes at the mid- and posttest as well as on the hypothesized mediators (i.e., parenting variables measured at 9 and 12 months of child age). In testing these hypotheses, the intervention and control groups were compared while controlling for the significant baseline difference in the overall risk (see Table 4). The first hypothesis of this study predicted that the intervention children would have significantly better general development score at 12-month, higher scores on expressive language and social competence and lower scores on aggression at the posttest than control children.

To test the first hypothesis of the study, intervention and control children were compared with a multivariate analysis of covariance analysis (MANCOVA), with general child development at 12-month midtest and expressive language development, aggressive behaviors and social competence at the posttest were taken as dependent variables. The effect of the overall risk at baseline was statistically controlled in all analyses (see Appendix K for supplementary analyses in which overall family risk was tested as a moderator between the HV enrollment and child outcomes). The overall model was significant, F (4,204) = 9.375, $p < .001$. The results of this MANCOVA revealed a marginally significant group difference and a statistically significant group difference. Specifically, intervention children had slightly, yet marginally higher scores on WHO-IYCD than control children (F (1, 207) = 2.86, $p = .09$), whereas control children had higher social competence scores than intervention children, F (1, 207) = 29.26, $p < .001$, Cohen's $d = .75$, indicating a large effect (Cohen, 1988).

Table 3. Intercorrelations for Demographics, Risk, Parenting, and Child Outcome Variables Disaggregated by Group

Variables	1	2	3	4	5	6	7	8	9	10
1. Child Sex	-	.01	.10	-.00	.05	.11	.06	.25*	-.32**	-.09
2. Mother Age	-.08	-	-.25**	.22*	.05	-.04	-.11	-.01	-.03	.05
3. Family SES	.05	-.21*	-	-.40**	.37**	.42**	.21*	.07	-.29**	.02
4. Overall Risk	-.02	.15†	-.39**	-	-.23*	-.37**	-.24*	-.12	.19*	.17†
5. Stimulating Parenting-9m[a]	.00	.24**	.18†	-.15	-	.40**	.16	.07	-.29**	.32***
6. HOME Total-12m	-.04	.10	.39**	-.37**	.28**	-	.43**	.24*	-.22*	.06
7. General Development 12m	-.04	.03	.04	-.01	.21*	.32**	-	.40**	.15	.10
8. Expressive Language-18m	.21*	-.01	.28**	-.26**	.32**	.30**	.42**	-	-.08	.11
9. Aggression-18m	-.07	-.13	-.25**	.08	-.03	-.11	.00	-.05	-	-.00
10. Social Competence-18m	-.13	.09	-.01	-.08	.26**	.05	.28**	.20*	.22*	-

Note. The results for the intervention group were shown below the diagonal and the results for the control group were shown above the diagonal. [a] m reflects the average child age in months at which measurement was done.
† $p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

The second hypothesis of this study predicted that intervention mothers would display a better-quality parenting than control mothers at 9- as well as 12-month midtest (see Table 4). This hypothesis was tested with MANCOVA as two parenting variables were taken as dependent variables and the overall risk was controlled. Results revealed that the intervention and control mothers differed significantly in the quality of parenting at both 9 as well as 12 months, F (2, 208) = 8. 564, p <.001, Cohen's d = .57, indicating a moderate overall effect (Cohen, 1988). Specifically, intervention mothers endorsed stimulating parenting behaviors such as reading books, telling stories, playing, and singing at 9-month midtest significantly more often than control mothers, F (1, 209) = 13.70, p <.001, Cohen's d = .51, indicating a moderate effect of the program (Cohen, 1988). Further, they displayed better overall parenting quality (HOME-Total) which was characterized by higher levels of warmth, acceptance, involvement in child's learning, and provision of a good-quality home environment than the control mothers at 12-month midtest even after controlling for the baseline risk score, F (1, 209) = 8.39, Cohen's d = .40, indicating a small to moderate effect of the program (Cohen, 1988) on overall parenting and home environment quality at 12-month midtest.

The third hypothesis predicted that intervention mothers would report higher parental self-efficacy than the control mothers at 9-month midtest. However, due to the non-normal distribution of parental self-efficacy, this variable was not used in the analyses, and for this reason, we were not able to test the third hypothesis of the study.

3.5 Path analyses

To test the fourth and fifth hypotheses, two path models were tested. In these models, the mediating role of the stimulating parenting at 9-month midtest and overall parenting and home environment quality at 12-month midtest in the relationship between the HV enrollment and child outcomes were tested. For the first model, parameter estimates for all paths and path diagram were shown in Table 5 and Figure 3, respectively. The direct paths from the HV enrollment (i.e., independent variable) to stimulating parenting (i.e., hypothesized mediator) and to child outcome variables (i.e., dependent variables) as well as from stimulating parenting to child outcomes were specified. This model included one covariate which was the overall risk score at the pretest. All variables in the model were observed, thus, there were no latent variables.

For testing the indirect effects, bias-corrected bootstrapped confidence intervals were used. The bias-corrected bootstrapping procedure for the test of indirect effects is advantageous to other methods in the sense that it has benefits in relation to statistical power and this procedure allows interpreting indirect effects in the absence of a statistically significant association between independent variable(s) and outcome variable(s) (Fritz & MacKinnon, 2007; MacKinnon et al., 2004). Given the selective attrition in the intervention group (i.e., families who withdrew at the midtest had lower SES than those families who participated in both pre-and post-test assessments), family SES was first included as an auxiliary variable in the path model. However, adding SES as an auxiliary variable did not change the parameter estimates and the pattern of the relationship between study variables significantly.

Table 4. Means, Standard Deviations, and Group Comparisons for Study Variables

	Intervention		Control		MANCOVA		
	M	*SD*	*M*	*SD*	*F*	*df*	Cohen's *d*
1. Stimulating Parenting-9m[a]	18.02	2.94	16.80	2.83	13.70***	209	.51
2. HOME Total-12m	31.10	5.31	30.21	5.56	8.39**	209	.40
3. General Development-12m	2.57	1.13	2.30	1.19	2.86[†]	207	.24
4. Expressive Language-18m	30.0	19.1	31.08	17.75	.17	207	.06
5. Aggressive Behaviors-18m	6.38	2.26	6.62	2.41	1.48	207	.17
6. Social Competence-18m	13.11	1.64	14.11	.92	29.26***	207	.75

Note. Since groups differed in terms of the overall risk at the pretest, the overall risk was taken as a covariate in group comparisons for parenting and child outcome variables.

[a] m = the child age in months at which measurement was done.

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

Thus, family SES was not included in the final model. This final model was a just identified model in which all direct as well as indirect paths between the study variables were tested. Since the model was just identified, the number of data points were equal to the estimated parameters, and chi quare and *df*s were zero (Dugard et al., 2010; Streiner, 2005). Although just-identified models do not produce statistics to test model fit (Duggard et al., 2010; Streiner, 2005), they allow for examining all possible direct and indirect paths. In the model, the direct path from the HV enrollment to stimulating parenting at 9-month midtest was significant. Accordingly, the HV enrollment acted to improve parent's stimulating behaviors at 9-month midtest controlling for the overall risk at baseline. However, participating in the HV did not have any positive direct effect on child outcomes. In keeping with the results from MANCOVA, the direct effect of the HV enrollment on social competence was significant, but negative, favoring the control children. The direct paths from stimulating parenting to general development at 12-month midtest, and to expressive language, aggressive behaviors, and social competence at the posttest were significant. Thus, stimulating parenting at 9 months of infant's age enhanced subsequent positive development indicators and predicted declines in aggressive behavior. The overall risk, which was a statistical control in the tested model, significantly and negatively predicted stimulating parenting at 9-month midtest and children's expressive language at the posttest, whereas the overall risk significantly and positively predicted children's aggressive behavior at the posttest (see Table 5).

The indirect effects of the HV enrollment on general development at 12-month midtest (β = .05, *S.E.* = .02, 95% CI [.012, .103]), expressive language (β = .05, *S.E.* = .02, 95% CI [.015, .110]), aggressive behaviors (β = -.04, *S.E.* = .02, 95% CI [-.100, -

.004]), and social competence (β = .07, *S.E.* = .03, 95% CI [.032, .143]) at the posttest through stimulating parenting at 9-months midtest were all statistically significant. Thus, participating in the HV program contributed to parent's stimulating behaviors such as reading, storytelling, playing, and singing at 9-month midtest as evidenced by significantly higher scores of the intervention mothers than the control mothers on this stimulating parenting measure. Endorsement of stimulating parenting behaviors, in turn contributed to better general development at 12-month midtest, higher scores in expressive language and socially competent behavior, and lower scores on aggressive behavior at the posttest. In sum, the corresponding hypothesis for the indirect role of the HV on child outcomes through mothers' stimulating parenting was supported.

In testing the second mediation model, parenting efficacy was not included in the model due to its nonnormal distribution. Thus, we were unable to test serial mediation model as hypothesized, yet the HOME-Total was tested as mediator of the relationship between the HV intervention and child outcomes. Corresponding hypothesis predicted that the HV enrollment would have indirect effect on child outcomes at the posttest through HOME-Total at 12-month midtest. Parameter estimates for all paths and path diagram were shown in Table 6 and Figure 4, respectively. The direct paths from HV enrollment (i.e., independent variable) to overall parenting and home environment quality (i.e., hypothesized mediator) and to child outcome variables (i.e., dependent variables) as well as from overall parenting quality to child outcomes were specified. Similar to the first model, this model includes the overall risk at the pretest as a covariate and no latent variable was defined. For testing the indirect effects, bias-corrected bootstrapped confidence intervals were used.

In this path model, considering SES-based selective attrition in the intervention group family SES was first included as an auxiliary variable. Yet adding SES as an auxiliary variable in the model did not change the parameter estimates and the pattern of the relationship between study variables significantly. For this reason, family SES was not included in the final model. This final model was a just-identified model in which all direct and indirect paths were tested. For the reason that just-identified path models have number of data points which are equal to the estimated parameters, the model perfectly fits the data with CFI = 1.000 and TLI = 1.000, and chi-square and *df*s were zero. In relation to direct paths, the HV enrollment had a significant and positive direct effect on HOME-Total scores at 12-month midtest. Further, the direct path from the HV enrollment and children's social competence at the posttest was significant yet negative, favoring the control children. Thus, the intervention mothers had better overall parenting skills at 12-month midtest than the control mothers. On the other hand, control children had better social competence than intervention children at the posttest. The direct path from the HV enrollment to other child outcomes were not statistically significant.

Moreover, the direct path from overall parenting quality to expressive language at the posttest was significant indicating that overall parenting behaviors measured via HOME-Total (i.e., warmth, acceptance, and involvement in child's learning, mother's organization of the home environment) predicted higher scores in children's expressive language at the posttest. HOME-Total score did have a marginally significant and negative direct effect on aggressive behaviors but had no direct effect on social competence scores of children at the posttest.

Table 5. Parameter Estimates for all Paths in Stimulating Parenting Mediation Model

	Unstandardized Coefficients		Standardized Coefficients	
	B	*S.E.*	*β*	*p* value
Stimulating Parenting-9m[a]				
HV	1.546	.401	.263	<.001***
Overall Risk (Covariate)	-.699	.245	-.188	<.01**
General Development-12m				
HV	.226	.174	.097	.192
Stimulating Parenting	.071	.029	.179	<.05*
HV → Stimulating Parenting	.110	.051	.047	<.05*
Overall Risk (Covariate)	-.098	.095	-.066	.296
Expressive Language-18m				
HV	-.343	2.549	-.009	.894
Stimulating Parenting	1.231	.442	.196	<.01**
HV → Stimulating Parenting	1.904	.872	.052	<.05*
Overall Risk (Covariate)	-4.068	1.591	-.175	<.01**
Aggression-18m				
HV	-.240	.328	-.052	.461
Stimulating Parenting	-.114	.059	-.143	<.05*
HV → Stimulating Parenting	-.176	.115	-.038	.124
Overall Risk (Covariate)	.314	.207	.107	.133
Social Competence				
HV	-1.186	.193	-.417	<.001***
Stimulating Parenting	.129	.042	.266	.001***
HV → Stimulating Parenting	.199	.077	.070	<.01**
Overall Risk (Covariate)	.081	.139	.045	.554

*p< .05. **p<.01. ***p< .001.

As a statistical control in the tested model, the overall risk index at the pretest, had a significant and negative direct effect on the overall parenting and the home environment quality measured through HOME-Total at 12-month mid-test (see Table 6).

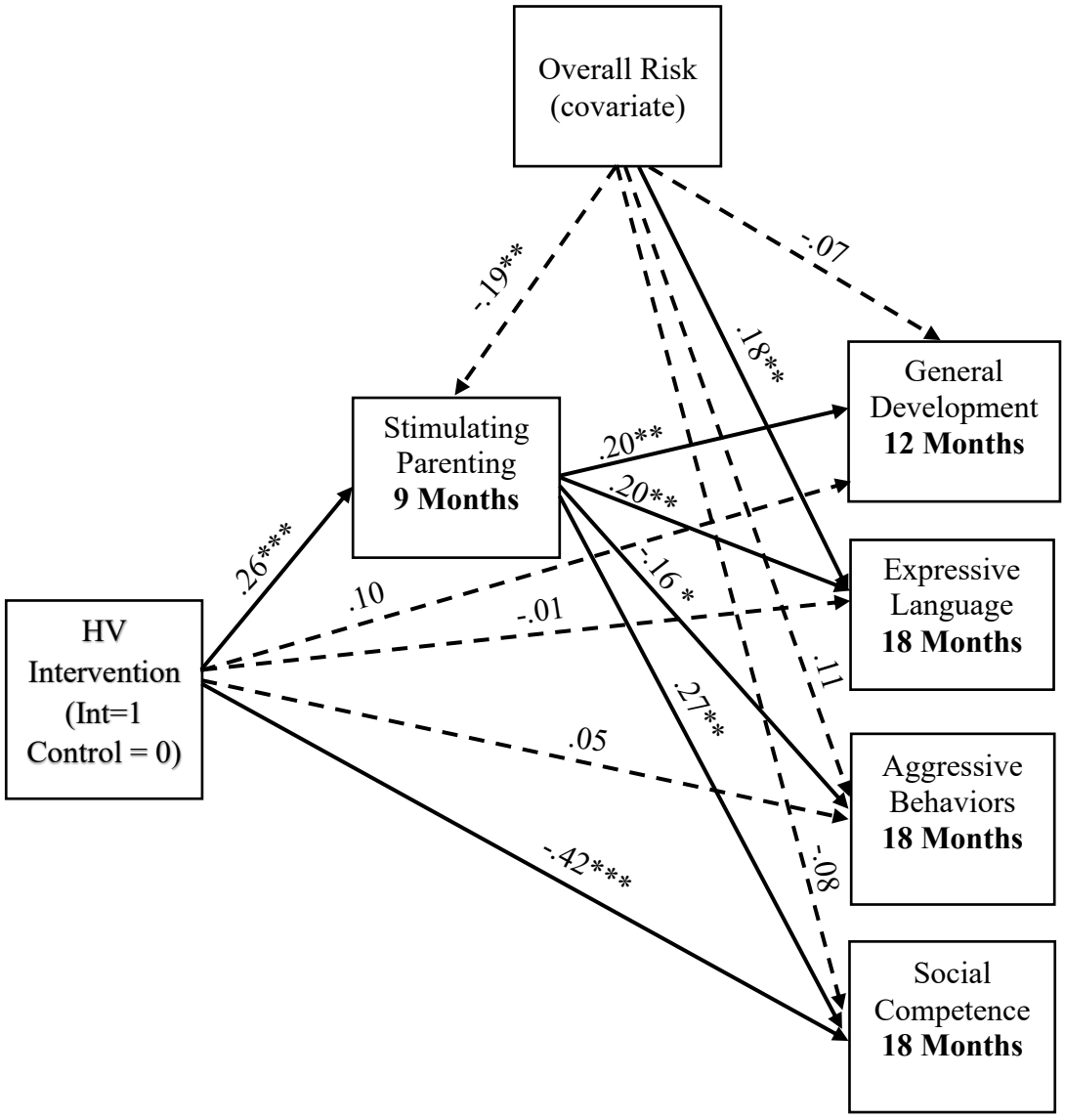

Figure 3. Path analysis diagram for stimulating parenting mediation model

Note. Standardized beta coefficient estimates were shown in the figure. Nonsignificant paths were shown with dashed lines. For the HV Intervention, 1=Intervention group, 0=Control Group. The indirect effect: 95% bias-corrected bootstrapped CI [012, .103] for General Development, [.015, .110] for Expressive Language, [-.100, -.004] for Aggressive Behaviors, and [.032, .143] for Social Competence. CFI: 1.000, TLI: 1.000, a just-identified model.
*p< .05; **p<.01; ***p< .001.

Test of indirect paths revealed that the HV enrollment contributed to parent's overall parenting quality at 12-month midtest (HOME-Total), which in turn improved children's expressive language (β = .04, *S.E.* = .02, 95% CI [.010, .100]) and ameliorated their aggressive behaviors at the post test (β = -.03, *S.E.* = .02, 95% CI [-.088, -.002]). However, contrary to our expectations, participating in the HV intervention did not have a significant indirect effect on children's social competence.

In sum, only direct paths from the HV enrollment to overall parenting quality and to children's social competence and from overall parenting quality to expressive language and indirect paths from the HV enrollment to children's expressive language and to a smaller extent to aggression were significant. Other direct and indirect paths defined in the just-identified model did not reach statistical significance. Since removing the nonsignificant paths considerably deteriorated the model's fit, we did not do such a modification as we did in the first mediation model, used the just-identified model as our final model for HOME-IT mediational model.

Table 6. Parameter Estimates for all Paths in HOME-IT Mediation Model

	Unstandardized Coefficients		Standardized Coefficients	
	B	*S.E.*	*β*	*p* value
Overall Parenting-12m[a]				
HV	2.026	.746	.187	<.01**
Overall Risk (Covariate)	-2.615	.469	-.382	<.001***
Expressive Language-18m				
HV	-.193	2.695	-.005	.943
Overall Parenting	.785	.272	.231	.001***
HV → Overall Parenting	1.591	.867	.043	.05*
Overall Risk (Covariate)	-2.758	1.703	-.118	.101
Aggression-18m				
HV	-.314	.330	-.067	.342
Overall Parenting	-.060	.033	-.140	.059†
HV → Overall Parenting	-.122	.082	-.026	.136
Overall Risk (Covariate)	.242	.216	.082	.263
Social Competence				
HV	-1.008	.194	-.354	<.001***
Overall Parenting	.007	.022	.026	.759
HV → Overall Parenting	.014	.048	.005	.774
Overall Risk (Covariate)	.013	.154	.007	.932

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

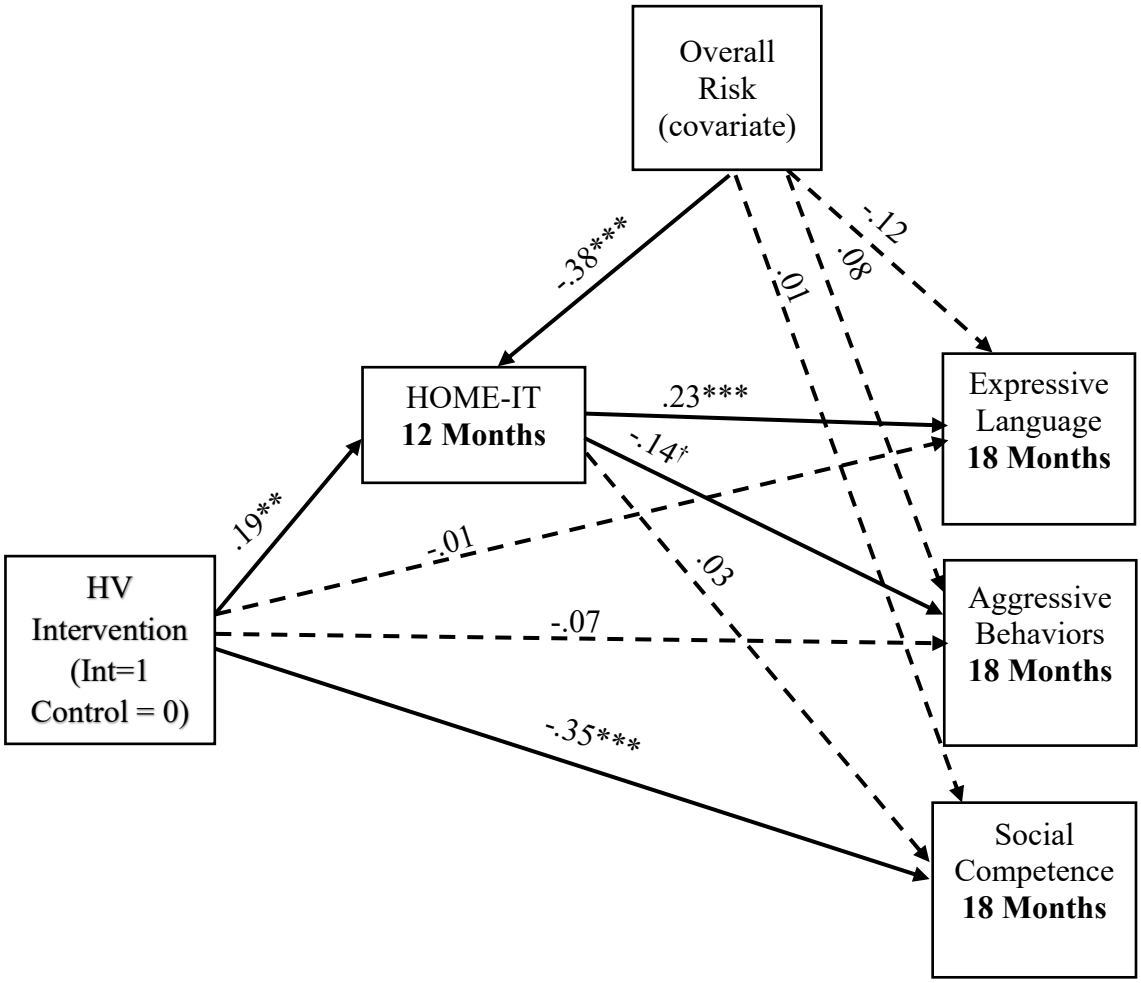

Figure 4. Path Analysis Diagram for HOME-IT Mediation Model

Note. Standardized beta coefficients were shown in the figure. Nonsignificant paths were shown with dashed lines. For the HV Intervention, 1=Intervention group, 0=Control Group. Indirect Effect: 95% bias-corrected bootstrapped CI [.010, .100] for Expressive Language and 95% CI [-.080, -.002] for Aggressive Behaviors. CFI: 1.000, TLI: 1.000, a just-identified model.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

CHAPTER 4

DISCUSSION

Accumulating evidence points out that the first years of life constitute a sensitive period to lay the foundations for subsequent learning, behavior, mental and physical health (Cuhna et al., 2006; Duncan & Magnuson, 2013; Heckman, 2006; Shonkoff et al., 2012). As such, early childhood interventions implemented as early as prenatal years promise an opportunity for optimal development especially for children and families living under socioeconomically adverse circumstances. The main objective of the present study was to examine the role of the Family Guidance program, a home visitation-based preventive intervention designed for disadvantaged families, on mothers' parental self-efficacy, stimulating parenting behaviors, overall parenting quality as well as child development. Furthermore, in accordance with the program's theory of change and conceptual frameworks of the Bioecological Model (Bronfenbrenner & Morris, 2006) and the Family Stress Model (Conger & Donellan, 2007), the present study aimed to examine parental self-efficacy and parenting behaviors as mechanisms of change through which the program might have fostered child outcomes. Findings revealed a positive role of the program on parenting behaviors at 9 and 12 months of child age. Furthermore, the enrollment in the Family Guidance program predicted better developmental scores in children at 12 and 18 months through the intermediary role of mothers' stimulating behaviors and overall parenting quality at 9 and 12 months of child age, respectively. However, direct relation between the enrollment in the Family Guidance program and later child developmental functioning

was not significant (except trend level significance for children's general development at 12 months of age). These findings provided support to the theory of change of the Family Guidance program that capitalizes on caregivers' empowerment and behavioral change to promote child development. In the sections that follow, these main findings are discussed in more detail in relation to previous literature and the extent to which the study hypotheses were supported will be evaluated.

4.1 The program's role on parent outcomes at the mid- and post-test

As hypothesized, compared to control mothers, intervention mothers had higher scores on the stimulating behavior questionnaire that pertain to the frequency of playing, talking, reading, and storytelling to children when infants were 9 months (Cohen's d = .51). Furthermore, intervention mothers were also rated higher on the HOME-IT that measures the overall parenting quality (i.e., stimulation, responsiveness, involvement) as well as learning opportunities in the home environment at 12 months of infant age (Cohen's d = .40). Thus, these results revealed that the Family Guidance program acted to promote mother's stimulating behaviors and overall parenting and home environment quality. Stimulating parenting behaviors were at the core of this HV program. The difference in these behaviors across the intervention and control groups at 9 months was evaluated using a self-report measure that has specifically included items targeted in the program such as talking, singing, reading to child. Furthermore, the use of the HOME-IT, based on direct behavioral observations and interview with the mothers, has enabled to see the role of the Family Guidance program on a wider repertoire of supportive parenting skills (e.g., responsivity, acceptance) and the more global aspects of child's

immediate environment. These findings were in accordance with the reports of previous studies, meta-analyses, and systematic reviews evaluating the impact of HV programs or parenting interventions (Altafim et al., 2021; Filene et al., 2013; Guttentag et al., 2014; Howard & Brooks-Gunn, 2009; Jeong, Franchett et al., 2021; Jeong et al., 2018, 2019; Lahti et al., 2019; Neuhauser et al., 2018; Obradovic et al., 2016; Raikes et al., 2014).

Furthermore, moderate effect sizes in the present study pertaining to the improvements in parenting behaviors were in accordance with the effect sizes reported in the meta-analyses and reviews of HV and parenting programs. Nievar et al. (2010), for instance, reported moderate, but substantial benefits of HV programs on maternal sensitivity and provision of stimulating home environment. Filene et al. (2013) and Casillas et al. (2016) also found moderate impacts of HV programs on positive parenting (sensitivity, responsiveness, nurturance) and positive discipline and behavior management. Recent meta-analyses of parenting interventions (including HV programs) by Jeong et al. (2018) and Jeong, Franchett et al. (2021) documented moderate to large benefits on parenting practices, parent-child interactions, home caregiving environment, and parental knowledge of child development. Although hypothesized, the program's role on parental self-efficacy at 9-month-midtest could not evaluated due its non-normal distribution and limited variance in mother's parental self-efficacy scores.

4.2 The program's indirect role on developmental outcomes at the posttest

In the present study, the HV program had an indirect role on most of the developmental outcomes through maternal stimulating and overall supportive behaviors at 9 and 12 months of child age. Specifically, enrollment in the Family Guidance Program was

related to higher child developmental scores at 12 months as well as higher expressive language development, social competence, and lower aggression scores at 18 months through the intermediary role of mothers' stimulating behaviors at 9 months. Furthermore, enrollment in the program also related to higher expressive language scores and lower aggression scores at 18 months through the mediating mechanism of the overall parenting and home environment quality as measured with the HOME-IT based on interview and observation data. To note, improvements in parenting behaviors mediated the benefits of the HV program on child outcomes supported the program's theory of change and provided consistent results as in previous evaluation studies (Altafim et al., 2021; Guttentag et al., 2014; Howard & Brooks-Gunn, 2009; Jeong et al., 2019; Neuhauser et al., 2018; Obradovic et al., 2016; Raikes et al., 2014).

Turning to the specific indirect links, parent's stimulating behaviors act to mediate the benefits of the Family Guidance Program on all measured child outcomes. This finding is expected considering the program's primary goals. In the Family Guidance program, parents were taught how to be sensitive and responsive toward their infants with several age-appropriate learning activities and were modeled, guided, encouraged, and praised by home visitors to engage in such activities (e.g., play, talk, sing, praise) in each home visit. Similar to the Family Guidance Program, several parenting interventions focusing on parents' sensitive and responsive behaviors particularly in LMICs, benefited child development in various areas such as cognitive development, language skills, and socioemotional development indirectly through fostering parent's such parenting behaviors (Aboud & Yousafzai, 2015; Jeong et al., 2019; Neuhauser et al., 2018; Obradovic et al., 2016; Prado et al., 2019; Yousafzai et al.,

2014). In support of this, Jeong, Franchett et al. (2021) in a comprehensive meta-analysis of 102 parenting interventions indicated greater benefits on parenting knowledge of child development, parenting practices, and parent-child interaction for programs that have a responsive caregiving content (i.e., parental sensitivity and responsiveness on several occasions such as communication, play, and feeding) than programs that did not have such content.

With regard to another indirect effect, the overall parenting and the home environment quality measured through HOME-IT also appeared to be a mechanism through which the HV program benefited two aspects of child development tested in this study: expressive language development and aggressive behaviors (to a lesser extent) at the posttest. The intervention mothers who were involved in child's learning by structuring the child's time, scaffolding the child to achieve tasks that are slightly beyond the child's capacity, providing the child with learning materials and diverse experiences such as taking the child out at least a few time a month could support child's language, self-regulation, and autonomy, thus, foster language development and decrease child's likelihood of developing aggressive behaviors. Past studies also supported this claim and indicated that a supportive parenting and home caregiving environment during early years of childhood has been associated with better language development (Neuhauser et al., 2018; Obradovic et al., 2016) and declines in conduct problems and physical aggression (Altafim et al., 2021; Brotman et al., 2009; Caldera et al., 2007; Rayce et al., 2017; Rose et al., 2018).

HOME-IT as a measure that evaluates a broad range of parenting behaviors (i.e., warmth, acceptance, involvement in child's learning) as well as parent's organization of

the home caregiving environment (i.e., safe, orderly, predictable, and stimulating) has provided a comprehensive measurement in the present study. In early childhood intervention research, HOME-IT has been often used to evaluate impact of the interventions in relation to how improvements in parenting and the quality of home environment could account for improvements in child functioning (Howards & Brook-Gunn, 2009; Obradovic et al., 2016; Orri et al., 2019). In the present study, only the sum score of HOME-IT was used in analyses. When the role of the Family Guidance program on distinct subscales of HOME-IT was examined, subscales assessing mother's involvement in child's learning, the availability of age-appropriate materials and toys in the household and the diversity of child's experiences seemed to be improved significantly by the program. In this sense, the program's lack of indirect role on children's social competence through HOME-IT may be related to the finding that program did not improve aspects of parenting that may be related to social competence such as sensitivity, warm responsiveness, and use of positive discipline strategies.

Overall, the support for the indirect link of the Family Guidance Program with child functioning in the present study also strengthens the view that improving particular parenting behaviors would be effective ways to improve early childhood development considering the crucial role of parents on child development particularly in the early years of life (Howard & Brooks-Gunn, 2009; Nievar et al., 2010; Sweat & Appelbaum, 2004). Our findings were also in line with the premises of the Bronfenbrenner's bioecological model that sees parent-child interactions as proximal processes or "the engines of development" in early years of life (Bronfenbrenner & Morris, 2006). Most of the HV programs aim to improve the proximal processes; home environment as well

as parenting behaviors which would ultimately enhance child development (Howard & Brooks-Gunn, 2009; Minkovitz et al., 2016; Schaub et al., 2019).

As discussed earlier, studies evaluating the effects of early childhood interventions has often measured the change in parenting variables such as maternal depression (Singla et al., 2015) mother's sensitivity (Neuhauser et al., 2018) and stimulation (Edwards et al., 2020; Guttentag et al., 2014; Lahti et al., 2019; Obradovic et al., 2016), positive discipline (Altafim et al., 2021), and developmental support provided children in the home environment (Caldera et al., 2007; Obradovic et al., 2016; Orri et al., 2019; Singla et al., 2016). However, apart from a smaller number of studies (Altafim et al., 2021; Brotman et al., 2009; Guttentag et al., 2014; Jeong et al., 2019; Neuhauser et al., 2018; Obradovic et al., 2016; Orri et al., 2019; Raikes et al., 2014), parenting variables and variables pertaining to the parent-child relationship have only recently been tested as intermediary processes through which the interventions have affected child outcomes (Howard &Brooks-Gunn, 2009; Raikes et al., 2014). In that respect, the findings of the present study contributed to this slowly growing research base.

In conclusion, the findings indicating that the Family Guidance Program acted to improve early child development through enhancing parent's developmentally supportive skills at the first year of child's life highlighted the important role parents play in fostering young children's development in several domains. Specifically, early childhood interventions that capitalize on guiding, supporting, and encouraging parents to stimulate their children's development, to create learning opportunities, and to provide sensitive and responsive caregiving during the very first years of life benefit various child outcomes (Jeong et al., 2019; Prado et al., 2019; Raikes et al., 2014; Zhang

et al., 2021). The present study provided support that promoting such parenting behaviors through early childhood interventions is also a promising way, for language development in particular and for child development in general, in line with previous evaluation studies (Altafim et al., 2021; Guttentag et al., 2014; Jeong et al., 2018, 2019, Jeong, Franchett et al., 2021; Neuhauser et al., 2018; Obradovic et al., 2016; Raikes et al., 2014).

4.3 The program's direct role on child outcomes at the mid- and post-test

The Family Guidance program's curriculum was developed in a way that aims to foster children's development through supporting parent's well-being, enhancing their knowledge of child development, and their developmentally supportive parenting skills from the last trimester of pregnancy. As such better developmental outcomes for the intervention children compared to the control children were among the expected benefits of the program. This expectation was largely met as the positive indirect role of the HV program though improvements in mother's stimulating and overall parenting behaviors was found on many of the measured developmental outcomes. Furthermore, the marginally positive role of the HV program on children's general development indicated that the intervention children had slightly better general development at 12 months of age according to their score on the developmental screening test developed by WHO-IYCD. However, no significant group difference on children's language development aggressive behavior at the posttest was found. In fact, contrary to our expectation, control group children had significantly higher social competence scores at the posttest than the intervention children.

The limited evidence of a direct link between the HV program and child outcomes in the present study was surprising given that some of past research has found a direct benefit of the similar early childhood interventions on developmental indicators (e.g., Aboud & Yousafzai, 2015; Attanasio et al., 2022; Prado et al., 2019; Singla et al., 2015; Yousafzai et al., 2014). However, it is important to point out that the impact of early childhood interventions in general and HV programs in particular has been small to moderate on child development (Aboud & Yousafzai, 2015; Attanasio et al., 2022; Filene et al., 2013; Prado et al., 2019; Singla et al., 2014; Yousafzai et al., 2014; Zhang et al., 2021). Similar to the pattern detected in the present study, there are also other studies that pointed out the mediating pathways such as parenting and the quality of home caregiving environment through which early childhood interventions are associated with positive developmental outcomes (e.g., Altafim et al., 2021; Brotman et al., 2009; Dishion et al., 2008; Guttentag et al., 2014; Jeong et al., 2019; Neuhauser et al., 2018; Obradovic et al., 2016; Raikes et al., 2014).

Regarding specific direct relations, general development at 12 months among all the child outcomes has shown a marginally significant benefit of the program. This positive role of the program on infant's general development, albeit suggestive, was in line with early childhood intervention research. Previous studies have assessed young children's developmental progress on various domains through standardized tests of development such as Bayley Scales of Infant Development (Attanasio et al., 2022; Bayley, 2006; Caldera et al., 2007; Jeong et al., 2019; Prado et al., 2019; Singla et al., 2014; Yousafzai et al., 2014; Zhang et al., 2021). Much of the early intervention research utilizing such standardized tests indicated that early interventions improved

young children's general development (Attanasio et al., 2022, Jeong et al., 2019; Schaub et al., 2019; Singla et al., 2014; Yousafzai et al., 2014). In the present study, the developmental screening test developed by the WHO was used to assess the child's attainment of general developmental milestones. Given its nature for screening, developmental domains were not examined in-depth. This might be one of the reasons to explain the marginally significant difference between the groups. A more in-depth examination of child development is warranted in future research.

The direct relation between the enrollment in this HV program and child's expressive language at the posttest did not reach statistical significance. The significant indirect link between the program enrollment and expressive language through developmentally supportive parenting suggested that rather than the program itself, the behavioral changes the program has contributed to parenting behaviors accounted for the improvements in children's expressive language. However, the lack of a direct relation and the relatively small-sized indirect relation of the program on language development may be explained by the aspect of language that was assessed. At the posttest, only children's expressive vocabulary size (i.e., the number of words they could produce) was measured. There is growing evidence that a growth spurt in young children's expressive vocabulary takes place around 18 months of age (Reznick & Goldfield, 1992). In this sense, the assessment of expressive language at 18 months may not reveal the true individual differences in expressive language development and such differences could have been better revealed if it was measured at a later time point. In support of this, Neuhauser et al. (2018) evaluated the impact of a HV program, Parents as Teachers on children's receptive and expressive language development at 24- and 36-months of age

and indicated significant benefits of the program on expressive language development at 36 months, but not at 24-months of age.

In the present study, we also did not find any direct benefit of the Family Guidance program on reducing young children's aggressive behavior at 18-months of age. There was, however, significant, small indirect role of the program in reductions of child's aggressive behaviors. The significant, yet small indirect role and the lack of direct role of the program on declines of aggressive behavior at 18-months may be related to the developmental normativity of such behaviors during toddlerhood. As revealed by a number of previous studies, low to moderate levels of aggressive behaviors such as acting out, hitting, biting, taking toys from other children have been often characterized as typical in early childhood and considered as young children's quest for independence (Jambon et al., 2019; NICHD Early Child Care Research Network, 2004; Tremblay et al., 2004). For this reason, aggression observed by mothers at 18-months may reveal a typical developmental pattern of behavioral development. In fact, similar mean levels of aggressive behavior reported for children in both groups may provide some support for this developmental normativity interpretation. With regard to the past literature, whereas some evaluation studies reported small, but positive benefits of the interventions in the first years of life in reducing behavior problems (Dishion et al., 2008; Jeong, Franchett et al., 2021), others suggested that the role of interventions on young children's behavior problems (including externalizing and internalizing problems) was not statistically significant. (Rayce et al., 2017). Specifically, regarding the lack of direct role of the Family Guidance program on children's aggressive behavior, it is possible that our small sample and the quasi-experimental design rather than randomized

design might have limited our statistical power to detect the small effect sizes reported in the literature.

The finding that control children were rated as socially more competent than intervention children was unexpected. Despite the lack of direct role, the indirect role of the program on children's social competence at the posttest through parent's stimulating behaviors were statistically significant, albeit small in size. This indicates that the program acted to promote parenting skills that are critical for adaptive socioemotional development at 18 months of age rather than directly benefiting socioemotional skills of young children. The small-sized indirect role and reported group difference in children's social competence favoring control children might be due to some of the program features. As one important feature, quasi-experimental design of the present study may preclude us to ensure the baseline equivalence of the intervention and control group. However, families assigned to groups were from socioeconomically similar backgrounds and were compared in terms of various baseline demographic characteristics as well as risk factors. Further, since the groups differed in overall risk at the baseline assessment, the level of risk was controlled in all analyses, which minimizes the possible effects of pre-existing group differences on program outcomes. Thus, the group difference on social competence favoring the control group children is less likely to be attributed to the quasi-experimental design of this study and to baseline group inequivalence.

Another plausible explanation for the small indirect role and the lack of direct role of the program on children's social competence might be that the Family Guidance Program primarily aims to encourage and support caregivers to endorse developmentally appropriate and stimulating behaviors. Improving parenting behaviors that have often

been shown to promote young children's socioemotional development and reduce disruptive behaviors include instilling sensitivity and warm responsiveness as well as positive discipline practices such as giving effective directions, ignoring, and setting firm limit (Altafim et al., 2021; Bernard et al., 2012; Cullen et al., 2010; Dishion et al., 2008; Juffer et al., 2017). Yet, such parental approaches were not the primary focus of this HV program. In this sense, children's social competence might not be directly targeted by the HV program. Although such an interpretation may explain the small-indirect and the lack of direct role of the program on this particular child outcome, it falls short of providing a valid reason for the control children being socially more competent at the posttest than the intervention children. One reasonable speculation for the unexpected group difference might be that although control families did not receive HV services, the possibility that they had received any sorts of external support that may promote parent's sensitivity and warm responsiveness, or children's socioemotional development cannot be fully eliminated. Moreover, the possibility that the Family Guidance Program raised the intervention mothers' awareness to be more genuine reporters of their children's socioemotional competence than the control mothers may offer an explanation for the group difference in social competence favoring the control group children.

In past literature, not all the early childhood intervention studies have consistently documented the positive role of interventions on young children's socioemotional functioning (Attanasio et al., 2022; Jeong et al., 2021; Orri et al., 2019; Prado et al., 2019; Yousafzai et al., 2014; Zhang et al., 2021). This inconsistency may be partly explained by the small number of intervention studies evaluating impact of

programs on socioemotional domain in infancy and toddlerhood as underlined in recent meta-analyses and systematic reviews (Jeong, Franchett et al., 2021; Prado et al., 2019; Zhang et al., 2021). Another explanation might be that measures that were used to assess children's socioemotional development may not be suitable for very young children and valid across different cultural contexts and SES levels (Yousafzai et al., 2014).

Besides the speculations underlined above, our inability to find the positive direct role of the program on most of the child outcomes may also be attributable to the fact that the program did not directly provide services for children. In fact, many of the HV programs such as Nurse Family Partnership, Healthy Families America, Parents as Teacher typically target parents as the beneficiaries of the program, and the theory of change that these programs adopted draws on improving parent's well-being, their knowledge of child development, and caregiving skills, with the final goal of improving child development (Grantham-McGregor & Smith, 2016; Howard & Brooks-Gunn, 2009; Lahti et al., 2019; Nievar et al., 2010; Raikes et al., 2014). In line with this theory of change, the potential benefits of HV programs on parents may precede their impacts on child outcomes. More precisely, a positive change in parenting behaviors can be more readily observed and is reflected to child development after a while (Howard & Brooks-Gunn, 2009).

Moreover, the benefits of HV programs have been shown more consistently on parenting domain (e.g., parental responsiveness and supportive presence) than child development domain (Howard & Brooks-Gunn, 2009; Kendrick et al., 2000; Obradovic et al., 2016; Orri et al., 2019; Raikes et al., 2014). It is important to note that the impact of HV programs on parenting has often been small-to-moderate (Casillas et al., 2016;

Filene et al., 2013; Sweet & Appelbaum, 2004). Thus, the program's impact on child outcomes, which have not often been the primary targets of change, can even be smaller and may not reach statistical significance immediately after the program implementation. The benefits of HV programs on child developmental functioning may be better captured in follow-up assessments instead of assessments that were made immediately after the program implementation (Cannon et al., 2018; Jeong, Pitchik et al., 2021).

4.4 Strengths of the study

Within the Family Guidance program, most of the mothers were recruited to the program during the last trimester of their pregnancy. Thus, the present study contributed to the literature on HV programs in the LMICs that start in the prenatal period. Secondly, a broad range of demographic and environmental information were assessed prenatally to identify families' risk status. Since the intervention group had significantly higher family risk at baseline compared to the control group, the prenatal risk status was controlled in all main analyses given the quasi-experimental design of this study. By statistically controlling the preexisting differences between intervention and control groups, we could more confidently conclude that observed differences in parenting and child outcomes were not due to the baseline differences between groups. Third, multiple informants (mothers, observers) were used in the present study to assess mothers' stimulating and supportive caregiving practices to minimize common rater variance. In particular, while stimulating parenting behaviors were measured through a maternal self-report questionnaire, the overall parenting quality at 12 months of child age was

obtained based on direct behavioral observations in the home environment and based on interview with mothers. The data collection team was not involved in the HV services, and they were kept blind to the program membership of the families. Fourth, path analyses were conducted to test not only direct but also indirect relations between the HV program enrollment and multiple child developmental outcomes. Next, assessments on child functioning were conducted on multiple domains: general development, expressive language development, social competence, and behavior problems. Furthermore, the Family Guidance program had been carried out in two low-resource and socioeconomically disadvantaged neighborhoods of Istanbul where most of the families suffer from poverty and poverty related adverse conditions. The Family Guidance program is one of the first HV program implemented in Turkey that targeted disadvantaged families. In this sense, the program has set the stage for future preventive interventions for disadvantaged families in Turkey. Also, qualitative data collected through focus group interviews with participant mothers (Çorapçı et al., 2022) have revealed that this preventive intervention was well-received by mothers and seen as a major emotional and instrumental support in raising their children. Finally, the implementing body of the Family Guidance program was the district municipalities in Maltepe and Sultanbeyli. The local governance acts as key players in the delivery of social services in Turkey. This program evaluation study has also allowed the feasibility assessment whether HV services could be offered in a local context via municipalities to provide a much-needed means of serving the needs of young children.

4.5 Limitations of the study

The present study also had a number of limitations. The quasi-experimental design of the study limits its conclusions for strong causal effects of the Family Guidance program on parenting and child outcomes. Although intervention and control families were both selected from socioeconomically disadvantaged districts in Istanbul and baseline differences between families in risk status were controlled in the analyses, these measures did not fully rule out the possibility of selection bias. Furthermore, the intervention families who withdrew from the study at the time of 9-month midtest were from lower SES backgrounds compared to the intervention families participated in the midtest. This selective attrition might have influenced the reported benefits on program outcomes. Yet to overcome this limitation, the models were first tested with family SES added as an auxiliary variable and this did not change the patterns of relationships between the study variables significantly. Secondly, assessment of stimulating parenting behaviors in this study was based on parents' own reports of their parenting behaviors. As such, mothers might have evaluated their behaviors in socially more desirable ways than they actually were (Jeong et al., 2019). In fact, three months later than the assessment of mother's stimulating parenting behaviors, at 12 months of child age, we have interviewed mothers and observed their parenting behaviors during almost an hour-long home visitation, thus, were capable of making a relatively more objective assessment of wider repertoire of their parenting behaviors. A positive role of the HV intervention on overall parenting quality measured at the 12 months of child age based on observation and interview partly eliminates the social desirability bias inherent in surveys. Third, although parental self-efficacy was hypothesized as one of the

explanatory mechanisms for the potentially positive role of the Family Guidance program on child outcomes, score distribution of this variable violated the normality assumptions and could not be included in the analyses. The measure used in the present study focused on task-specific efficacy beliefs of mothers of young infants such as feeding, bathing, and relaxing a baby. It is likely that a domain-specific measure of parenting self-efficacy that evaluates one's ability to carry out parenting tasks and cope with problems in childcare tasks might have better capture individual differences in this sample of mothers of toddlers. Similarly, two subscales of BITSEA, internalizing problems and dysregulation had very poor internal consistency which prevented us to use these subscales in the analyses. Thus, the assessment tools of early socioemotional capacities with better reliability are definitely needed in future research. Moreover, most of the child outcome variables were measured with mother report questionnaires. Caregiver reports of child behavior and development, although informative, inherently have some weaknesses such as social desirability bias. Furthermore, considering that the sample of this study was composed of mothers with mainly low levels of education (majority of both group mothers had lower than a high school degree), relying only on their reports for assessing child development might have prevented us to reliably measure child development. Next, the Family Guidance HV program's role on parenting and child outcomes has been evaluated in two districts of Istanbul. Thus, caution must be exercised when generalizing these findings to the broader context, and replications in other districts where the program was implemented are warranted. Also, the possibility that control mothers' access and utilization of alternative services and/or sources cannot be fully eliminated, and this possibility may account for mostly small and moderate

effects of the program on parenting and child outcomes. Todays' parents have easier access to a variety of online as well as print sources of parenting and child development which might have supported control parents and promoted their children's development. Finally, the HV services in the Family Guidance program were offered biweekly, each visit lasting about 30-35 min during the first 18 months of children's lives. There was no other control group to assess the role of the dosage on parenting and/or child developmental outcomes.

4.6 Future Directions

Studies evaluating the effectiveness and the efficacy of early childhood interventions have been rising particularly during last few decades. In this sense, carefully designed quasi-experimental designs that control for preexisting differences between intervention and control groups, as in the present study, are promising and informative. However, there is a need to replicate the findings derived from the present study with more rigorously designed, randomized control trials to obtain a better understanding of the program impact. Next, considering that most of child development indicators were assessed based on mothers' report in this study which may bring about some limitations such as social desirability bias, future, methodologically more rigorous studies may utilize complementary, observational or standardized measurements of child development to draw more confident conclusions about the programs' role on child outcomes. Furthermore, 6-month or 1-year follow up evaluations as well as additional subgroup analyses such as whether this particular program works better for some of the families or children than others need to be tested in future research. Research to date has

shown that those who are more disadvantaged at the baseline assessments are more likely to benefit from early interventions (Altafim et al., 2021; Caldera et al., 2007; Casillas et al., 2016; Jeong et al., 2021; Zhang et al., 2021). Furthermore, it is also important to examine which attributes may drive the effectiveness of programs (Cannon et al., 2018). Considering that early childhood interventions (including the HV programs) consist of multiple components and procedures to deliver the content (Filene et al., 2013; Nievar et al., 2010; Zhang et al., 2021) as in the current study (e.g., giving informative handouts, giving feedback to mothers to coach them during play), it is important to plan further evaluation studies to better understand the "active ingredient" in the Family Guidance program.

Although most of the early childhood interventions offer services to mothers as parents, the role and involvement of fathers in childcare has also been recognized in the last decades. Fathers have also been increasingly undertaken certain responsibilities of caregiving as well as provide emotional support for their children, thus, have a unique as well as complementary role on child development (Cabrera et al., 2018; Kisbu et al., 2021). In this sense, future intervention attempts, and studies could utilize a family systems approach to target not only mothers but also fathers within the family and broader environmental context (e.g., work-related factors) and cultural influences on parenting and family functioning (Cabrera et al., 2018; Kisbu et al., 2021). More specifically, future intervention work should focus on improving the well-being and parenting skills of both parents particularly in low-resource settings in which nurturing care may be needed more by young children.

Effectiveness of early childhood interventions have largely been evaluated immediately after the program completion (postintervention assessment). In their metanalysis of parenting interventions delivered during early childhood, Jeong et al. (2021b) indicated that majority of evaluation studies (out of 24 studies) reported immediate or short-term (1-3 year after program implementation) program outcomes on parenting and child development, whereas medium-term (4-9 years) and long-term (10+ years) follow-up evaluations have been limited in number. Long-term follow up studies are critical for reaching a more complete understanding of whether benefits of interventions reported immediately after the program implementation are sustained or faded over time. Achieving sustained benefits over the life course should be among the most important purposes of early childhood intervention studies. For this reason, future studies should make greater efforts for longer term follow-up assessments that can inform designs of future intervention work, as well (Cannon et al., 2018).

Most of the early childhood interventions ultimately aim to support and promote young children's development in various domains (Zhang et al., 2021). In line with this aim, evaluation studies place a relatively higher importance to the benefits of interventions on child developmental outcomes (Howard & Brooks-Gunn, 2009). However, evidence from the present study and much of the past work has suggested that parents also benefit particularly from parenting coaching and HV programs since primary target of such programs is to improve parent's well-being and developmentally supportive caregiving (Filene et al., 2013; Howard & Brooks-Gunn, 2009; Nievar et al., 2010; Obradovic et al., 2016; Jeong et al., 2018; Jeong et al., 2021). Moreover, as also shown and discussed in the present study, particularly in early childhood, intervention

benefits of children's development may be driven by changes in parent's well-being and supportive parenting skills, in this sense, benefits of interventions on parenting could be an important pathway through which young children's development is supported. More clearly, longer-term, meaningful impacts of interventions on parenting may drive more positive child outcomes, particularly in early childhood years. Hence, greater attention should be paid to the improvements in parent's well-being as well as their parenting skills and sustainability of these improvements in future evaluation studies (Cannon et al., 2018; Jeong et al., 2021; Obradovic et al., 2016; Raikes et al., 2014).

APPENDIX A

PARTICIPATION INFORMATION AND CONSENT FORM FOR INTERVENTION GROUP

The research institution: Boğaziçi University
Title of the study: Supporting Development in Early Childhood
Project Advisor: Prof. Dr. Feyza Çorapçı
Adress: Boğaziçi University, Psychology Department
Phone Number: XXX
Municipality Phone Number: XXXX

Dear Mother,

Within the scope of the services provided to you by your municipality, the program entitled "Supporting Development in Early Childhood" has been implemented for enhancing children's optimal development and addressing the needs of caregivers.

In case you agree to participate in this program, you will be visited by a female home visitor, starting with a prenatal home visit, and continuing with a series of biweekly home visits up until your child's 1.5 years of age. The home visitor will inform you about child development, introduce you play-based learning activities and books, and will play with you and your child. Each home visit will last approximately for 40-45 minutes. Home visits will be arranged upon your convenience. Please do not make certain preparations and treats for the home visitor at home.

To understand how useful the program is for the families, we will conduct assessments based on survey prior to program, at the 8th month midway the program and at the end of the program. In these assessments, which will be applied at your home by a female interviewer, we will have short questions about your family's eating habits, the games you play with your baby, your child-rearing attitudes and behaviors, your home life and how you feel. In addition, in the 8th month of the program and at the end of the program, we will ask you questions to evaluate your baby's achievements in communication, movement, problem solving and social development.

Your municipality will not charge you any fee for this program. Your and your baby's information will not be shared with anyone. The data collected from the families will only be seen by the researchers, the names of the families will not be matched with the data obtained from them, and a number will be used instead of the participant family's name in all questionnaires. The collected data will be evaluated and published collectively, not individually. Participation in this program is completely optional. If you participate, you have the right to withdraw your consent at any stage of the program without giving any reason.

This study has been approved by the ethics committee of Boğaziçi University. If you would like to receive additional information about the research project or to ask

questions about the research, please contact Boğaziçi University faculty member Prof. Dr. Feyza Çorapçı. You will be given a copy of this consent form to have on hand. In the light of this information, if you agree to assist us and participate in this important research project, we request that you sign this form and return it to us in a sealed envelope.

I read the text on "Supporting Development in Early Childhood" and fully understood the scope and purpose of the program I was asked to participate, and my responsibilities as a volunteer.

I had the opportunity to ask questions about the program and received a copy of the Participant Information and Consent Form.

I understand that I can leave this program whenever I want and without having to give any reason.

I_____to participate in the Early Childhood Development Support Program

☐ Agree

☐ Disagree

Mother's Name Surname:

Signature:

Phone Number _____
Date (day/month/year):...../...../.....

Home Visitor's Name Surname

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

APPENDIX B

PARTICIPATION INFORMATION AND CONSENT FORM FOR INTERVENTION GROUP (TURKISH)

MÜDAHALE GRUBU İÇİN KATILIMCI BİLGİ VE ONAM FORMU

Araştırmayı destekleyen kurum: Boğaziçi Üniversitesi
Araştırmanın adı: Erken Çocukluk Döneminde Gelişimin Desteklenmesi
Proje Yürütücüsü adı: Prof.Dr. Feyza Çorapçı
Adresi: Boğaziçi Üniversitesi, Psikoloji Bölümü
E-mail adresi: XXX
Telefonu: XXX
İlgili Belediye İletişim Numarası: XXXX

Sevgili Annemiz,

Belediyenizin size sağlamış olduğu hizmetler bünyesinde sağlıklı çocuk gelişimini desteklemek ve anne-babaların ihtiyaçlarına cevap verebilmek için "*Erken Çocukluk Döneminde Gelişimin Desteklenmesi*" isimli programı uygulamaya koymuştur.

Bu programa katılmayı kabul ettiğiniz takdirde doğum öncesinde bir kere ve doğumdan sonra iki haftada bir çocuğunuz 1.5 yaşına gelene dek 2 haftada bir olmak üzere evinize Belediyeden bir bayan ev ziyaretçisi gelecektir. Bu ev ziyaretçisi bebeğinizin sağlıklı büyümesi için size gerekli bilgilendirmeleri yapacak, bebeğinizin gelişimini destekleyen oyunlar ve kitapları tanıtıp, sizinle birlikte bebeğinizle bu oyunları oynayacaktır.

Her ev ziyareti yaklaşık 40-45 dakika sürecektir. Ziyaretlerin gün ve saatleri size en uygun olacak şekilde ayarlanacaktır. Lütfen ev ziyaretçisi için evde belli bir hazırlık yapmayın ve ikram hazırlamayınız.

Aile Rehberliği programının ailelere ne kadar faydalı olduğunu anlamak için programa başlamadan önce, programın 8. ayında ve program sona erdikten hemen sonra sizinle bir anket uygulamamız olacak. Bayan bir anketör tarafında evinizde uygulanacak bu anket çalışmasında ailenizdeki beslenme alışkanlıkları, bebeğinizle oynadığınız oyunlar, çocuk yetiştirme tutum ve davranışlarınız, ev hayatınız ve kendinizi nasıl hissettiğiniz gibi konularda kısa sorularımız olacak. Ayrıca programın 8. ayında ve program sona erdiğinde bebeğinizin iletişim, hareket, problem çözme ve sosyal gelişim alanlarındaki kazanımlarını değerlendirmeye yönelik olarak size sorular yönelteceğiz.

Bu program için Belediyemiz sizden hiç bir ücret talep etmeyecektir. Sizin ve bebeğinizin bilgileri kimseyle paylaşılmayacaktır. Ailelerden toplanan veriler sadece araştırmacılar tarafından görülebilecek, ailelerin isimleri kendilerinden alınan verilerle eşleştirilmeyecek ve tüm anket formlarında katılımcı ailenin ismi yerine bir numara kullanılacaktır. Toplanan veriler bireysel olarak değil toplu olarak değerlendirilip

yayınlanacaktır. Bu programa katılmak tamamen isteğe bağlıdır. Katıldığınız takdirde programın herhangi bir aşamasında herhangi bir sebep göstermeden onayınızı çekme hakkına sahipsiniz.

Bu çalışma Boğaziçi Üniversitesi etik kurulu tarafından onaylanmıştır. Araştırma projesi hakkında ek bilgi almak ya da araştırmayla ilgili sorularınızı yöneltmek istediğiniz takdirde lütfen yukarıda iletişim bilgileri yazılı olan Boğaziçi Üniversitesi öğretim üyesi Prof.Dr. Feyza Çorapçı ile temasa geçiniz. Elinizde bulunması için bu onam formunun bir kopyası size verilecektir. Bu bilgiler ışığında bize yardımcı olmayı ve bu önemli araştırma projesine katılmayı kabul ediyorsanız, bu formu imzalayıp kapalı bir zarf içerisinde bize geri yollamanızı rica ediyoruz.

"*Erken Çocukluk Döneminde Gelişimin Desteklenmesi*" hakkındaki metni okudum ve katılmam istenen programın kapsamını ve amacını, gönüllü olarak üzerime düşen sorumlulukları tamamen anladım.

Program hakkında soru sorma imkanı buldum ve Katılımcı Bilgi ve Onam Formunun bir örneğini aldım.

Bu programı istediğim zaman ve herhangi bir neden belirtmek zorunda kalmadan bırakabileceğimi anladım.

Erken Çocukluk Döneminde Gelişimin Desteklenmesi Programına katılmaya

☐ onay veriyorum

☐ onay vermiyorum

Annenin Adı-Soyadı:

İmzası:

Cep Telefon Numarası (yoksa ev telefonu): _____
Tarih (gün/ay/yıl):...../...../.....

Ev Ziyaretçisinin Adı-Soyadı:

İmzası:

Tarih (gün/ay/yıl):...../...../.....

APPENDIX C

PARTICIPATION INFORMATION AND CONSENT FORM FOR CONTROL GROUP

The research institution: Boğaziçi University
Title of the study: Supporting Development in Early Childhood
Project Advisor: Prof. Dr. Feyza Çorapçı
Adress: Boğaziçi University, Psychology Department
Phone Number: XXX
Municipality Phone Number: XXXX

Dear Mother,

Within the scope of the services provided to you by your municipality, a child development follow-up application has been started within the framework of the "Supporting Development in Early Childhood Period" program.

If you agree to participate in this program, we will conduct assessments based on survey with you before your baby is born, when your baby is 8- and 18-months old. In these assessments, which will be applied at your home by a female interviewer, we will have short questions about your family's eating habits, the games you play with your baby, your child-rearing attitudes and behaviors, your home life and how you feel. In addition, in the 8th month of the program and at the end of the program, we will ask you questions to evaluate your baby's achievements in communication, movement, problem solving and social development.

Each home visit with a developmental screening will take approximately 40-45 minutes. the scheduling of the visits will be arranged upon your convenience. Please do not make certain preparations and treats for the home visitor at home.

Your municipality will not charge you any fee for this program. Your and your baby's information will not be shared with anyone. The data collected from the families will only be seen by the researchers, the names of the families will not be matched with the data obtained from them, and a number will be used instead of the participant family's name in all questionnaires. The collected data will be evaluated and published collectively, not individually. Participation in this program is completely optional. If you participate, you have the right to withdraw your consent at any stage of the program without giving any reason.

This study has been approved by the ethics committee of Boğaziçi University. If you would like to receive additional information about the research project or to ask questions about the research, please contact Boğaziçi University faculty member Prof. Dr. Feyza Çorapçı. You will be given a copy of this consent form to have on hand. In the light of this information, if you agree to assist us and participate in this important research project, we request that you sign this form and return it to us in a sealed envelope.

I read the text on “Supporting Development in Early Childhood” and fully understood the scope and purpose of the program I was asked to participate, and my responsibilities as a volunteer.

I had the opportunity to ask questions about the program and received a copy of the Participant Information and Consent Form.

I understand that I can leave this program whenever I want and without having to give any reason.

I _____to participate in the Early Childhood Development Support Program

☐ Agree

☐ Disagree

Mother’s Name Surname:

Signature:

Phone Number _____
Date (day/month/year):...../...../.....

Home Visitor’s Name Surname

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

APPENDIX D

PARTICIPATION INFORMATION AND CONSENT FORM FOR CONTROL GROUP (TURKISH)

KONTROL GRUBU İÇİN KATILIMCI BİLGİ VE ONAM FORMU

Araştırmayı destekleyen kurum: Boğaziçi Üniversitesi
Araştırmanın adı: Erken Çocukluk Döneminde Gelişimin Desteklenmesi
Proje Yürütücüsü adı: Prof.Dr. Feyza Çorapçı
Adresi: Boğaziçi Üniversitesi, Psikoloji Bölümü
E-mail adresi: XXX
Telefonu: XXX
İlgili Belediye İletişim Numarası: XXX

Sevgili Annemiz,

Belediyenizin size sağlamış olduğu hizmetler bünyesinde "Erken Çocukluk Döneminde Gelişimin Desteklenmesi" programı çerçevesinde bir çocuk gelişim takip uygulaması başlatmıştır.

Bu programa katılmayı kabul ettiğiniz takdirde bebeğiniz doğmadan, bebeğiniz 8 ve 18 aylıkken sizinle bir anket uygulamamız olacak. Bayan bir anketör tarafında evinizde uygulanacak bu anket çalışmasında ailenizdeki beslenme alışkanlıkları, bebeğinizle oynadığınız oyunlar, çocuk yetiştirme tutum ve davranışlarınız, ev hayatınız ve kendinizi nasıl hissettiğiniz gibi konularda kısa sorularımız olacak. Ayrıca programın 8. ayında ve program sona erdiğinde bebeğinizin iletişim, hareket, problem çözme ve sosyal gelişim alanlarındaki kazanımlarını değerlendirmeye yönelik olarak size sorular yönelteceğiz.

Gelişim taraması yapılacak olan her ev ziyareti yaklaşık 40-45 dakika sürecektir. Ziyaretlerin gün ve saatleri size en uygun olacak şekilde ayarlanacaktır. Lütfen ev ziyaretçisi için evde belli bir hazırlık yapmayın ve ikram hazırlamayınız.

Bu program için Belediyemiz sizden hiç bir ücret talep etmeyecektir. Sizin ve bebeğinizin bilgileri kimseyle paylaşılmayacaktır. Ailelerden toplanan veriler sadece araştırmacılar tarafından görülebilecek, ailelerin isimleri kendilerinden alınan verilerle eşleştirilmeyecek ve tüm anket formlarında katılımcı ailenin ismi yerine bir numara kullanılacaktır. Toplanan veriler bireysel olarak değil toplu olarak değerlendirilip yayınlanacaktır. Bu programa katılmak tamamen isteğe bağlıdır. Katıldığınız takdirde programın herhangi bir aşamasında herhangi bir sebep göstermeden onayınızı çekme hakkına sahipsiniz.

Bu çalışma Boğaziçi Üniversitesi etik kurulu tarafından onaylanmıştır. Araştırma projesi hakkında ek bilgi almak ya da araştırmayla ilgili sorularınızı yöneltmek istediğiniz takdirde lütfen yukarıda iletişim bilgileri yazılı olan Boğaziçi Üniversitesi öğretim üyesi Prof.Dr. Feyza Çorapçı ile temasa geçiniz. Elinizde bulunması için bu

onam formunun bir kopyası size verilecektir. Bu bilgiler ışığında bize yardımcı olmayı ve bu önemli araştırma projesine katılmayı kabul ediyorsanız, bu formu imzalayıp kapalı bir zarf içerisinde bize geri yollamanızı rica ediyoruz.

"Erken Çocukluk Döneminde Gelişimin Desteklenmesi" isimli program hakkındaki metni okudum ve katılmam istenen programın kapsamını ve amacını, gönüllü olarak üzerime düşen sorumlulukları tamamen anladım.

Program hakkında soru sorma imkanı buldum ve Katılımcı Bilgi ve Onam Formunun bir örneğini aldım.

Bu programı istediğim zaman ve herhangi bir neden belirtmek zorunda kalmadan bırakabileceğimi anladım.

Erken Çocukluk Döneminde Gelişimin Desteklenmesi Programına katılmaya

☐ onay veriyorum

☐ onay vermiyorum

Annenin Adı-Soyadı:

İmzası:

Cep Telefon Numarası (yoksa ev telefonu): _____

Tarih (gün/ay/yıl):...../...../.....

Ev Ziyaretçisinin Adı-Soyadı:

İmzası:

Tarih (gün/ay/yıl):...../...../.....

APPENDIX E

SAMPLE ITEMS FROM THE MATERNAL SELF-EFFICACY QUESTIONNAIRE*

ANNELİK ROLÜNDE YETKİNLİK

	Hiç iyi değilim (Not good at all)	Yeterince iyi değilim (Not good enough)	Yeterince iyiyim (Good enough)	Çok iyiyim (Very good)
Bebeğiniz mızmızlandığında, huysuzlandığında veya ağladığında, onu yatıştırmada ne kadar iyisiniz? (How good are you at soothing your baby when he/she is fussy or crying?)	1	2	3	4
Bebeğinizin sizinle birlikte eğlenmesini sağlamada ne kadar iyisiniz? (How good are you at getting your baby to have fun with you?)	1	2	3	4
Bebeğinizi beslerken, altını değiştirirken ve yıkarken ne kadar iyisiniz? How good are you at feeding, changing and bathing your baby?)	1	2	3	4
Genelde, kendinizi ne kadar iyi bir anne olarak görüyorsunuz? (In general, how good a parent do you feel you are?)	1	2	3	4

*Only sample items were presented due to the copyright issues of the Maternal Self-Efficacy Questionnaire.

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.)

	Hiç (Never)	1-2 gün (1-2 days)	3-4 gün (3-4 days)	5-7 gün (5-7 days)
1. Son bir haftada kaç kere bebeğinizle resimli bir kitaba baktınız veya bebeğinize hikâye anlattınız? (How many times have you read a book or told a story to your baby during last week?)	1	2	3	4
2. Son bir haftada bebeğinizle ne sıklıkta oyun oynadınız? (How many times have you played with your baby last week?)	1	2	3	4
3. Son bir haftada bebeğinize ne sıklıkta şarkı söylediniz? (How many times have you sung to your baby last week?)	1	2	3	4
4. Son bir haftada iş yaparken bebeğinizle ne sıklıkta konuştunuz? (How many times have you talked to your baby last week?)	1	2	3	4
5. Son bir haftada bebeğinize ne sıklıkta boya kalemi ve kağıt verdiniz? (How many times have you given your baby a crayon and a piece of paper?)	1	2	3	4
6. Son bir haftada bebeğinizi ne sıklıkta övdünüz? (How many times have you praised your baby last week?)	1	2	3	4

APPENDIX G

SAMPLE ITEMS FROM THE INFANT-TODDLER VERSION OF THE OBSERVATION FOR MEASUREMENT OF THE ENVIRONMENT INVENTORY (HOME-IT)*

Alt Ölçek (Subscale)	Örnek Madde	Sample Item
Duyarlılık (Responsivity)	Ebeveyn, en az 2 kere çocuğa kendiliğinden seslenir/konuşur.	Parent spontaneously vocalizes to child at least twice.
Kabul & Sıcaklık (Acceptance)	Ziyaret esnasında ebeveyn çocuğu tersleyip azarlamıyor ya da eleştirmiyor.	Parent does not scold or criticize child during visit.
Evin Düzeni (Organization)	Çocuk haftada en az 4 kere evden dışarı çıkar.	Child gets out of house at least four times a week.
Öğrenme Materyalleri (Learning Materials)	El-göz koordinasyonu sağlayan karmaşık oyuncaklar	Complex eye-hand coordination toys
İlgi (Involvement)	Ebeveyn evde iş yaparken çocukla konuşur.	Parent talks to child while doing household work.
Çeşitlilik (Variety)	Ebeveyn çocuğa haftada en az 3 defa hikâye okuyor.	Parent reads stories to child at least three times weekly.

*Only sample items were presented due to the copyright issues of the HOME-IT inventory.

APPENDIX H

SAMPLE ITEMS FROM THE WORLD HEALTH ORGANIZATION- INDICATORS OF INFANT AND YOUNG CHILD DEVELOPMENT (IYCD)*

Gelişim Alanı (Developmental Domain)	Örnek Madde	Sample Item
Hareket Becerileri (Motor)	Çocuğunuz size veya herhangi bir şeye tutunmadan ya da elleriyle yerden destek almadan, sırtını dik tutarak ve boynunu kontrol ederek, dik oturur mu?	Does your child sit upright, with fairly straight back and neck control, without holding on to you, an object, or resting hands on the floor?
Dil & Bilişsel (Language & Cognitive)	Dinlediğiniz gibi Çocuğunuz "ba", "da" ya da "ma" gibi tek heceli sesler çıkarır mı?	Does your child make single sounds like "buh" or "duh" or "muh"?
Sosyoduygusal (Socioemotional)	Çocuğunuz yeni bir oyuncak ya da nesne ile oynamaya çok hevesli midir?	Is your child very interested to play with a new toy or object?
Genel Davranış (General Behavior)	Çocuğunuz, bir grup çocukla iyi bir şekilde oyun oynayabilir mi?	Does your child play well in a group of children?

*Only sample items were presented due to the copyright issues of the WHO-IYCD

APPENDIX I

SAMPLE ITEMS FROM TURKISH COMMUNICATIVE DEVELOPMENT INVENTORY-II VOCABULARY CHECKLIST*

SÖZCÜK DAĞARCIĞI LİSTESİ (VOCABULARY CHECKLIST)	
TIGE Anlam Kategorileri (Semantic Categories)	Örnek Sözcük (Sample Vocabulary)
Çeşitli Sesler ve Hayvan Sesleri (Sound Effects and Animal Sounds)	Miyav (Meow) Hav hav (Woof Woof)
Hayvanlar (Animal Names)	Arı (Bee) Tavuk (Chicken)
Taşıtlar (Vehicles)	Araba (Car) Kamyon (Truck)
Oyuncaklar (Toys)	Balon (Balloon) Kitap (Book)
Yiyecek ve İçecekler (Food and Drink)	Armut (Pear) Ekmek (Bread)
Giysiler (Cloth)	Ayakkabı/Pabuç (Shoe) Kazak (Sweater)
Vücut Bölümleri (Body Parts)	Ağız (Mouth) Burun (Nose)

*Only sample list of vocabulary was presented due to the copyright issues of the TIGE

APPENDIX J

BRIEF INFANT-TODDLER SOCIAL AND EMOTIONAL ASSESSMENT*

Kısa 1-3 Yaş Sosyal ve Duygusal Değerlendirme Ölçeği

Lütfen aşağıdaki her soru için çocuğa **SON BİR AY** için en uygun olan cevabı söyleyiniz (Please select the most relevant answer below for your child considering the last month).
0= doğru değil/nadiren (not true/rarely) 1= kısmen doğru/bazen (sometimes true/sometimes) 2= oldukça doğru/sık sık (very true/often)
98= böyle bir şeyi gözlemleme şansı olmadı (haven't observed yet)

Madde (Item)	Sosyal Yetkinlik Alt Ölçeği (Social Competence Subscale)
1	Bir şeyi başarınca zevk aldığını belli eder (örneğin, kendini alkışlar). (Shows pleasure when they succeed.)
2	Sevdiklerine karşı sevgi/sevecenlik gösterir. (Is affectionate with loved ones.)
3	Diğer çocuklarla yaşına uygun oyunlar oynar (kardeşi dışındaki). (Plays well with other children.)
4	Yapması istendiğinde bazı sesleri taklit eder (oyun, şakalaşma sırasında). Imitates playful sounds when you ask them to)
5	Uzaktaki bir şeyi size parmağıyla gösterir. (Points to show you something far away.)
Madde (Item)	Saldırgan Davranışlar Alt Ölçeği (Problem Behaviors Subscale)
1	Çocukları iter, tekmeler ya da ısırır (kardeşi dışındaki). (Hits, shoves, and kicks other children.)
2	Zarar vericidir. Amaçlı olarak nesneleri kırar, bozar. (Is destructive and break things)
3	Anne/babasını iter, tekmeler, ısırır. Hits, bites, and kicks you
4	Kasıtlı olarak diğer çocukların canını acıtır. (Purposefully tries to hurt other children)

*Only items that were used in this study analyses were presented in the table above.

APPENDIX K

SUPPLEMENTARY ANALYSES: TESTING OVERALL RISK AS A MODERATOR

1. HV Program and Child Developmental Outcomes

To test whether the role of the program enrollment on child outcome variables; general development at 12 month-midtest and expressive language development, aggressive behaviors, and social competence at the post test were dependent on the overall family risk, four moderation analyses were conducted with SPSS PROCESS MACRO (model 1; Hayes, 2018).

In predicting child's general development, the program enrollment and family risk explained 5% of variance, F (3, 212) = 3.00, $p < .05$. However, the role of program enrollment on child's general development was not moderated by the overall risk, b = .39, 95% CI [-0.21, .803], t = 1.87, p = .062.

In the second moderation analysis, the program enrollment and overall risk explained %4 of the explained variance in the child's expressive language development, F (3, 214) = 3.30, $p < .05$. However, the role of the program enrollment was not moderated by the overall risk, b = -2.97, 95% CI [-9.48, 3.53], t = -.90, p = .369.

In the third moderation analysis, the program enrollment and overall risk did not explain a significant variance in child's aggressive behaviors, F (3, 219) = 1.77, $p <$ .154. The interaction between the program and overall risk in predicting child's expressive language development was also not statistically significant, b = -.41, 95% CI [-1.22, .41], t = -.99, p = .323.

In the fourth and last moderation analysis, the program enrollment and overall risk contributed to a significant variance to child's social competence, F (3, 219) = 11.16, $p < .001$. Notably, the effect of program enrollment on child's social competence was significant, but negative favoring control group children. However, the interaction between the program enrollment and overall risk was not statistically significant, b = -.37, 95% CI [-0.94, 0.10], t = -1.57, p = .112. Thus, the role of program enrollment on child outcome variables were not conditional on the baseline overall risk.

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