KOÇ UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES & HUMANITIES

THE MICRO AND MACRO INTERACTIONAL FACTORS ASSOCIATED WITH SOCIO-BEHAVIORAL DEVELOPMENT IN EARLY CHILDHOOD YEARS

BY

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STATEMENT OF AUTHORSHIP

This thesis contains no material which has been accepted for any award or any other degree or diploma in any university or other institution. It is affirmed by the candidate that, to the best of her knowledge, the thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

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THESIS ABSTRACT

The developmental literature directed its attention to externalizing behaviors, because problems in early childhood years were related with problems in peer and family relationships, and academic and disruptive problems in adolescence. Relevant with the importance of familial and environmental factors, this study aimed to identify how the child social-behavioral development during the early childhood years was formed. There were four consecutive studies to investigate the possible factors affecting the child social-behavioral development. This thesis examined (1) how the family structural characteristics (socio-economic status and maternal education) and the support from different sources (husband, family, neighborhood) were linked with the negative and positive parenting practices; (2) how socio-economic status (SES) was linked to externalizing behaviors and prosocial behaviors of 3 year-old children through the characteristics of their developmental environments (family and neighborhood resources), (3) the inter-individual variation in trajectories of aggressive behaviors in children, and the association of trajectories of three different types of parenting behaviors (responsiveness, parental warmth, and power assertion) with the level and change in aggression through age 3 to 8; (4) the dynamics and bi-directionality of parenting and child externalizing problem, and the tri-directionality of parenting, child behaviors, and social support that mothers received. The data were obtained from the study of Early Childhood Developmental Ecologies in Turkey (ECDET) which was a longitudinal and representative study included children form age 3 to 8, and their mothers (N=1052).

The results indicated that: (i) the support from the family had a protective role for the positive parenting practices for the parents with risk status of low SES and education level; (ii) maternal warmth and responsiveness was an important protective factor for children's prosocial behaviors if their families were economically disadvantaged; (iii) almost all of the family and neighborhood characteristics of the children, and their vocabulary knowledge and prosocial behaviors significantly differed by the two indicators of SES (i.e., maternal education and family economic well-being); (iv) on average, children's aggression declined by about 1SD in early childhood; (v) the change in maternal power assertion was positively and significantly associated with the change in child aggression such that a delay in the decline in power assertive behaviors by 1.5SD resulted in a 2-year delay in the decline in aggression when the children were 7; (vi) maternal power assertion had a significant and substantial concurrent and longitudinal effects on child externalizing behaviors, but the effects of child externalizing behaviors systematically did not predict later maternal power assertion; (vii) there were substantial mother-to-mesosystem, and child-to-mesosystem effects.

Keywords: Externalizing behavior, early childhood, socio-economic status, parenting, home environment, neighborhood resources, social support, longitudinal, transactional model

TEZ ÖZETİ

Gelişim psikolojisi literatürü, erken çocukluk dönemindeki dışsallaştırma davranışları üzerine birçok çalışma içermektedir. Bunun sebebi de, erken çocukluk dönemindeki bu olumsuz davranışların, ileriki yaşlarda olumsuz akran ve aile ilişkilerine, akademik sorunlara ve ergenlikte problem davranışlara neden olduğunun bilinmesidir. Literatürde dışsallaştırma davranış problemleri ile ilgili olan koruyucu ve risk etkenlerinden birçok değişken araştırılmıştır, ancak aile ve mahalle ekolojileri, çocuğun davranışlarında en çok etkiye sebep olan değişkenler olarak bulunmuştur. Bu tez çalışması da, aile ve mahalle ekolojilerinin önemini vurgulayarak, bu etkenlerin çocuğun okula başlama çağındaki dışsallaştırma davranış problemlerine etkisini araştıracaktır.

Erken çocuklukta sosyal-davranışsal gelişimi araştıran bu tez çalışması, birbirini takip eden ve tamamlayan dört çalışmayı içermektedir. Bu çalışma şunları kapsamaktadır: (1) aile yapısal özelliklerinin (sosyoekonomik düzey ve eğitim düzeyi) ve annenin farklı kaynaklardan aldığı desteğin (eşinden, ailesinden ve mahalleden) onun olumlu ve olumsuz ebeveynlik davranışlarına olan etkisini; (2) 3 yaşındaki çocukların ailelerinin sosyoekonomik düzeyinin (aile ve mahalle sosyal kaynakları düşünülerek), onların dışsallaştırma davranış problemlerine ve uyumlu sosyal davranışlarına etkisini; (3) çocuklardaki dışsallaştırma davranışlarının kişilerarası varyasyonunu ve çocukların dışsallaştırma davranış yörüngelerini ve ebeveyn davranışlarının (duyarlılık, sıcaklık ve olumsuz/katı disiplin) 3 yaşından 8 yaşına kadar olan süreçte bu yörüngeye olan etkisini; (4) ebeveyn davranışları ve çocuk dışsallaştırma davranışları arasındaki dinamik ve karşılıklı ilişkisel etkiyi, ve ebeveynlik, çocuk davranışları ve annelerin çevrelerinden

aldıkları sosyal desteğin incelenmesini. Çalışmanın verilerini boylamsal ve temsili bir örneklem oluşturan Türkiye'de Erken Çocukluk Gelişim Ekolojileri (TEÇGE) araştırmasının verilerinden elde edilecektir. TEÇGE araştırması, çocukları ve onların annelerini 3 yaşından 8 yaşına kadar takip etmiştir (N=1052).

Çalışmanın sonuçları göstermiştir ki: (i) düşük eğitim ve sosyo-ekonomik düzeye sahip ailelerde, geniş aileden anneye gelen destek onun olumlu ebeveynlik becerileri için koruyucu bir faktör olmaktadır; (ii) düşük sosyo-ekonomik düzeydeki aileler için, ebeveyn sıcak ve destekleyici davranışları çocuğun olumlu sosyal gelişimi için koruyu bir etkendir; (iii) çocukların hemen hemen tüm aile ve mahalle özellikleri, dil gelişimleri ve sosyal davranışları sosyo-ekonomik düzeyin iki göstergesi ile de (anne eğitim eviyesi ve ailenin ekonomik refahı) anlamlı olarak değişkenlik göstermektedir; (iv) ortalama olarak, erken çocukluk döneminde, dışsallaştırma davranışları 1SS olarak azalmaktadır; (v) ebeveyn olumsuz davranışlarındaki değişim çocuğun dışsallaştırma davranışlarındaki değişim ile pozitif yönde ilişkilidir ve olumsuz ebeveyn davranışlarındaki 1.5SS değerindeki düşüş çocuklardaki dışsallaştırma davranışlarında 2 yıllık düşüşe neden olmaktadır; (vi) annenin cezalandırıcı davranışlarının, çocuğun dışsallaştırma davranışlarına, hem eşzamanlı hem de boylamsal etkileri bulunmaktadır, fakat çocuğun dışsallaştırma davranışları, düzenli olarak annenin cezalandırıcı davranışlarını etkilememektedir; (vii) annenin mezo-sisteme ve çocuğun mezo-sisteme önemli etkileri bulunmaktadır.

Anahtar Kelimeler: Dışsallaştırma davranışları, erken çocukluk, sosyoekonomik düzey, ebeveynlik, ev ortamı, mahalle kaynakları, sosyal destek, boylamsal analiz

DEDICATION

To my mother and father

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THESIS INTRODUCTION

The major focus of the current dissertation is the parenting and its effects on child socio-behavioral development. In this respect, four consecutive studies are presented focusing on different parenting behaviors and their effects on child behavioral development, specifically the externalizing behaviors. The first chapter includes a study focusing on parenting as an outcome. This study first reviews the literature about all possible mechanisms that affect parenting behaviors, and then examines the risk and protective factors for the negative and positive parenting behaviors. The second chapter describes a study identifying how the socio-economic status of the family is linked with child developmental outcomes through the mediating and moderating roles of the characteristics of developmental environments, such as the family and neighborhood resources. The third chapter focuses on trajectories of power assertive parenting and child aggressive behaviors between the ages 3-7. This study examines the associations of parenting and child behaviors in a longitudinal perspective. The forth chapter focuses on the bidirectional relations between parenting and child externalizing behaviors and the role of social support in this association. This last chapter builds on the previous chapters and provides a novel perspective to study the dynamic systems of children with a tri-directional transactional process.

The following section describes the literature about parenting and child externalizing behaviors. First, the importance of studying the externalizing behaviors is described. Then, the link between parenting and externalizing behaviors is mentioned, by presenting empirical findings and theoretical background. Lastly, each chapter and its related literature review are briefly summarized.

Externalizing behaviors refer to broad range of acting out behaviors consisting of aggressive (e.g. fighting, bullying), impulsive, hostile, defiant, oppositional, and destructive behaviors (Achenbach, Edelbrock, & Howell, 1987; Rothbaum & Weisz, 1994; Wicks-Nelson & Israel, 2003). Externalizing behaviors received special attention in developmental literature because they occur early in life and tend to be stable (Aunola & Nurmi, 2005; Coie & Dodge, 1998; Campbell, 1995; Deater-Deckard & Dodge, 1997). Various studies revealed that externalizing behaviors led to problems in peer and family relationships in early years of life (e.g. peer rejection), and academic and disruptive problems (e.g. substance abuse, school dropout and delinquency) in adolescence years (Deater- Deckard & Dodge, 1997; Gauthier, 2003; Joussement et al., 2008; Webster-Stratton, 2003). Moreover, the negative correlates of externalizing behaviors in the cognitive domain (e.g., difficulties in expressive vocabulary skills, receptive vocabulary skills) were found in children as young as 3 years of age (Arnold, 1997).

Parenting has been a focus of developmental research due to its importance and influence on child outcomes (Grolnick, Price, Beiswenger, & Sauck, 2007). There are ample research that investigate the effects of parenting on child externalizing behaviors. In general, harsh and punitive discipline techniques, inconsistent parenting, permissiveness, lack of structure and behavioral control, and lack of supportive and warmth context are considered as the risk factors to increase the externalizing behaviors in children (Gershoff, 2002; Miller-Lewis et al., 2006; McGilloway et al., 2012). High degrees of negative parenting (e.g., power assertive, punitive, parental punishment) provide few opportunities for children to self-regulate and results in an inability to rely

on themselves for emotional and behavioral regulation due to an intensive and restrictive approach to discipline (Barber, Stolz, & Olsen, 2005; Chen, Liu, & Li, 2000; Gurland & Grolnick 2005; Rubin & Mills, 1990). These children who exposed to negative parenting cannot internalize the rules of conduct, cannot learn opportunities to express their feelings and thoughts, and cannot develop problem solving skills (Strassberg, Dodge, Petit, & Bates, 1994). A large body of research supports the strong link between physical punishment and externalizing behaviors (Gershoff, 2002).

The social learning approach suggests that negative parenting behaviors may influence a child's behaviors through two mechanisms: (i) it may deprive the child of experiences that could promote social problem solving and self-regulation and, (ii) it may provide negative behavioral models (Bandura, 1977). Children of parents who exercise high levels of negative parenting do not get opportunities to learn to regulate their own behaviors, solve problems in their interactions with others, and participate actively in their own social relationships with their peers. The inability to solve problems in social interactions may result in deviant and aggressive behaviors that may be partly modeled after parental behaviors, and may be expressions of an inability to self-regulate (Rubin & Mills, 1990). It is also highly possible for a parent who displays high levels of power assertive and punitive parenting practices to have a child with externalizing behavior, because negative behaviors of the parent teach the child that the expression of anger is acceptable.

Although all parents from different backgrounds (e.g., individualist and collectivist, high educated and low educated) have socialization goals for low levels of behavior problems as a developmental outcome in their children, the strength of the

association of parenting behaviors with child behaviors and the interactive use of parenting styles are different among parents from diverse cultures (Chao, 1994; Sorkhabi, 2005). It seems that the culture neutral approach sets some standards for the parenting behaviors, but what differs in parenting is the degree of parenting behaviors, strength of the associations, and the interactive mechanisms in affecting the child behaviors. Therefore, in order to achieve a cross-cultural understanding of the separate and interacting influences of the different parenting behaviors (e.g., power assertive, controlling and parental warmth) and environmental effects, they should be studied simultaneously.

In the first study, the literature review about all possible factors affecting parenting was summarized. The purpose of this review was to focus on the gaps in Turkish literature about parenting and its antecedents. Parenting can be considered as one of the interpersonal relationships within the family and social context. Seen from this perspective, factors which may directly or indirectly affect the parenting behaviors could be studied within this social context. That's why, this study then examined the effect of the risk (e.g., low maternal education and low socioeconomic well-being) and protective factors (e.g., support from the family and neighbors) on supportive/responsive parenting and power assertive parenting behaviors.

In the second study, the focus was on the socioeconomic status (SES) of the family as one of the environmental factors that affect the parent-child relationship. There are two major theoretical models of the family processes that link SES to the developmental outcomes of children: family stress model and investment model. Family stress model posits that the families who are at a social and economic disadvantage tend

to experience a higher level of stress in many domains of life than advantaged families because of social and economic stratification. This stress, in turn, results in negative developmental outcomes for the children (Conger et al., 1992, 1993; Cox & Paley, 1997; McLoyd, 1990). The investment model, on the other hand, posits that families who have low SES tend to have to reduce developmental investments such as the provision of a high quality physical, educational and developmental environment in the home and in the community. A reduction of these investments is expected to result in developmental disadvantage such as low levels of language skills and high levels of social and behavioral problems (Becker & Tomes, 1986; Coleman, 1988; Yeung et al., 2002). In line with these models, the socioeconomic status of the family was expected to influence the child developmental outcomes. In addition, as the literature suggests, the link between the family and neighborhood characteristics between child developmental outcomes can vary depending on SES. Thus, this study also examined these different resources and their associations with family SES.

The literature suggests that as children get older, they learn to regulate their emotions and behaviors and thus there is a decrease in their externalizing behavior trajectories. However, it is well established, that some children's developmental trajectory diverge from this norm (Campbell, 2002). In addition, studies found that transition from preschool to formal elementary school may be detrimental for children aged 5 and 6, because within this social transition they spend most of their times with peers and teachers, rather than their mothers. Research in the third study aimed to understand the trajectories of aggressive behaviors in children through the 3 years of age to 7. Children with low levels of externalizing behaviors before the school may show

increase in externalizing behaviors due to exposure of aggressive and deviant behaviors of their peers at school. Parents may also experience challenges during this transition period, where their negative parenting behaviors may increase in order to control their children's possible negative behaviors (Gross et al., 2008). Thus, the parenting behavior trajectories may also change during this transition period. This study expected that the change in maternal power assertion would positively and significantly associated with the change in child aggression.

Parenting behaviors and child behaviors alone cannot be sufficient to understand their possible effects on the child behavior trajectories. That is, it is not only the parenting behaviors influence the child behaviors, but also the child behaviors influence the parenting behaviors. It is important to study the exchanges between parent-child relationships and the bidirectional influences (Combs-Ronto, Olson, Lunkenheimer, & Sameroff, 2009; Morrell & Murray, 2003; Sheehan & Watson, 2008). The coercion theory (Patterson, 1982) provides a micro interactional perspective; that is, if a child responds to negative parenting behaviors with negative or oppositional behavior (whining, shouting, etc.) and if this aversion wards off further negative parental behavior, then the child's oppositional behavior is reinforced. Such exchanges are expected to result in an escalation of negative or power assertive behaviors displayed by both the parent and the child. The recent studies that examined the bidirectional influence of mother-child relationship and its association with child externalizing behaviors provided mixed evidence whether child behaviors contributed to the changes in parenting behaviors (Benzies, Keown, & Magill-Evans, 2009; Eron, Huesmann, & Zelli, 1991; Fite, Colder, Lochman, & Wells, 2006). The last study relied on Patterson's

theory and this previous literature, and focused on transactional relations of parenting and child behaviors. To our knowledge, this is the first study focusing on transactional process of parent-child relations of children aged between 3 and 7. In addition, as the previous chapters' results suggested, the role of social context, e.g., family and neighborhood factors, was also considered.

The current thesis is expected to have a six-fold contribution to the literature. First, the link of family structural characteristics (socio-economic status and maternal education) and the support the mothers received with parental use of punishment and parental supportive behaviors are examined, which allows the identification of the risk and protective factors for the parenting behaviors. Second, the link between socio-economic status (SES) and externalizing behaviors and prosocial behaviors of 3 year-old children and the moderating role of SES through the characteristics of their developmental environments (both family and neighborhood resources) are investigated, shedding light to identify the protective factors for children's development if their families are economically disadvantaged and if their mothers had a low level of education. Third, the trajectory of child externalizing problems is investigated during the critical years that span transition to school, that also tend to be the years when parents are most likely to report difficulties with externalizing behaviors. Forth, the bi-directional association between power assertive parenting and child externalizing behaviors was investigated, identifying the relative contributions of the child and the mother to the process that could lead to the escalation of externalizing problems. Fifth, it allows the identification of the critical time points when interventions could be most effective. Sixth, the independent and dynamic effects of parenting and social support are

identified, seeking to demonstrate the role of non-family support systems in intercepting the negative coercive cycles that escalate child externalizing behaviors.

CHAPTER 1

ENVIRONMENT, SOCIOECONOMIC STATUS AS CONTEXT, AND PARENTING

INTRODUCTION

Parenting behaviors are most important contributors in shaping child development (Maccoby and Martin, 1983). Due to the contributions to society, and to the social and cognitive development of children, parenting is a phenomenon of interest in many fields of science. In this section, parenting behaviors and the factors identified as important predictors of these behaviors are examined. To this end, the most important international and national studies conducted about parenting are summarized and then empirical results are presented with data recently obtained from a national study. Processes that determine the behavior of motherhood and fatherhood work very differently and parenting responsibilities usually performed by the mothers. That's why, this study focused on maternal behaviors.

Parenting can be considered as one of the interpersonal relationships within the family. Seen from this perspective, factors which may directly or indirectly affect the parenting behaviors can be predicted based on several theoretical approaches. In this section, Social Exchange, Symbolic Interaction, and Family Systems Theories are summarized. With the help of the developed conceptual framework, the findings of empirical research focused on different parenting behaviors are synthesized. In this review of the literature, in addition to the studies with Anglo and European samples, Asian, Middle East and Turkish studies are taken into consideration.

The conceptual framework presents the personal and social factors that determine the causal processes which affect their parenting behavioral paths. The factors taken into consideration are the family and the community structural characteristics, maternal and child characteristics, family and non-family characteristics that affect the

parenting behaviors. The literature review that uses this conceptual framework reveals that this causal processes are only confirmed in some social and cultural contexts, mostly in Western literature. Some of the factors that affect parental behaviors are culturally sensitive research, while some of them are "universally" (intercultural) supported research.

The review of the literature suggests a need for a review of the parental behaviors in Turkey. The subsequent section focuses on the study of Early Childhood Development Ecologies in Turkey (ECDET) that the parental behaviors are studied within diverse cities of Turkey. In this paper, maternal parenting behaviors in early childhood and how these behaviors differentiate with the family's economic status and maternal educational level are examined. The empirical examination of the results suggests that some of the causal processes that determine parental behaviors in Turkey differentiate from the processes seen in the Anglo-American research.

This paper focuses on the two parental behaviors. These are: (1) supportive and parental warmth, and (2) harsh, obedience-oriented and punitive behavior. These parental behaviors affect both social / behavioral and verbal / cognitive development in early childhood (Knafo & Plomin, 2006; Landry, Smith, Miller-Loncar & Swank, 1997). The association of these two types of parental behaviors may also vary according to social and cultural context. This article discusses the two types of parental behaviors, as both independently and interactively associated with each other.

The Theoretical Background of Family Relationships

Social Exchange Theory, Symbolic Interaction Theory and Family Systems Theory help us to model and understand the relationships within the family. The

conceptual framework presented in this study included a synthesis of these theories. For this purpose, three approaches were summarized briefly. Social Exchange Theory is based on the economics tradition, and considers the family relationships as the behavior of economics, evaluates the psychological costs and returns of the alternative behaviors (Cherle, 2002; White & Klein, 2002). From this perspective, the parents and their behaviors can be interpreted as an investment in their children. Parents expect return from these investments, and regulate relations with children accordingly. For example, time spent with children, can be considered as an investment in their children's development. Parents have the tendency to repeat the behaviors with higher return as compared to its cost.

Symbolic Interaction Theory suggests that the meanings attributed to the family relationships can be understood within the society (Blumer, 1969). According to this approach, "parenting" means a socially determined role and value. Parents may also have some other social roles (e.g. spouse, neighbor, daughter, bride, such as employee social roles). Parents, when social expectations are clearly expressed, understand their parental roles to the extent that it allows other roles' and the demands of all roles. Seen from this perspective, the meaning of parental behavior is to determine the basic elements of social and cultural context.

According to Family Systems Theory, parental behaviors are defined as the social relationships within a family, and can be understood by focusing on cultural, local and domestic interactions (Bronfenbrenner, 1979; Cox & Paley, 1997). This theory also reveals important arguments for understanding the processes of relationships within the family change over time.

In this section, only basic structures of these theories will be discussed. Family Systems Theory determines the context (ecology) of the parental relationships, suggesting that this entire context should be emphasized and addressed simultaneously. All these theories emphasize the importance of parenting behaviors and the necessity of studying the parenting and its effect on child development within the social and cultural context.

Conceptual Framework: The Causal Processes that Determine Parenting Behaviors

The evaluation of international and national studies on parenting points to the need of a comprehensive conceptual framework to determine the causal processes. Social and cultural contexts that may affect the parenting behaviors presented here with the conceptual framework are: the structural characteristics, personal characteristics, family and non-family relationships. All these factors have been developed by taking into consideration the general conceptual framework (see. Figure 1) is used to synthesize the literature that focuses on parenting behaviors. This synthesis supports the causal processes of studies in Turkey and in other social contexts.

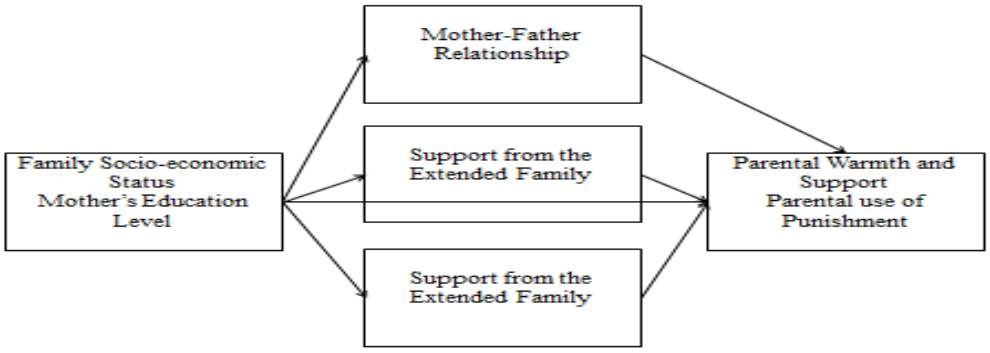


Figure 1. Conceptual Framework

Literature Review

Family Socio-economic Status

There are two mechanisms that explain the effect of family socio-economic status n parenting behaviors: investment and stress models. Investment model focuses on the family's economic situation and the relief of the financial and emotional needs of children. The stress model focuses on the impact of emotional states of the parents that may be related to the economic situation of the family (Yeung, Linv & Brooks-Gunn, 2002). According to the investment model, family income and financial resources determines the resources of the parents that they can provide for their children (Becker & Thomes, 1986; Yeung et al., 2002). As we have seen, the investment model is a model based on the Social Exchange Theory. According to this model, family income is one of the most important tools in effecting the parenting behaviors (Becker & Thomes, 1986), due to its effects on the parental behaviors such as the child's care, food providing, home stimulations and investments such as learning materials, the activities, attended social events and health care opportunities (Yeung et al., 2002).

Stress model claims that the family's economic problems reflect on parental behaviors by affecting the mothers' and fathers' overall emotional states (Conger et al., 1992, 1993). Lack or decline in income of the family reduces the positive parental behaviors, and increases strict discipline or punishment (Mcloyd, 1990). Low socioeconomic status makes it difficult to meet the needs for the care of children, and also the family and life stress can lead to anxiety. As a result, mothers may feel depressed and/or inadequate, and may display angry moods and inconsistent behaviors towards their children (Downey & Coyne, 1990). Economic incompetence and inability

to meet the requirements leads to decrease the communication within the family which also leads to weakening of the emotional bond. Consequently, positive parental behaviors decrease, whereas negative parental behaviors increase (Bradley et al., 1994).

International (Harwood, Schoelmerich, Ventura-Cook, Schulze & Wilson, 1996; Luster, Rhoades & Haas, 1989; Tudg et al., 1999) and national (İmamoğlu, 1987; Kağıtçıbaşı, 1982; Kağıtçıbaşı & Ataca, 2005), studies revealed the association of the family's socio-economic status and the parenting behaviors and parenting socialization goals. Mothers in the high socioeconomic level show sufficient and necessary verbal and emotional closeness to their children than mothers with low socioeconomic level (Hart & Risley, 1995; Kelley, Sanchez- Hucies & Walker, 1993).

In Turkey, according to the findings of one of the comprehensive studies of parental behavior at the national level (TC Ministry Family Research Council, 1995), the authority/obedience demanding parental behaviors and warm/supportive parental behaviors are studied, and found that parental behaviors differ significantly according to the socio-economic status of the family. In this study, families with low socio-economic status demands for obedience and uses more punitive parenting practices than the families from higher socio-economic status.

Family-Mother Ecology: Quality of Mother-Father Relationship

Social Exchange Theory also predicts the association between quality of family relationships and parenting behaviors, and help to study the return of investments in the family. According to the theory of symbolic interaction, positive impacts on parents can be seen with the positive relationship within each parent; such as the mother's psychological health and the role in her family. This also creates a model for all other

relations within the family. Family systems theory suggests that the positive effects of mother-father relationships "spill over" the other relationships within the family (Cox & Paley, 1997). Mother-father relationship supports all other relationships and layouts (Erel & Burman, 1995). The stress between parents spills over and is reflected on the parent-child relationship (Almedia, Wethingto & Chandler, 1999).

The research conducted so far on marital quality and problems showed that, the stress and negativity between the parents spill over the relationships with their children, and these parents with stress exhibited aggressive behaviors towards their children, applied more harsh punishment to their children, became less tolerant, and showed less supportive behaviors (Krishnakumar & Buehler, 2000; Pauli-Pott & Beckmann, 2007; Papp, Cummings & Schermerhorn, 2004; Stocker & Youngbla, 1999; Webster-Stratton & Hammond, 1999). The results of a study conducted in Turkey also support the literature (Güroğlu, 2010). In this study, the mothers who received lower levels of support from her husband were found to be less supportive towards their children, used more harsh punishment and demanded more obedience from their children.

Family-Mother Ecology: Instrumental and Emotional Support from the Family

Social support received from the family supports the positive relationship between the parents and their children (Mulsow, Pursley, Caldera, Reif, & Huston, 2002). According to the proposed parenting model, social support from the family can be in the form of emotional support for the mother, or can be in the form of instrumental support, like looking after the child when the mothers need (Belsky, 1984). A meta-analysis of 66 studies (Andersen & Tellem, 1992) found that the perceived emotional

and instrumental support increased the love and parental responsiveness that the mother had demonstrated against children, increased the supportive parenting behaviors and increased verbal quality of communication that the mothers provide for their children.

The extended family in collectivistic societies is expected to be both physically and emotionally close to each other (Kağıtçıbaşı, 2010). The importance of commitment to family and extended family in collectivistic cultures results in functional support within the family about child rearing (Kağıtçıbaşı, 2005).

Studies conducted with African American families showed that the extended family support for the child care decreases the stress the mothers experienced (Barnett, Scaramella, Neppl, Ontai, & Conger, 2010; Burchinal, Follmer, & Bryant, 1996; Mcloyd, 1990; Shook, Jones, Forehand, Dorsey, & Brody, 2010). It is known that African-American families give importance to extended family relationships and to the roles of grandmothers in raising children as compared to European families (Shook et al., 2010). However, the family structure is different in African-Americans than the families in Turkey. About 64% of African American mothers (US Bureau of the Census, 2010) are single mothers and not married, thus the relationship between the mother's parental behaviors and the support from the families may be different from the Turkish society.

About 75% of mothers in Turkey are not working (TSI, 2010), thus a large part of the mother's social relations are shaped within the extended family. The extended family may be the most important or the only source of social support for the mothers. In this case, parent-child relationships outside of family is expected to be as important as the father. A study conducted in Turkey found that emotional and instrumental support in

large families reduced the harsh and punitive parenting, whereas increased the supportive parenting behaviors of the mothers (Güroğlu, 2010).

The Social Ecology: Support from Outside of the Family

The neighborhood characteristics such as neighborhood socioeconomic status, support received from the neighbors, are also expected to affect the mother's parental behavior. Social support received from the neighborhood in a collectivistic society is more important than individualistic society, because the non-family relationships are more important and thus have more positive effects on the parental behavior (Cutrona et al., 2000; Feldman & Masalha, 2007). At the same time, when the level of family income is low, the relationship between positive parenting behaviors and social support in the neighborhood is known to be more powerful, where mothers received social resources and could maintain their psychological health (Kotchick et al., 2005; Odgers et al., 2009; Pinderhughes et al., 2001).

The neighborhood studies investigating the effects of parental behavior explained its positive effects by two ways: (1) the neighborhood's corporate resources (eg., high schools, health centers, libraries, Ceballo & Mcloyd, 2002); and (2) the social networks and support in the neighborhood (Kohen, Leventhal, Dahinter & McIntosh, 2008; Leventhal & Brooks-Gunn, 2000; 2003; Mrug & Windle, 2009; Roos et al., 2005; Roos et al., 2009). Positive relationship of the child-rearing behavior with the neighborhood social support was confirmed in the minority samples in America (Burchinal, Follmer, & Bryant, 1996; MacPhee, Fritz, & Miller-Heyl, 1996). Studies conducted in Turkey (Baydar et al., 2011, Güroğlu, 2010) also showed that the mothers who received

instrumental and emotional support from their neighborhood was found to be more sensitive and warm, and displayed less punishment towards the children.

Social and Cultural Context

Culture shapes people's behaviors and attitudes. The mechanism that link parental behaviors and child development may be culture-dependent. Different sets of parental behaviors coexist in different cultural contexts leading to culture-specific parenting "styles". Those styles that are frequently observed in Western European and Anglo-American cultures may not be common in other cultural contexts. Previous studies that used data from Anglo-American samples established a few distinct combinations of strategy of discipline, degree of discipline, and degree of warmth ("styles" such as authoritarian, authoritative, and permissive styles). These styles tend to predict children's behaviors (Deater-Deckard & Dodge, 1997). However, parenting "styles" that are culture specific could lead to distinct behavioral and cognitive consequences for a child, because the effects of different types of parenting behaviors could be multiplicative rather than additive. For example, parents exercising control at the levels generally associated with an authoritarian parenting style did not generally lack warmth in Turkey and in other non-Western cultures such as China, Korea, and Japan, and in minority populations within the Anglo American culture (Deater-Deckard & Dodge, 1997; Dekovic, Pels, & Model, 2006; Hughes, Blom, Rohner, & Britner, 2005; Kagitcibasi, 1996; Pomerantz & Wang, 2009; Rohner, Khaleque, & Cournoyer, 2005; Rudy & Grusec, 2006; Wu et al., 2002).

Another mechanism linking parental behaviors and child development may also be culture-specific. Previous research indicated that the meaning and importance given

to parental behaviors and expectations are culturally influenced (Dwairy & Achoui, 2010; Hughes, et al., 2005; Rohner et al., 2005; Stern, Rohner, & Sacks-Stern, 2007). The meaning attributed to parental behaviors, such as parental control and parental use of punishment, shaped its effects on child behaviors and development. High levels of parental control, when exercised concurrently with high levels of parental warmth and support (Chen et al., 2000; Hughes et al., 2005; Stern et al., 2007) might not have detrimental consequences (Kagitcibasi, 1996; Parpal & Maccoby, 1985; Rudy & Grusec, 2006; Wu et al., 2002). The buffering effects of parental warmth on the association between high control and obedience demanding and child socio-behavioral development were indicated in some previous empirical studies (Aunola & Nurmi, 2005; Erkman & Rohner, 2006; Kagitcibasi, 1996; Kim & Rohner, 2002; Parpal & Maccoby, 1985).

Historically, obedience to family rules have been an important parenting goal for Turkish parents (Kagitcibasi, 1990). However, recent studies have found that the importance placed on obedience has substantially diminished (Kagitcibasi & Ataca, 2005). Nevertheless, it has been repeatedly shown that Turkish parents use high levels of control and power assertive strategies in disciplining their children, accompanied by a high level of warmth (Kagitcibasi, 1996; Kircaali-Iftar, 2005). This cultural context provides an excellent opportunity to study the separate and interacting influences of parental control and obedience demanding and warmth.

METHOD

Sample

The participants of this particular study are the samples of ECDET study which is a representative 5 year longitudinal study. The completed longitudinal study followed

children from 36-47 months of age till 8 years. The baseline sample consists of 1.052 children and their families obtained from a stratified clustered sample from 19 provinces and 33 communities designed to be nationally representative. This study uses culturally sensitive and detailed measures of mother-child, family-child, mother-family, preschool and community ecologies. Children's developmental ecologies were assessed by quantitative and qualitative methods, allowing the questioning of the existing conceptual frameworks regarding the influences of developmental ecologies on developmental outcomes.

Measures

Demographic and socio-economic status measures

Demographic information includes general information about the family (socio-economic status, maternal and paternal education) and the child gender. In order to group the mothers according to their SES, the composite SES measure was computed as a factor score based on a measure of material well-being of the family, and an estimate of the total monthly expenses of the family based on the maternal reports. The mothers with the factor scores of below 50% standard deviation from the national mean value were considered in low socio-economic status group. The mean total monthly expenses per person in the family was 65$ in low SES families, whereas this number was 168$ in high SES families.

Marital Quality Scale

Marital Quality Scale (Baydar, and Yumbul, 2004) consists of 20 items that are first rated by the mother with respect to how true or false a specific behavior is on a 3

point Likert scale, and next regarding whether the target behavior of the spouse is perceived as upsetting on a 4 point Likert scale. The items allow the estimation of two quality subscales: lack of care and supportive behavior (e.g. "My husband does not appreciate the tasks that I manage to do"), and aggression and harassment (e.g. "Sometimes my husband insults me"). Only the lack of care and supportive behavior subscale was used for the current study. The internal reliability of the scale is 0.85 (Baydar et al., 2008).

Social Support Received from Extended Family

The original Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) was developed as a brief self-report measure of subjectively assessed social support in which 12-item ratings were made on a 7-point Likert-type scale (ranging from very strongly disagree to very strongly agree). The 12-item MSPSS was designed to measure the perceived adequacy of support from the following three sources: family, friends, and significant other.

The Turkish version of MSPSS was adapted by Baydar et al. (2007) and it includes 9 items only considering support from the family members other than the children and the husband. Items are rated by the mothers with respect to the degree of how much the statement is true or false for the participant (e.g. "There is a special person in my life who cares about my feelings"). Differently from the original scale, the items in the Turkish version are rated on a 5-point Likert-type scale. Higher scores indicate higher perceived social support by the mother. Internal reliability of the scale is determined as 0.97 (Baydar et al., 2008).

Neighborhood Ecologies Questionnaire

In order to measure the neighborhood resources, a definition of neighborhood is required. What individuals living in a neighborhood consider the boundaries of their neighborhood often does not coincide with the administrative units. In the ECDET study, the respondents were asked to think of what they consider as their own "neighborhood" regardless of the size of that area or its official administrative status.

Neighborhood ecologies questionnaire (Baydar et al., 2007) was developed in order to measure support received from the neighbors, social and physical structure of the neighborhood and physical resources available in the neighborhood. Scales included in the neighborhood ecologies survey are the neighborhood support scale, social resources scale, and physical resources scale.

The maternal perception of support from the neighbors was assessed by the neighborhood support scale (e.g. "If I am sick, someone from the neighborhood would help me") which had 7 items with 5-point Likert-type scale. The internal reliability of this scale was 0.90.

Parenting Questionnaire - TR

The original Parenting Questionnaire (PQ; Sanson, 1994) is a self-report measure for parenting practices. It consists of 30 items that parents rate their own parenting behaviors with respect to frequency. The Turkish version of the PQ was adapted by Baydar et al. (2007). PQ-TR includes 30 items and maintains the original structure that the frequencies of behaviors are rated on 5 point Likert scales. The items allow the estimation of 4 subscales: obedience demanding behavior (e.g., "I expect unquestioning

obedience from my child."), punishment (e.g., "When my child misbehaves, I use physical punishment."), parental warmth (e.g., "There are moments in which my child and I are so close."), and inductive reasoning (e.g., "I discuss reasons for rules with my child."). Only the parental warmth and punishment subscales were used in this current study. The internal reliability of these scales are 0.82 and 0.88, for punishment scale and parental warmth scale, respectively (Baydar et al., 2008).

Home Observation for Measurement of the Environment (HOME) -TR

The original Home Observation for Measurement of the Environment (HOME; Bradley and Caldwell, 1984) measures the effects of environment on child development. This inventory aims to measure the factors that affect the child development in home environment by systematic observation (Bradley, 1981; Bradley, & Caldwell, 1979). Although the original inventory includes observation and unstructured interview, almost in all implementations for large samples, observation and structured interview is used. The original HOME consists of 55 items for 3 years old children. The Turkish version of HOME was adapted by Baydar & Bekar (2007). It includes 52 items and due to interview items' administration easiness, interviewer training easiness, and coding easiness, it was changed into structured and closed- ended interview. Also, the content of the items was adapted according to living conditions of Turkish children.

The items allow the estimation of responsivity and use of harsh discipline to the child subscales: responsivity (α=0.82; e.g., "Mother holds child close at least 5 minutes during the visit."), and use of harsh discipline to the child (α=0.61; e.g., "Mother conversed with the child in a harsh manner, scolded at or derogated him more than once during visit") (Baydar et al., 2008).

RESULTS

This study's data was composed of 3-year-old children and their parents who were samples of ECDET study. ECDET study is a nationally representative study. The descriptive statistics for the sample were shown in Table 1.

Table 1. Descriptive Statistics of the Sample

	Mean (SD)	N
Male children	% 55.4	1052
Maternal educational level	6.0 (3.6)	1049
Family socio-economic status	.0 (1.0)	1017
Support from husband[1]	78.2 (23.7)	1044
Support from extended family[1]	78.1 (20.4)	1052
Support from neighborhood[1]	63.6 (20.4)	1052
Parental use of punishment- mother report[1]	29.5 (17.2)	1052
Parental warmth and support- mother report[1]	83.5 (13.5)	1052
Parental use of punishment- observed[1]	12.0 (16.9)	1052
Parental warmth and support- oserved[1]	62.9 (28.0)	1052

Note: 1. The scale scores are between 1-100.

Table 2 shows the correlations between all study variables which are the predictors of parenting behaviors. Although the mother's education and other predictors were significantly associated, the relationship between the mother's educational level and support from neighborhoods was weak and negative. Mother's socio-economic

status, except for support from the neighborhood, was positively associated with other predictors. The relationship between the mothers' perceived levels of support from different sources were positive. So, the mothers received high support from any source, and had the tendency to perceive high support from other sources, as well.

Table 2. Correlations between the predictors of parenting behaviors (N=1052)

	Family socio-economic status	Support from husband	Support from extended family	Support from neighborhood
Maternal educational level	.55***	.14***	.20***	-.09**
Family socio-economic status		.12***	.20***	-.16***
Support from husband			.32***	.15***
Support from extended family				.23***

Note. ** p < .01; *** p < .001.

Correlations between the mother's parental behaviors and their predictors were given in Table 3. Mother's educational level, family socio-economic level, support from extended family and support from the father had positive correlations with parental warmth and supportive behaviors, whereas had negative correlation with punitive parenting behaviors.

Table 3. Correlations between maternal characteristics, family, extended family and neighborhood characteristics and parenting behaviors (N=1052)

	Parental use of punishment	Parental warmth and support
Maternal educational level	-.21***	.27***
	-.16	*.33****
Family socio-economic status	-.23***	.36***
	*-.11****	*.39****
Support from husband	-.20***	.08**
	*-.17****	*.06**
Support from extended family	-.08**	.18***
	*-.15****	*.12****
Support from neighborhood	.00	.00
	-.05 †	*-.09***

Notes: Maternal reported parenting behaviors were given in the first line, and the observed parenting behaviors were given below with italics.

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

Predicted regression results of maternal behaviors are given in Table 4. Two models were calculated, based on maternal report of parenting behaviors and observed parenting behaviors. Model 1 involved child's gender, education level and economic status of the family. Model 2, in addition to above variables, involved, the levels of support perceived by the mother from three different sources. The mother's educational level had negative effect on the punitive behavior both reported by the mother and observers (effect size, respectively, 11% and 12%) whereas had a positive effect on the parental warmth and supportive behaviors (effect size, respectively, 9% and 14%).

While family socio-economic status had negative and statistically significant relationship with maternal reported punitive behaviors (effect size of 17%), it did not have statistically significant effect on observed punitive behaviors. The impact of the family's economic status on maternal warmth and supportive behaviors was greater than the maternal educational level. The effect of family economic status on both maternally reported and observed parental warmth and supportive behaviors were positive and statistically significant, effect size was 31%.

Model 2 showed that the support the mother's received from three different sources had effect on parental behaviors. The support from the father had negative effect on both maternally reported and observed parental use punishment and the effect size of this association was close to the size effect of maternal education (maternally reported and observed punishment, 18% and 12%, respectively).

Table 4. Predictors of Parenting Behaviors (regression coefficients and standardized regression coefficients in the second line; N=1005)

	Maternally Reported Parenting Behaviors				Observed Parenting Behaviors			
	Parental Use of Punishment		Parental Warmth and Supportive Behaviors		Parental Use of Punishment		Parental Warmth and Supportive Behaviors	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Constant	31.932	40.418	81.727	75.067	14.166	27.362	56.320	55.295
Male children	1.579	1.780†	-.420	-.480	1.856†	2.066*	-.603	-.558
	.046	.052	-.016	-.018	.055	.061	-.011	-.010
Maternal educational level	-.533**	-.454**	.334**	.279*	-.553***	-.437**	1.133***	1.081***
	-.114	-.097	.090	.076	-.120	-.095	.147	.140
Family socio-economic status	-2.903***	-2.771***	4.179***	4.078***	-.663	-.459	8.770***	8.411***
	-.170	-.162	.312	.304	-.040	-.027	.313	.300
Support from husband		-.128***		-.006		-.087***		.002
		-.176		-.011		-.122		.001
Support from extended family		.018		.078***		-.070**		.067
		.021		.117		-.083		.048
Support from neighborhood		-.007		.022		-.028		-.064
		-.008		.033		-.034		-.046
$\mathbf{R^2}$	.26	.31	.37	.39	.16	.24	.41	.42

Note: † p <.10; * p <.05; ** p <.01;*** p <.001.

The support from the extended family, contributed positively to the mother reported parental warmth and supportive behaviors (effect size 12%), but there was not any effect found on the same behavior reported by the observers. In contrast, the support from the extended family predicted negatively and statistically significantly the parental use of punishment reported by the observer, but not predicted by the maternally reported behaviors (effect size 8%). There was not any statistically significant effect of support from the neighborhood on the parenting behaviors.

A risk status factor was composed by the low maternal education and low family socio-economic status. The coefficient of the effect of risk status on the mother's warmth and supportive behaviors were found to be statistically significant (see. Table 5), but found not to be statistically significant for the mother's use of punishment. The effect size of this additive variable was 8% for the effect of maternally reported warm and supportive behaviors, and 14% for the observed behaviors.

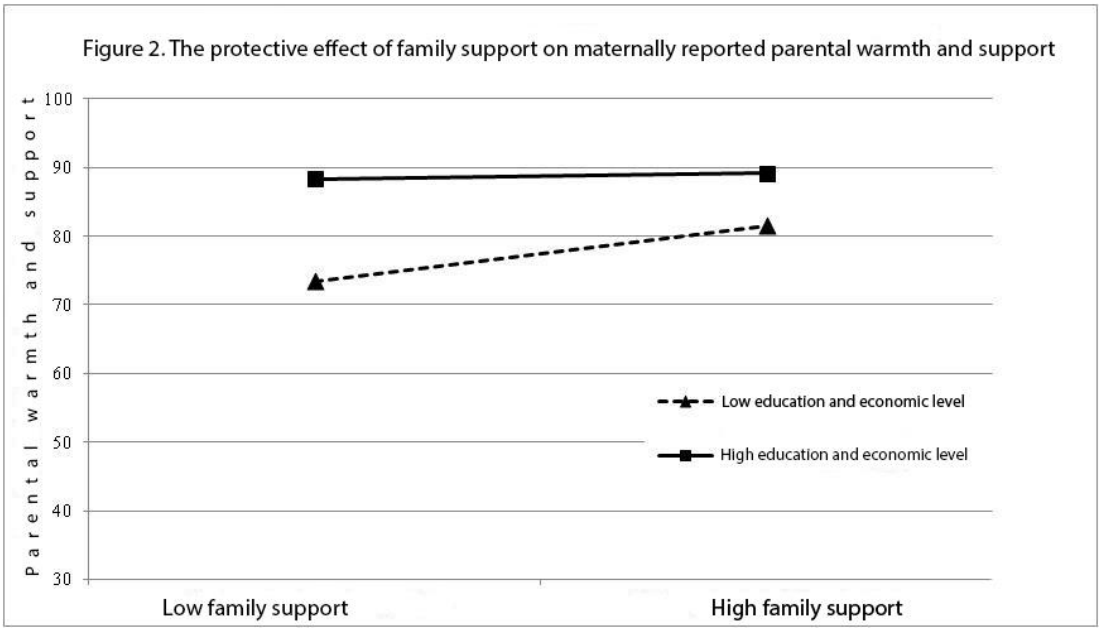
According to Symbolic Interaction and Family Systems Theories, the support from different sources played an important protective role to decreases the negative effects of these risk factors, especially for the families coming from a collectivist culture. In order to test this, families with risk factors were analyzed and the results showed that all three types of support to the mother received, had significant positive buffering effect for their warmth and supportive parenting behaviors (see, Table 5).

Table 5. Risk and Protective Factors of Parental Warmth and Supportive Behaviors (regression coefficients and standardized regression coefficients in the second line; N=1005)

	Maternally Reported Parental Warmth and Supportive Behaviors				Observed Parental Warmth and Supportive Behaviors			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Constant	76.216	79.995	81.487	79.435	59.666	59.625	65.711	55.456
Male children	-.489	-.511	-.600	-.451	-.593	-.593	-.721	-.642
	-.018	-.019	-.022	-.017	-.010	-.010	-.013	-.011
Maternal educational level	.230 †	.244†	.233†	.215†	.896**	.896**	.899**	.915***
	.062	.066	.063	.058	.116	.116	.117	.119
Family socio-economic status	3.490***	3.500***	3.550***	3.338***	6.174***	6.174***	6.244***	6.372***
	.260	.261	.265	.249	.220	.220	.223	.227
Support from husband	-.006	-.044*	-.009	-.011***	.003	.003	-.001	.010
	-.011	-.077	-.016	-.020	.003	.003	-.001	.008
Support from extended family	.078***	.072**	.017	.077	.067	.067	-.003	.070
	.117	.108	.025	.115	.048	.048	-.002	.050
Support from neighborhood	.019	.013	.018	-.021	-.075†	-.075†	-.076†	-.023
	.029	.020	.028	-.031	-.054	-.054	-.055	-.017

Low maternal education and low socio-economic status (risk factor)	-2.345*	-10.970***	-13.448***	-10.752***	-8.922***	-8.826	-21.656**	2.072
	-.080	-.374	-.458	-.366	-.145	-.144	-.353	.034
Support from husband for the mothers with risk factor		.113**				-.001		
		.312				-.002		
Support from extended family for the mothers with risk factor			.146***				.167*	
			.394				.216	
Support from neighborhood for the mothers with risk factor				.126**				-.165†
				.299				-.187
R^2	.16	.17	.17	.16	.19	.19	.19	.19

Note: † p <.10; * p <.05; ** p <.01; *** p <.001.



The Figure 2 shows that, support from the extended family had a protective role on the parental warmth and supportive behaviors of the families with risk factors. The parents with high education and economic status displayed high parental warmth and supportive behaviors, whereas parents with low education and economic status displayed lower levels of parental warmth and supportive behaviors. However, if the parents with low education and economic status received high support from their extended families, these negative effects decreased to some extent. This showed the protective role of support of the extended family for the families with high risk status.

DISCUSSION

Harsh, obedience-oriented and punitive parenting behaviors are negatively associated with warm and supportive parenting behaviors, almost in all cultures. But the strength of the association between the punitive parenting behaviors and warm and supportive parenting behaviors may be different in collectivistic and individualistic cultures (Deater-Deckard & Dodge, 1997; Lu et al., 2005; Rudy &Gruseck, 2001). That's why, the parenting behaviors should be studied within the

social and cultural context. Also, in Turkey, the relationship between punitive and warm and supportive parenting is not as strong in families of low socio-economic status as families of high socio-economic status (Erkman & Rohner, 2006; Kağıtçıbaşı, 1996).

The proposed theoretical background, the Social Exchange, Symbolic Interaction, and Family Systems Theory claimed the importance of parenting behaviors and suggested the predictors of parenting behaviors within the family and social context. The results of this study also supported these theories, that family characteristics and support from the environment had a crucial role in affecting the negative and positive parenting behaviors. The family characteristics such as the level of maternal education and family socio-economic status affect the parenting behaviors as the causal process suggested by the Symbolic Interaction Theory. The families with low educational and economic status had less opportunities and resources to support their parenting behaviors, such that low SES families experience high levels of stress due to their economic hardship and thus display higher levels of harsh and punitive parenting behaviors towards their children.

The empirical study presented here indicated that support from different sources to the families with low socio-economic status in Turkey had more importance than the families with high SES. So, this finding suggests that when the socio-economic risk is higher, these families are more prone to the causal processes outside the family which determine their parental behaviors. These findings are important in terms of social policy.

To conclude, the research made so far about the factors that affect parental behavior in Turkey is inadequate in terms of the number and scope. The theoretical perspectives and the empirical studies support these perspectives that conducted in

different cultural contexts should be questioned in terms the validity of the findings of these research, when the results will be applied to Turkish familial context. The cultural context influences the belief systems, parental goals, and the social networks that affect the parenting behaviors. Especially, in a context where most of the children during the early childhood years do not attend to institutions and schools, but stay at home with their non-working mothers, extended family, and/or neighbors, the parenting behaviors play a crucial role in shaping the child development. Therefore it should be an important part of the promotion of human capital development policies to focus on the parenting behaviors.

CHAPTER 2

RAMIFICATIONS OF SOCIOECONOMIC DIFFERENCES FOR THREE YEAR OLD CHILDREN AND THEIR FAMILIES IN TURKEY

ABSTRACT

This study identifies how socio-economic status (SES) is linked to receptive vocabulary knowledge, externalizing behaviors, and prosocial behaviors of 3 year-old children through the characteristics of their developmental environments (family and neighborhood resources, and a family risk factor). Data came from a sample of 36-47 month-old children and their mothers in Turkey, designed to be representative (N=902). The results indicated that: (1) almost all of the family and neighborhood characteristics of the children, and their vocabulary knowledge and prosocial behaviors significantly differed by the two indicators of SES (i.e., maternal education and family economic well-being); (2) externalizing behaviors were weakly associated with SES; (3) family resources that were often thought to be supportive of cognitive development (learning materials and stimulation for learning) mediated the association of SES with children's vocabulary knowledge and prosocial behaviors; (4) maternal warmth and responsiveness was an important protective factor for children's vocabulary knowledge and prosocial behaviors if their families were economically disadvantaged; and, (5) support from the neighbors was an important protective factor for children's prosocial behaviors if their mothers had a low level of education. These results were largely consistent with those from the U.S. samples, but additionally highlighted the importance of the quality of the mother-child relationship to protect children from the ramifications of low SES.

Keywords: Socio-economic status, language development, externalizing behaviors, prosocial behaviors, parenting, home environment, neighborhood resources

INTRODUCTION

In this study, we investigate how socio-economic status (SES) may be associated with the developmental outcomes of 3 year-old children in Turkey. We consider SES not only as an indicator of economic resources and human capital, but also as an indicator of social hierarchy that encompasses degrees of power and prestige (i.e., social stratification). Family SES may be associated with children's developmental outcomes directly, and indirectly, through its association with the characteristics of the family and neighborhood environments. The characteristics of the family and neighborhood environments may support or detriment children's development (i.e., act as a resource or a risk factor). Furthermore, these family and neighborhood resources and risk factors may play different roles, depending on the SES. This latter (moderating) role of SES is less frequently studied than its direct and mediated roles. The study of the moderating role of SES allows us to investigate whether some family and neighborhood resources are associated with better outcomes for children in some environments but not in others. The present research focuses on three developmental outcomes: receptive vocabulary knowledge, externalizing behaviors, and prosocial behaviors. These three developmental indicators are known to be strongly predictive of later educational outcomes (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000; Lee, 2011; Lemelin et. al, 2007; Welsh, Parke, Widaman, & O'Neil, 2001).

The sample of the current study is unique. We present results from a sample designed to be representative of 3 year-old children in Turkey. Nationally representative samples of non-western populations are extremely rare (for exceptions, see Coddington, Mistry, & Bailey, 2014; Fernald, Weber, Galasso, & Ratsifandrihamanana, 2011; Vegas & Santibáñez, 2010) and many other studies of

non-Western populations are based on regional and urban samples (Hood, Conlon, & Andrews, 2008; Moller, Forbes-Jones, & Hightower, 2008; Tamis-LeMonda, Bornstein & Baumwell, 2001).

Turkey is located between Europe and the Middle East, with a population of about 77 million (TSI, 2012), making it one of the 20 most populous countries in the world (UNICEF, 2010). Because of its very recent history of fertility decline, the population is young (36% of the population under 15 years of age). The economic status of the population is modest, with a per capita GDP of just under $14,000 in 2008 (compared to about $47,000 in the U.S.), and with sharp income inequalities (Gini coefficient = 0.43).

The social context of the present study suggests that the findings may differ from similar studies with Northern American samples (e.g., Bradley, Corwyn, Burchinal, McAdoo, & Garcia-Coll, 2001b). The reasons for this are twofold. The first stems from the wide range of differences in SES, as indicated above. There are substantial proportions of families with extremely low levels of economic resources and education in Turkey (as documented in the results section). Therefore, we expect the SES differences to be deeper in this sample than in Northern American and Western European samples.

The second reason stems from the recency of the transformation of the Turkish society from traditional and agricultural to increasingly urban and industrial. A few implications of this recent history are relevant here. First, education of women has lagged behind economic development. Therefore, unlike in the U.S. and Western Europe, many mothers of middle and high economic status have low levels of education. In the current sample, 67% of the mothers in the middle economic status

families, and 34% of mothers in the high economic status had only 5 years of completed education or less.

Second, the cultural norms governing interpersonal relations lagged behind in the transformation to a modern and industrial society (Sunar & Fisek, 2005). Based on Hofstede's individualism dimension scores, Turkey is the 37th out of 93 countries (Hofstede, Hofstede & Minkov, 2010), closer to collectivistic cultures. This is relevant to the current study in three ways. First, some parenting behaviors in Turkey are similar to those that are prevalent in collectivistic societies. A high level of behavioral, emotional and physical control of children tends to coexist with a high level of warmth (Akcinar & Baydar, 2014; Kagitcibasi, 1996). Second, young children are typically kept in the family environment and mothers remain as primary caretakers in the home. In the current sample, only 2% of 3 year-old children attended preschool. Therefore, family influences on children's development may be stronger in this context than in Western samples. Third, close relationships and family interdependency is highly valued in Turkey. Extended family members tend to be geographically and emotionally close to each other (Kagitcibasi, 1996) with tight networks of support and daily contact between close relatives (Ataca, Kagitcibasi & Diri, 2005). Therefore, close others may take an active role in raising children and may influence the behaviors of the parents (Kagitcibasi, 2007). Extended family members may also provide support to the parents in case of economic or psychological stress (Ataca et al., 2005).

A third relevant characteristic of the Turkish cultural context is its hierarchical nature with a high power distance (66% as compared to the U.S. with 40%, Hofstede et al., 2010; Fikret Pasa, Kabasakal, & Bodur, 2001). Although the adoption of a liberal economy in 1980s has moderated the prevailing ideology

towards one that endorses equal opportunities, this history is very recent. High power distance is associated with an acceptance of unequal distribution of power and prestige within the society (Hofstede, 1980). The result is a deep social stratification that penetrates the way of life and that reinforces the inequalities in wealth, income, education, power, and prestige (Hofstede et al., 2010). Consequently, we expect substantial SES differences in value systems, parenting goals and parenting practices.

Background

Social hierarchies defined by education and economic well-being may lead to differential access to social capital, economic resources, and community resources (Conger & Donnellan, 2007; Davis-Kean, 2005; Smith, Brooks-Gunn, & Klebanov, 1997). A family's SES represents their human capital (knowledge and behaviors) and their financial capital (economic resources). In the present study, maternal education represents the family human capital and the family economic well-being represents the financial capital (Conger & Donnellan, 2007). Family and neighborhood resources and risk factors are influenced by both human and financial capital of the family. Below, we review two major theoretical models of the family processes that link SES to the developmental outcomes of children. The family stress model focuses on the effects of social stratification that may accompany socio-economic differences, and the investment model focuses on the availability of resources (Becker & Tomes, 1986; Linver, Brooks-Gunn, & Kohen, 2002; Yeung, Linver & Brooks-Gunn, 2002).

Family stress model posits that the families who have low human and financial capital tend to experience a high level of stress in many domains of life. Thus, a low level of human and financial capital is associated with highly burdened coping resources. Economic deprivation and a lack of human capital imply barriers

to access many resources, resulting in family stress. This stress may be augmented by social stratification and is likely to result in negative developmental outcomes for the children (Conger et al., 1992, 1993; Cox & Paley, 1997; McLoyd, 1990).

The investment model, on the other hand, posits that families who have a low level of financial capital tend to have to reduce developmental investments such as the provision of a high quality physical, educational and developmental environment in the home and in the community. Similarly, low human capital deprives children from an enriched educational and emotional environment at home. Specifically, low maternal education is associated with a lack of parenting skills, a low priority to support development, a lack of understanding of the needs of a child, low verbal skills, and few stimulating interactions with children (Davis-Kean, 2005; Dollaghan et al., 1999). A lack of developmental resources because of low economic well-being and low education result in low levels of language skills, high levels of behavioral problems, and low levels of social competence (Becker & Tomes, 1986; Coleman, 1988; Yeung et al., 2002).

Since the early 1990's, there is abundant research documenting the developmental consequences of socio-economic disadvantage (for a review, see Duncan & Murnane, 2011). Prior studies found that economic and educational disadvantage led to lower levels of language development in children (Bradley & Corwyn, 2002; Hart & Risley, 1995; Mistry, Biesanz, Chien, Howes, & Benner, 2008; Whitehurst & Lonigan, 1998). There was a weaker association of SES with social-behavioral development than with cognitive development (Bradley et al., 2001b; Mistry, Biesanz, Taylor, Burchinal, & Cox, 2004). Nevertheless, a number of studies found that low SES was associated with poor outcomes in this domain, as

well (Brooks-Gunn & Duncan, 1997; Gurland, & Grolnick 2005; McLeod & Shanahan 1993; McLoyd, 1990; Patterson, DeBarsyshe, Ramsey, 1989).

Below, we review the literature on pathways through which SES, and associated disadvantages due to social stratification may be linked to language, behavioral, and social outcomes of children at preschool ages. These links may be direct and mediated (Davis-Kean, 2005; Raviv, Kessenich, & Morrison, 2004). Specifically, there may be physiological repercussions of stratification, there may be consequences of lack of material resources, there may be maladaptive patterns of parenting behaviors as the consequences of absolute or relative economic deprivation and low education, and there may be repercussions of living in neighborhoods that lack public services and social capital. Furthermore, some of these factors may operate jointly, rather than independently.

Physiological Ramifications of Low SES

Research has long established that negative life conditions associated with lack of financial and human capital, and social stratification resulted in psychological distress in the families (Conger et al., 1992; Dodge, Petit, & Bates, 1994; Takeuchi, Williams, & Adair, 1991). It was also found that exposure to prolonged and/or intense stress resulted in high levels of cortisol, which, in turn, led to maladaptive expressions of emotions and undesirable behaviors in children (Charmandari, Kino, Souvatzoglou, & Chrousos, 2003; Dorn, Hitt, & Rotenstein, 1999; Duncan & Murnane, 2011). Similarly, high levels of the hormone cortisol led to changes in the normative functions of physiological stress response systems. Such changes increased the risk for impaired cognitive functioning and delay in language production in children (Gunnar & Barr, 1998; Hackman & Farah, 2009; Saridjan, 2014).

Ramifications of Low SES for the Resources and Risk Factors in the Family

Resources in the family environment may be material resources or supportive interactions with children. A risk factor in the family environment may consist of interactions that are known to be negatively associated with various developmental outcomes.

SES is associated with the availability of materials such as books or toys (Bradley & Corwyn, 2002; Burchinal et al., 2008; Evans, 2004; Gershoff, Aber, Raver, & Lennon, 2007; Lee & Burkam, 2002; Linver et al., 2002; Miller & Votruba-Drzal, 2013; Mistry et al., 2004; Whitehurst & Lonigan, 1998). Such resources support exploration and may also engender positive social interactions between the children and adults (Bradley & Corwyn, 2002; Linver et al., 2002; Mistry et al., 2008). Exploration and interactions with adults stimulate vocabulary growth (Bradley & Corwyn, 2002; Hart & Risley, 1995; Leseman & de Jong, 1998). At the same time, these interactions promote a positive climate for socialization, supporting behavioral and social development (Bradley et al. 2001b; Lee & Burkam, 2002; Narvaez et al., 2013).

SES may be associated with parenting behaviors because of different parenting expectations based on different views of the future social status of children. Thus, socialization practices differ by SES, partly as a consequence of social stratification. Families of high SES emphasize the development of verbal skills, independence, achievement, and creativity (Kagitcibasi, 2007; Phalet & Schonpflug, 2001), leading to frequent conversations and high involvement in educational activities (e.g., teaching colors, numbers, and shapes to their children; Evans, 2004; Shonkoff & Phillips 2000). In contrast, parents of low SES tend to have low human capital and tend to hold an expectation of sustained social stratification. As a

consequence, they are less involved in educational activities, engage less frequently in verbal interactions and problem solving activities, read less, and speak in shorter utterances to their children than the parents of high SES (Bradley & Corwyn, 2002; Burchinal et al., 2008; Hart & Risley, 1995; Hoff, 2006). Parents of low SES are also less likely to expose their children to the educational resources available in the community such as visiting a museum or library, or trips (Bradley & Corwyn, 2002; Bradley et al., 2001a). This lack of access could be due to actual (economic) or perceived barriers.

Because of these parenting behaviors, children of low SES families acquire vocabulary more slowly than others (Beals, DeTemple, & Dickinson, 1994; Borduin & Henggeler, 1981; Hart & Risley, 1995; Leseman & de Jong, 1998; National Research Council, 2000; Whitehurst & Lonigan, 1998). A limited vocabulary may, in turn, limit self-expression that is linked to prosocial behaviors (Mendez, Fantuzzo, & Cicchetti, 2002).

In addition to cognitively stimulating parenting behaviors, we also considered warm and supportive behaviors, and power assertive behaviors of the parents. Parenting behaviors tend to be associated with psychological distress resulting from a lack of economic resources, with the amount of coping resources, and with the perceived power and status. Distress leads to a negative emotional climate in the family and in parent-child relations (Conger et al., 1993). Low SES mothers display fewer positive parenting behaviors (McLoyd, 1990), they are less responsive, provide less warmth to their children, and are less likely to effectively monitor their children than parents of high SES (Bradley & Corwyn, 2002; Corwyn & Bradley, 1999; Miller & Votruba-Drzal, 2013; Mistry et al., 2008).

The use of power assertive socialization tends to vary by SES. Parents from low SES tend to emphasize obedience, are more intrusive and controlling, use more physical punishment, and have inconsistent demands and behaviors than parents of high SES (Bradley, & Corwyn, 2002; Dodge et al., 1994; McLeod & Shanahan, 1993; McLoyd, 1990; Miller & Votruba-Drzal, 2013). Power assertive parenting is negatively associated with cognitive outcomes, probably because it discourages exploration (Shumow, Vandell, & Posner, 1998; Smith & Brooks-Gunn, 1997). Power assertive parenting is also associated with high levels of externalizing behaviors and low levels of prosocial behaviors (Aunola & Nurmi, 2005; Deater-Deckard & Dodge, 1997), because it does not promote self-regulation and provides a negative role model.

In a collectivistic cultural context where both obedience and family connectedness are valued (Kagitcibasi, 2007), the meaning of power assertion may vary depending on other parent behaviors. Power assertion may be an expression of protectiveness when accompanied with a high level of warmth (Akcinar & Baydar, 2014; Erkman & Rohner, 2006; Kagitcibasi, 1996; Kim & Rohner, 2002). In individualistic cultures, power assertion is generally accompanied with a low level of warmth, and it is perceived as an expression of rejection (Rohner, 2004). When power assertion is an expression of rejection, it may induce stress, inhibit exploration, and negatively influence the development of regulatory cognitive processes (McClelland et al., 2007; Paolucci, & Violato, 2004; Straus & Paschall, 1998). Power assertion also tends to result in oppositional behaviors in children because of modeling and because of the escalation of negativity in the interactions between the parents and their children (Baumrind, 1996; Deater-Deckard & Dodge, 1997; Granic & Patterson, 2006; Narvaez et al., 2013). Furthermore, a power

assertive approach that lacks in inductive reasoning results in low levels of self regulation and lack of social reasoning skills in children, leading to high levels of externalizing and low levels of prosocial behaviors (Baumrind, Larzelere, & Owens, 2010; Knafo & Plomin, 2006).

Ramifications of Low Neighborhood Resources

Living in poor neighborhoods is associated with low levels of vocabulary and other verbal skills in children even when the family SES is accounted for (Leventhal & Brooks-Gunn, 2000; Pebley & Sastry, 2004). The lack of availability of community social capital and community resources for children in poor neighborhoods are the likely reasons for this association (e.g., schools, libraries, children's playgrounds; Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Ceballo & McLoyd, 2002).

In neighborhoods where structural physical resources such as parks, community centers, and health clinics are lacking, and where public safety is not ensured, parents tend to be power assertive, use physical punishment, and demand obedience in order to control and protect their children (Ceballo & McLoyd, 2002; Lipsey & Wilson, 1993). In addition, disadvantaged neighborhoods tend to have low social capital (Ceballo & McLoyd, 2002; Leventhal & Brooks-Gunn, 2000). They are characterized by a lack of positive role models, and the presence of youths and adults who accept and display aggressive, violent, or criminal behaviors (Fauth, 2004). Children who live in these neighborhoods are likely to become aggressive themselves, partly because of the abundance of opportunities to observe and model such behaviors (Herrenkohl et al., 2000; Kendrick, Mulvaney, Burton & Watson, 2005).

The Moderating Role of SES

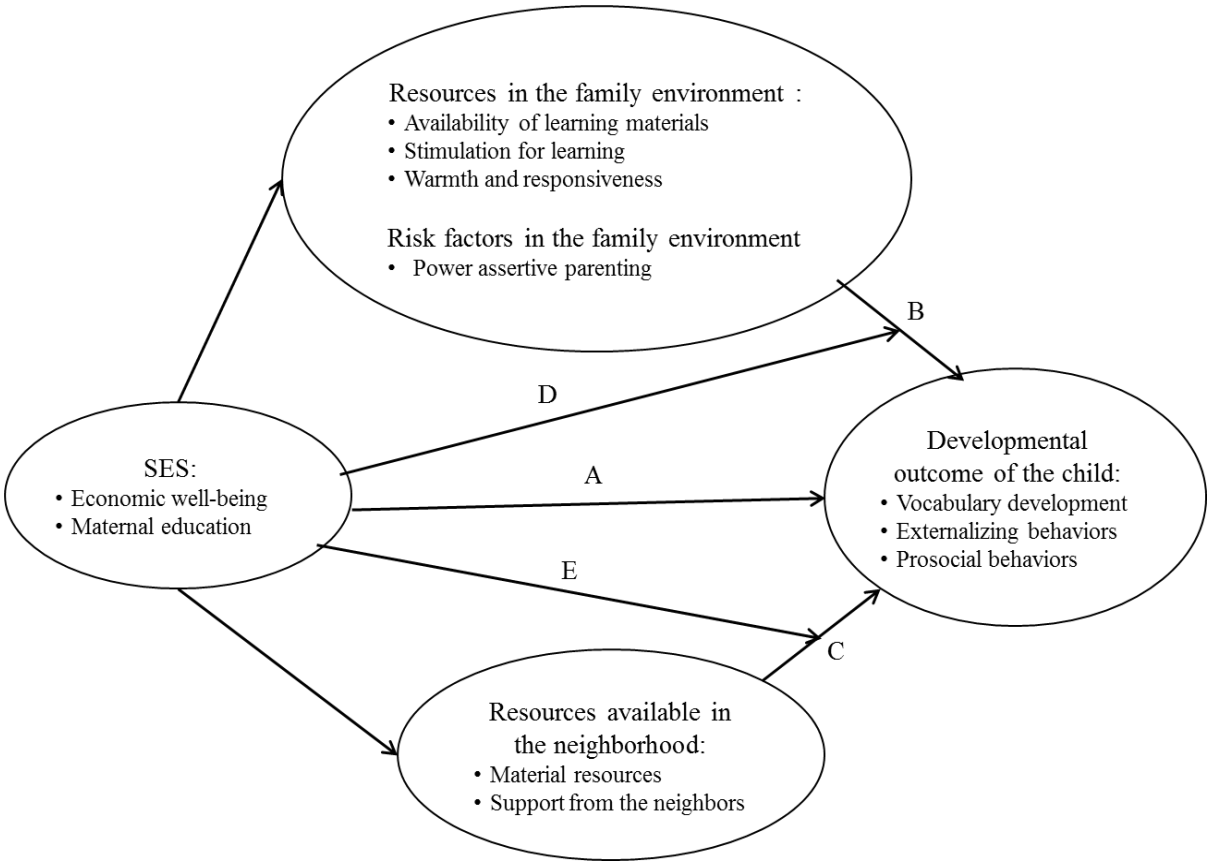
Different resources may be effective in promoting positive developmental outcomes in children depending on the SES of the family. Previous research indicated that the association of the family and neighborhood characteristics with early childhood developmental outcomes could vary depending on SES. Even physiological processes were found to vary depending on the social context (Wehby & McCarthy, 2013). For example, the warmth and supportiveness of the mother-child relationship more strongly predicted the cognitive development when other resources of the family were scarce (Baydar et al., 2014; Bradley et al., 2001b; Park, 2008). When the families had low SES, social support from non-family sources and the resources of the neighborhood became significant in supporting cognitive development and in maintaining the psychological health of the parents by reducing their stress (Baydar et al., 2014; Kotchick, Dorsey, & Heller 2005; Narvaez et al., 2013; Odgers et al., 2009). Furthermore, the association of neighborhood resources with children's externalizing and deviant behaviors was stronger in low SES than in high SES families (Brody et al., 2001; Odgers et al., 2009). Recent studies also indicated that social capital of the neighborhoods could play a role in supporting the language development of children in families of high risk (Akhtar, 2005; Baydar et al., 2014; Kohen, Leventhal, Dahinten, & McIntosh, 2008).

The Present Study

Figure 1 depicts the basic developmental process that was tested. This model is not novel (Conger et al., 1992, 1993; Cox & Paley, 1997; Yeung et al., 2002) except for the consideration that indicators of SES could moderate the pathways of association. The indicators of SES are associated with the developmental resources in the family: (i) the materials provided to the child that support learning ("learning

materials"), (ii) efforts of the mother to teach basic preschool skills to the child ("stimulation for learning"), and (iii) warmth and responsiveness ("responsiveness") provided to the child. In addition, the use of power assertive methods of socialization is a risk factor in the family environment. The neighborhood resources in the model are: (i) the "physical resources" of the neighborhood such as the availability of public services and green areas, and (ii) "social support" from the neighbors. In our model, the indicators of SES are associated with the developmental outcomes directly and indirectly through the family and neighborhood characteristics.

Figure 1. The proposed model of developmental outcomes.



Hypotheses

The direct and indirect roles of the family SES

The direct paths of association of SES with the developmental outcomes (Path A, Figure 1) are considered partly because of the indirect pathways of association that are not considered here (for example, genetic influences, physiological processes, and parental characteristics such as the psychological well-being or occupation). We expected a strong association of maternal education and the economic well-being of the family with vocabulary knowledge. We also expected a moderate association of these indicators with externalizing behaviors, and prosocial behaviors.

Second (Path B, Figure 1), among the family resources, we expected learning materials provided to the child and stimulation for learning to have strong positive associations with the vocabulary development because they would enhance vocabulary directly. Furthermore, they would be associated with prosocial behaviors because they could encourage positive interactions between the mother and the child, and they could encourage vocabulary development that could facilitate self-expression. We expected these resources to be weakly associated with externalizing behaviors. We expected the responsiveness of the mother to have a positive association with vocabulary development because it would support exploration. Responsiveness could also promote prosocial behaviors and deter externalizing behaviors because it would constitute a positive role model for the child.

We expected power assertive socialization to have a negative association with vocabulary development because it would inhibit exploration. We expected power assertion to be associated with high levels of externalizing behaviors because (i) it would imply coercive interactions between the mother and the child, (ii) because it

would provide a negative role model, and (iii) because it would inhibit self regulation. We expected power assertion to be negatively associated with prosocial behaviors because it would inhibit self regulation and it would provide a role model for coercive (rather than problem solving) strategies when faced with conflict.

We expected power assertive parenting to have less undesirable consequences in families with a high level of responsiveness than in families with a low level of responsiveness. Specifically, in the presence of a high level of warmth and support, power assertive parenting might not lead to coercive interactions, might not be perceived as rejection, and might not be associated with anxiety impeding self regulation. In that case, the association of power assertion with externalizing behaviors might be minimal. Similarly, if power assertion coexisted with warmth, we expected minimal negative association with prosocial behaviors.

Third (Path C), we expected a stronger association of neighborhood characteristics with child developmental outcomes in this sample than in Western samples because of its collectivistic cultural context (Feldman & Masalha, 2007). This was true especially for support rather than for material resources of the neighborhood. A high level of support from the neighbors could counteract externalizing behaviors and contribute to prosocial behaviors because it would provide opportunities for positive social interactions with adults, and it would provide positive adult role models to the child. Positive interactions with the neighbors could also support vocabulary development because children would be exposed to language spoken by adults other than their parents (Baydar, et al., 2014).

The moderating roles of SES

The SES differences represent a differentiation in the availability of resources, and a context encompassing differences in perceptions, attitudes towards the future, and priorities. We expected these differences to moderate the way some family resources and risk factors would be associated with children's developmental outcomes (Path D).

First, we expected that an emotionally and socially supportive environment would contribute to the vocabulary development of children more strongly when economic status was low rather than high. This difference would arise due to two reasons: (1) when economic resources were lacking, material resources that could support vocabulary growth would be lacking, rendering exploration even a more important resource that could support early vocabulary development. Therefore, parenting behaviors that supported exploration (i.e., responsiveness) would be strongly associated with vocabulary especially if SES was low. (2) The general level of stress in the immediate ecology of the children in low SES families would be higher than their advantaged counterparts. We expected the marginal contribution of maternal responsiveness to the provision of prosocial role models to be higher in low SES (and high stress) than in high SES (and low stress) families. Therefore, maternal responsiveness would have a stronger association with prosocial behaviors when the family had a low rather than a high level of economic well-being.

Second, power assertion in high risk social and physical environments might arise from a need to protect children. In that context, power assertion could be adaptive and could indicate parental concern. Therefore, we expected power assertion to have a weaker association with externalizing behaviors in families of low economic status than in families of high economic status.

Families of low SES might have stronger collectivistic values and stronger emotional and material dependencies on their families and neighbors than families of high SES (Edman & Kameoka, 1999; Kagitcibasi &Ataca, 2005; Phalet & Hagendoorn, 1996). Thus, in families of low SES, support from extended family and neighbors might more strongly contribute to a child's ecology than in families of high SES (Path E). Especially if a mother's own human capital was low, we expected neighborhood social resources to be more valuable than if her social capital was high, because the neighbors would emerge as a salient resource for the child's socialization. We therefore expected that support from the neighbors would have a stronger beneficial association with prosocial development when maternal education was low than when maternal education was high.

METHOD

The "Early Childhood Developmental Ecologies in Turkey" (ECDET) Study

The ECDET study was designed to be representative of three year old children and their families in Turkey (for detailed information and access to the data, see http://tecge.ku.edu.tr). The results presented here were based on the data collected in 2008 from 902 families, when the children were between 36 and 47 months of age. The data consisted of in-person interviews with the mothers, tests of the mothers and the children, and observations by trained interviewers in the homes of the participants. The age of the child and the mother's ability to speak sufficient Turkish to respond to the survey protocol determined the eligibility of the participants. The adult participants were the female primary caretakers of the children who were the biological mothers of the children in almost all cases except for seven families (0.7%). These cases were excluded from the analyses presented here.

The ECDET sample was designed to be a self-weighting sample. It was a stratified cluster sample with selection probabilities at each stage proportional to the population size. At Stage 1, four large metropolitan areas and eight additional provinces were selected from the 12 statistical/geographical regions, from a geographical frame that was designed for all national statistics collected by the European Union (NUTS, 2012). Each selected metropolitan area or province was allocated between 1 and 4 administrative units (roughly similar to the U.S. counties), depending on its population size, for a selection of a total of 24 administrative units. Finally, one neighborhood or rural village was selected in each administrative unit with probability of selection proportional to its population. An equal number of families were recruited from each neighborhood or village. The resulting sample was a self-weighting clustered sample (Levy & Lemeshow, 2008, p. 361; United Nations, 2005).

Measures

We described the developmental outcomes and their psychometric properties in the first subsection. Next, we described the measures of family and neighborhood characteristics. In the last subsection we presented the description of the two indicators of SES and other basic socio-demographic characteristics of the families that served as statistical controls.

Developmental outcomes

Turkish Receptive Language Test (TRLT). The TRLT (Berument & Guven, 2010) is very similar to the widely used Peabody Picture Vocabulary Test (Dunn & Dunn, 1981). The child was asked to identify one of four pictures that best depicted the meaning of a word that was read aloud. The test was administered adaptively,

progression depending on performance. We estimated a three-parameter Item Response Theory model in order to generate latent receptive vocabulary ability scores (Baydar et al., 2014). We then age standardized these latent ability scores by regressing them on the linear and quadratic functions of age and by obtaining the residuals. Positive scores on this standardized measure represented receptive vocabulary knowledge that was above that of age-matched peers.

Adaptive social behavior inventory (ASBI-TR). This was a 30-item questionnaire, measuring the social competence of preschool age children (Hogan, Scott, & Bauer, 1992). The ASBI was translated and adapted for use with Turkish mothers (Baydar, Kuntay, Goksen, Yagmurlu, & Cemalcilar, 2007; Kumru, 2005). The ASBI-TR items were rated on 5-point scales (rather than the original 3-point scales). We used the total ASBI-TR score (range 0-100, α=.85). Higher scores indicated more variety of prosocial behaviors or more frequent display of prosocial behaviors.

Eyberg Child Behavior Inventory (ECBI-TR). The ECBI (Eyberg & Robinson, 1983) measured the conduct problems for children between the ages of 2 and 17. It consisted of 36 items describing potentially problematic behaviors. The mothers first rated the frequency of occurrence of each behavior, and then rated the extent to which they perceived each behavior as a "problem". The ECBI-TR was adapted for use with Turkish mothers (Batum & Yagmurlu, 2007; Baydar et al., 2007) where the frequencies of occurrence of behaviors were rated on 5-point scales. We used the total behavior problem intensity scale in the present research (range 0-100, α=.93). Higher scores indicated more types of externalizing problems and/or more frequent occurrence of externalizing problems.

Family resources, family risk factors and neighborhood resources

The family resources and risk factors were measured by four subscales of the HOME measure (Bradley & Caldwell, 1984). Neighborhood resources were maternally reported. All of these measures were scaled to range between 0 and 100 except for the family risk factor measure (see below).

Home Observation for Measurement of the Environment (HOME-TR). The original HOME was an observational instrument (Bradley, 1981). However, a subsequent adaptation of HOME included both maternally reported and observational items for use in large scale surveys (Bradley et al., 2001a). It consisted of 55 items for 3 year-old children. The HOME-TR was adapted for ECDET (Baydar & Bekar, 2007). It included 52 closed-ended items that were modified in order to render them relevant to the living conditions of Turkish children (R. H. Bradley, personal communication, May 20, 2008).

Learning materials consisted of 13 items (α=0.91; e.g., "Child has toys which teach colors, sizes, and shapes"); stimulation for learning consisted of 6 items (α=0.82; e.g., "Do you help your child to learn the name of colors?"); responsiveness consisted of 8 items (α=0.82; e.g., "Mother hugged the child at least 5 minutes during the visit."). Higher scores indicated the higher availability of these resources (range 0-100).

There were six items that assessed power assertive parenting behaviors (α=0.61; e.g., "Mother conversed with the child in a harsh manner, scolded at or derogated him more than once during visit.", "Mother hit, slapped or otherwise physically punished the child."). Three of these items were based on the observation of a physical or harsh verbal punishment by the interviewer. Because of the

infrequent occurrence of these behaviors in the presence of an interviewer, the scale score had a strongly skewed distribution and a low internal reliability. We categorized the scale score into three levels, indicating no use of power assertive strategies, the use of moderate power assertive strategies (e.g., strong words, scolding, threat of punishment), and strong and harsh power assertion (e.g., physically hurtful punishment or highly intimidating scolding). This measure of power assertive parenting did not measure authoritarian parenting. Authoritarian parenting implies harsh control that is an expression of rejection. However, the parents who exercise control in non-Western cultures do not necessarily reject their children (Chao, 1994; Kagitcibasi, 1970; Liu et al, 2005).

Support from the neighbors and the physical resources of the neighborhood. The ECDET respondents were asked to think of what they considered as their own "neighborhood" regardless of the size of that area or its official administrative status. These subjective "neighborhoods" represented areas that the respondents considered accessible. The measure of support from the neighbors consisted of 7 maternally reported items, each rated on a 5-point scale (range 0-100, α=0.90; e.g., "When I have a problem, someone in the neighborhood will help out"; "If I get sick, someone from the neighborhood will come to help"). Higher scores indicated the higher perception of social support by the mother.

The measure of the physical resources of the neighborhood was also maternally reported about public services and facilities available in the neighborhood. The measure consisted of the availability of playgrounds, sports fields, health centers, schools, preschools, community education centers, job training centers, and police stations. Mothers rated whether each service was available and

adequate, available but inadequate, unsure of its availability, or not available (range 0-100, α=.84).

Indicators of SES and other socio-demographic characteristics

The mothers self-reported their number of years of completed education. We considered three groups of mothers: those who did not complete primary education (less than 5 years), those who completed primary education but had no further education (5 years completed which was the duration of compulsory education in Turkey when the mothers were young), and those who completed some secondary education or more (6 or more years). A majority of the mothers had exactly completed primary education (55.4%). Only 5% of the mothers had any post secondary education.

In this study, we used a comprehensive measure of economic well-being that was not limited to income. Income does not adequately represent economic affluence and wealth more accurately measures the access to economic resources than income (Diemer &Ali, 2009). Other studies that examined the effect of socioeconomic status on child development also used additional measures of material wealth and family affluence. The ownership of durable goods (e.g., such motor vehicles), real estate and home equity were used to capture economic affluence that were not captured by income (Axinn, Duncan, & Thornton, 1999; Mayer, 1999). A recent study by Coddington et al. (2014) found that durable goods, quality of the pyhsical environment, and home ownership could indicate living standards that contributed to verbal development over and above the income of the family.

In the current study, we assessed economic well-being, using a large number of indicators including maternal reports of the material possessions of the family, the

monthly per person expenditures of the family, the value of the residence of the family in terms of the actual or estimated monthly rent, and the interviewer's assessment of the quality of the physical environment of the residence and its immediate surroundings. We considered two types of material possessions: basic durable goods such as a refrigerator and a television, and non-essential items that are indicative of further economic well-being such as a computer or a car. The indicator of the quality of the physical environment included whether a minimum of approximately 10 sq yards of space per person was available, whether the interior of the home was dark and dreary, and whether there were any safety issues in the residence.

The indicators described above were used to distinguish between the families of low, middle, and high economic status. Similar to the categorization of any continuously distributed characteristic, the categorization of economic well-being was, to some extent, arbitrary. Nevertheless, we defined a family as having low economic well-being if two of the following four conditions were satisfied: (1) owning at most 2 of the possible 3 basic durable goods; (2) owning none of the non-essential goods; (3) having per person expenditures below approximately $100 per month; and, (4) having at least two attributes of the home physical environment rated as inadequate. We defined a family as having middle level of economic well-being if two of the following three conditions were satisfied: (1) owning at most three of the possible four non-essential goods; (2) having per person expenditures between approximately $100 and $215; and, (3) having at most one attribute of the home physical environment rated as inadequate. We considered a family as having a high level of economic well-being if the following three conditions were satisfied: (1) owning all of the possible four non-essential goods; (2) having per person

expenditures greater than $215 per month; and, (3) having no attributes of the home physical environment rated as inadequate. Note that the resulting indicator of economic status is a measure based on absolute criteria of economic well-being defined with consideration of living conditions in Turkey generally, but not relative to the local community.

In addition to these indicators of SES, we used a set of maternally reported socio-demographic indicators as controls in multivariate analyses. These were maternal age, child's sex, total number of children in the household, and rural/urban status. For the latter indicator, we considered three groups of mothers: those who were born in urban areas and spent most of their lives in urban areas; those who were born in rural areas and spent most of their lives in rural areas; and, those who were born in rural areas but spent most of their lives in urban areas.

Statistical methods

For descriptive purposes, we first provided comparisons of the characteristics of the children and the families by the indicators of SES. F-tests were used to test differences. Bonferroni corrections were applied to the pairwise comparisons of means. If an indicator was ordinal, then a χ^2- test was used. For the family resource, family risk, and developmental outcome measures, we provided Cohen's *d* effect sizes in order to facilitate comparison with other similar studies.

We modeled the child developmental outcomes using regression models. All regression analyses were conducted using the MPLUS software (Muthén & Muthén, 1998-2012), accounting for the clustered nature of the sample. First, we estimated models that tested the association of SES indicators, family resources, family risk factor, and neighborhood resources with the developmental outcomes. When a

family or neighborhood resource or family risk factor measure was significantly associated with a developmental outcome, we conducted mediation testing to investigate if it played a significant role in mediating the association of the SES indicators with that developmental outcome. The MPLUS software adopts the delta method for calculating the indirect effects and their standard errors (Bollen, 1987). It could also conduct mediation tests when one of the mediators was an ordinal categorical variable (maternal power assertion). When there were, potentially, multiple mediators, all of the mediators were tested at the same time, within a single model, in order to avoid repeated multiple testing and confounding due to correlated mediators. Although bootstrap estimates of mediator standard errors are generally preferred, we used maximum likelihood estimates because a complex sample design and bootstrapping could not be accommodated at the same time with MPLUS. An advantage of using maximum likelihood estimators is the availability of standardized indirect and total effects.

Next, we tested models that included the hypothesized interaction effects. When an interaction effect was statistically significant, we conducted further probing of the interactions as described by Preacher and Hayes (2008). We estimated the slope of the independent variable at ±1.5 SD of the moderator and tested the difference between these slopes. We also graphically presented and interpreted the moderated associations.

We addressed the problem of multicollinearity in regression models with interaction terms by (i) centering the continuous variables in interaction effects to have a mean of zero (Jaccard & Turrisi, 2003, p. 27), and (ii) using contrast coding representing the differences between successive categories for ordinal variables

(Davis, 2010). The combination of these strategies accomplished the specification of regression models where all Variance Inflation Factors were less than 2.0.

RESULTS

The ECDET study was designed to ensure representativeness. Among all participants of the study (1,052), 152 mother-child dyads were excluded from the current analyses because they had missing data in one or more key indicators of SES. Those who were excluded tended to be of higher SES based on available data. For example, they had significantly fewer children (mean of 1.72 vs. 2.23), higher number of years of education (mean of 2.52 vs. 2.38), and were likely to be of urban origin 56% vs. 38%). The likely predictors of non-response were included in all multivariate analyses as controls, and therefore, we did not weight the sample to adjust for non-response (Hoem, 1987).

In order to validate the representativeness of the sample, we compared the characteristics of the ECDET sample with data from The Study of Family Structure (Turkish Statistical Institute [TSI], 2006). The latter study was conducted in 2006 with a sample of 12,204 households to be representative of all households in Turkey. Table 1 provides information on the characteristics that were measured by both the TSI and the ECDET studies. We selected a subsample from the TSI data that would render the comparison as relevant as possible (see Table 1, note). The ECDET sample was slightly younger, a result expected because the TSI sample included mothers of children 3-5, although the ECDET sample included mothers of 3 year olds only. Urban versus rural residence, the level of education of the mothers, and the proportion of married mothers were almost identical. Overall, the profiles of the two samples validated the representativeness of the ECDET sample.

Table 1. Comparison of the TSI and ECDET samples

	TSI Sample[1] N=1,343	ECDET Sample N=902
Age		
≤ 24	10.3%	16.8%
25-34	69.8%	61.5%
35-44	18.5%	20.7%
45+	1.5%	1.1%
Current residence urban	66.6%	64.3%
Level of education		
Less than 5 years	15.0%	15.0%
Primary education completed	59.6%	55.4%
Some secondary	7.1%	10.9%
Secondary completed	13.4%	13.7%
Some higher education or more	4.8%	5.0%
Currently married	99.3%	98.4%

Note: TSI microdata sample was selected to have the following characteristics: (1) female; (2) from households with at least one child aged 3-5; (3) ever married; (4) had own children; (5) age less than 55; and, (6) householder, spouse, daughter, or daughter-in-law of the householder.

The two indicators of SES, i.e., maternal education and economic well-being, were associated with each other ($\chi^2(6)=281.6$, $p=.00$). For example, among the mothers who had not completed five years of primary education, 83% were had low levels of economic well-being, compared to only 16% of the mothers who completed more than primary education. Less than 2% of the mothers who did not complete primary education had a high level of economic well-being, compared to 44% of the

mothers who had completed more than primary education. However, the level of economic well-being and maternal education were not as closely associated at the upper two categories. For example, mothers who had completed primary education were just about as likely to have middle as low level of economic well-being.

Table 2 provides the comparison of the background characteristics of the ECDET families and children by maternal education and economic well-being. Few demographic characteristics of the families differed by the indicators of SES. The reason for this could be that the ECDET families were selected for having at least one child in the targeted age range. The total number of children in the family differed significantly by maternal education and economic well-being. Mothers of high SES had fewer children than low SES mothers. High SES mothers were also more likely to have been born and living in urban areas than low SES mothers.

Table 2. Comparison of background characteristics of the ECDET sample by indicators of social status

	Maternal education			Economic well-being			
	Did not complete primary education	5 years of primary education completed	More than primary education completed	Low	Middle	High	Total
Child's sex							
Girl	44.4%	43.0%	49.1%	44.6%	41.8%	51.7%	45.0%
Child's age in months (mean)	41.9	41.6	41.7	41.9	41.4	41.6	41.7 (3.7)[1]
Mother's age in years (mean)	31.3	30.2	29.9	30.2	30.2	30.7	30.3 (5.8)
Number of children in the family							
1 child	8.1%**[2]	19.0%	42.7%	12.0%**	29.5%	42.1%	24.4%
2 children	25.9%	46.0%	44.9%	36.8%	49.5%	43.8%	42.7%
3 children	26.7%	21.6%	8.6%	26.1%	13.5%	10.7%	18.5%
4 or more children	39.3%	13.4%	3.7%	25.1%	7.4%	3.4%	14.4%
Origin							
Born in urban & living in urban	25.2%**	29.1%	61.8%	30.3%**	36.7%	58.4%	38.2%
Born in rural & living in rural	57.0%	57.3%	25.8%	58.1%	46.9%	27.0%	47.9%
Born in rural & living in urban	17.8%	13.6%	12.4%	11.5%	16.4%	14.6%	13.9%
N	135	500	267	399	325	178	902

Notes:

1. Standard deviation is given in parentheses.
2. Significant differences are indicated in the first cell for the characteristic considered. Differences in means were tested with an F-test, differences in percentages were tested with a χ^2-test.

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

Table 3 provides the comparison of the family resources, family risk factors, neighborhood resources, and the developmental outcomes of the children by the two indicators of SES. Almost all of the family resources available for the children significantly differed by SES. Furthermore, some of these differences were large, compared to the standard deviation of the measures of these indicators (given in the last column of Table 3). The differences by the two indictors of SES were largely similar.

The children of mothers who were highly educated and the children of families with a high level of economic well-being enjoyed more learning materials (d=1.46 and d=1.63, respectively) and more stimulation for learning (d=1.11 and d=0.91, respectively) than other children. Similarly, the mean level of responsiveness of the mothers varied across the indicators of SES (d=0.89 for maternal education, and d=0.81 for economic well-being).

Table 3. Comparison of family and neighborhood resources, family risk factor, and child developmental outcomes of the ECDET sample by indicators of SES.

	Maternal Education			Economic well-being			
	Did not complete primary education	5 years of primary education completed	More than primary education completed	Low	Middle	High	Total[1]
Learning materials	10.0**[2a]	28.5[b]	55.6[c]	14.6**[a]	39.8[b]	65.6[c]	33.8 (31.3)
Stimulation for learning	25.9**[a]	41.6[b]	55.8[c]	33.4**[a]	47.7[b]	57.8[c]	43.4 (26.9)
Responsiveness	49.3**[a]	60.8[b]	74.3[c]	54.2**[a]	66.3[b]	77.0[c]	63.1 (28.0)
Power assertiveness							
None	36.3%**	48.0%	53.6%	43.6%**	50.8%	51.7%	47.8%
Moderate	28.1%	38.8%	36.0%	34.3%	37.2%	39.9%	36.4%
Intense	35.6%	13.2%	10.5%	22.1%	12.0%	8.4%	15.2%
Support from the neighbors	62.2**[a,b]	66.0[a]	60.5[a,b,c]	65.8**[a]	64.0[a]	58.8[b]	63.8 (20.5)
Physical resources of the neighborhood	23.0**[a]	33.0[b]	46.2[c]	25.8**[a]	38.3[b]	51.2[c]	35.4 (26.4)
TRLT receptive vocabulary score	-.456**[a]	-.084[b]	.474[c]	-.382**[a]	.211[b]	.597[c]	.025 (1.0)
ECBI-TR externalizing behaviors	35.6*[a,b]	34.9[a]	31.9[b]	35.7*[a]	33.3[a,b]	32.0[b]	34.1 (16.3)
ASBI-TR prosocial behaviors	60.3**[a]	64.0[b]	66.4[c]	61.3**[a]	65.8[b]	67.6[b]	64.2 (11.0)
N	135	500	267	399	325	178	902

Notes:

1. Standard deviations are given in parentheses.
2. Significant differences are indicated in the first cell for the characteristic considered: * $p<.05$; ** $p<.01$.
3. a,b,c superscripts indicate a significant difference of means, based on post-hoc comparisons.

The use of power assertive strategies for socialization also varied by maternal education and economic well-being. Overall, 15% of the mothers used intense power assertive methods. Intense power assertive socialization was more prevalent among the mothers who did not complete primary education, and among the mothers who had low economic status than those with primary education or more, and those who had middle or high economic status, respectively.

Support from the neighbors was associated with the indicators of SES, providing an advantage to the mothers of low SES (Table 3). Mothers who had completed primary education and mothers who had low economic status perceived higher levels of support than others. In contrast, physical resources of the neighborhoods (Table 3) were significantly positively associated with the indicators of SES, with families of high SES living in neighborhoods with high availability of amenities (d=0.88 and d=0.96, respectively).

The vocabulary development of children significantly and substantially differed by the indicators of SES, closely replicating the pattern of differences in the family resources (Table 3, d=0.93 for maternal education and d=0.98 for economic well-being). The ECBI-TR externalizing scores did not differ as strongly by the indicators of SES (d=0.23 for both indicators). The ASBI-TR scores differed by maternal education and economic well-being more strongly than the externalizing behaviors (d=0.55 and d=0.57, respectively).

Association of Family Resources, Neighborhood Resources, and Family Risk Factors with Children's Developmental Outcomes

In this section, we present the results of a series of regression models for children's TRLT vocabulary, ECBI-TR externalizing, and ASBI-TR adaptive social behavior scores, respectively. First, we present the models that included the control variables (child's sex, maternal age, number of children in the family, and rural/urban status) and the indicators of SES (Model 1). The SES indicators were contrast coded. There were two contrast variables each for maternal education and economic well-being. The first quantified the difference between middle and the lowest category, and the second quantified the difference between the highest and the middle category. Next, we present the models that also included the measures of family resources, family risk factors, and neighborhood resources (Model 2). The 3-category ordinal power assertion measure was contrast coded similar to the SES indicators. All mediation tests were based on Model 2. Finally, we present the results of the tests of hypothesized moderation effects (Model 3).

TRLT receptive vocabulary scores

Controlling for other socio-demographic characteristics of the families, the associations of the two indicators of SES with the TRLT vocabulary scores were significant (Model 1, Table 4, Path A in Figure 1). However, there was no significant difference between the TRLT scores of children of mothers who had less than primary education and those who completed primary education (β = .053, *n.s.*). When the family resources and risk factors, and neighborhood resources were included in the model, only the difference between low and middle economic status remained significant, suggesting strong mediating effects of the resources and the risk factor that were considered.

Table 4. Results of the regression analyses predicting the TRLT receptive vocabulary scores of 3 year-old children.

	Model 1		Model 2		Model 3	
Variables	*B*	*β*	*B*	*β*	*B*	*β*
Maternal education						
Difference between primary and less than primary	.156	.053	.019	.006	-.005	-.002
Difference between more than primary and primary	.261	.114**	.122	.053	.122	.053
Economic well-being						
Difference between middle and low levels	.422	.200**	.193	.092*	.158	.075
Difference between high and middle levels	.244	.093*	-.000	-.000	.077	.029
Learning materials			.009	.268**	.010	.289**
Stimulation for learning			.004	.093*	.004	.092*
Responsiveness			.007	.199**	.005	.135**
Power assertion						
Difference between intense and moderate power assertion			.025	.009	.025	.009
Difference between moderate and no power assertion			-.246	-.117**	-.217	-.104**
Social support from the neighborhood			-.001	-.019	-.001	-.021
Physical resources of the neighborhood			.001	.019	.001	.016
Interaction of maternal responsiveness with economic well-being:						
Responsiveness×difference between middle and low levels					-.006	-.079*
Responsiveness×difference between high and middle levels					-.005	-.052
R^2	.171		.312		.321	

Notes: All models included controls for maternal age, number of children, child's gender, and the rural-urban origin of the family. These coefficients are not listed.
+ p<.10; * p<.05; ** p<.01

As hypothesized, the availability of learning materials, stimulation for learning, responsiveness, and power assertive parenting, but not the neighborhood resources, significantly predicted the TRLT scores (Paths B and C in Figure 1). Furthermore, the

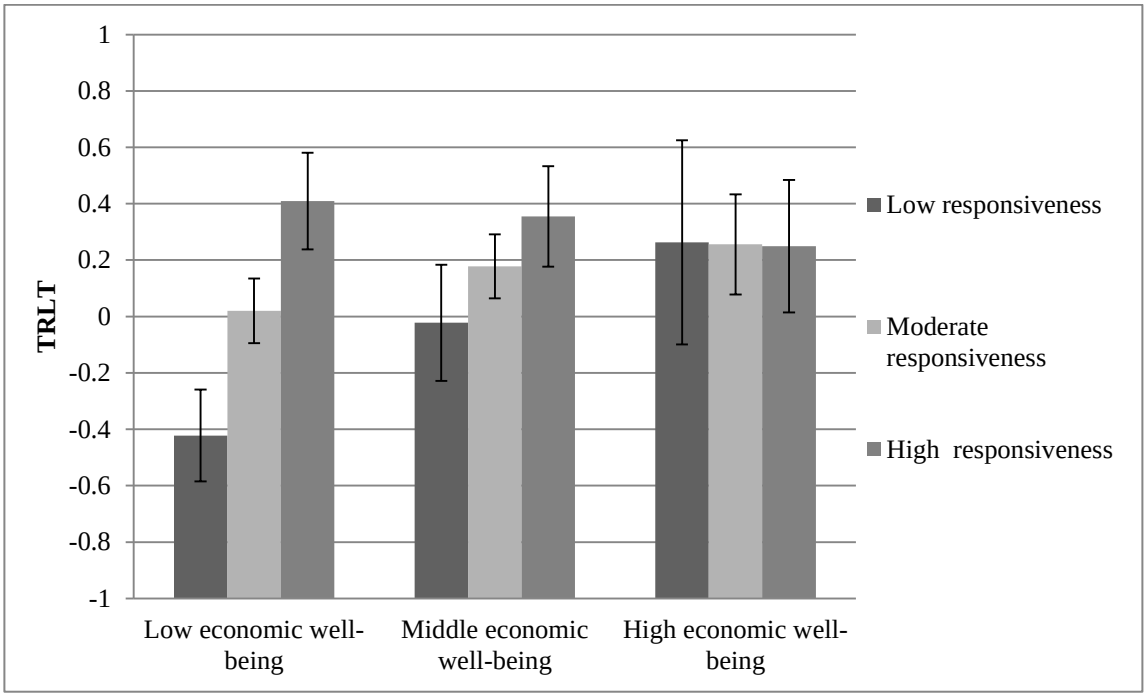
difference between moderate and intense power assertion was not significant. However, moderate power assertive parenting was significantly associated with higher TRLT scores than no power assertion, indicating a disadvantage of permissive parenting for vocabulary development. This finding may partly be due to the testing conditions and the mothers' role in ensuring the cooperation of 3 year-old children.

We conducted mediation tests to estimate the total and indirect associations of the measures of family resource and risk measures with the TRLT scores. The TRLT score differences between the children of the mothers with primary and more than primary education was significantly mediated by the availability of learning materials (indirect effect estimate: β =.061, p =.00), stimulation for learning (indirect effect estimate: β =.021, p =.00), and marginally by maternal responsiveness (indirect effect estimate: β =.024, p =.07). These three family resources also significantly mediated the economic well-being differences in the TRLT scores. The difference between low and middle economic status was mediated by the availability of learning materials (indirect effect estimate: β = .113, p =.00), stimulation for learning (indirect effect estimate: β = .029, p =.05), and maternal responsiveness (indirect effect estimate: β =.035, p =.01). The difference between middle and high levels of economic well-being was mediated only by the availability of learning materials (indirect effect estimate: β = .097, p =.00). The indicators of power assertive parenting did not significantly mediate the association of the indicators of SES with the TRLT scores.

We posited that maternal responsiveness might be a particularly effective resource for families of low SES (Path D in Figure 1). In this sample, there was substantial variation in maternal responsiveness in low and middle economic status

(interquartile range 50.0 and 37.5, respectively), but not in high economic status (interquartile range 12.5). We included in the regression model, two terms representing the interaction of two economic status contrasts with maternal responsiveness. The inclusion of these interaction terms significantly improved the R^2, $F(2,880) = 5.8$, $p = .00$. The coefficient of the interaction between the contrast of low and middle economic status and responsiveness was significant ($\beta = -.079$, $p = .04$) but not the contrast of middle and high economic status ($\beta = -.052$, *n.s.;* Model 3, Table 4). The probing of the significant interaction coefficient at varying levels of responsiveness indicated a trend for a larger difference between low and middle economic status when maternal responsiveness was low (-1.5SD; *B*=.400, 90% CI .198-.603) than high (+1.5SD; *B*=-.055, 90% CI -.256-.147). This finding is depicted via the predicted means in Figure 2.

Figure 2. Moderation of the association of maternal responsiveness with TRLT vocabulary scores by economic well-being.



ECBI-TR Externalizing Behavior Scores

Controlling for the background characteristics, only the difference in the ECBI-TR between the upper two categories of maternal education was marginally significant (Model 1, Table 5). The remaining SES indicators were not significantly associated with ECBI-TR (Path A in Figure 1).

Table 5. Results of the regression analyses predicting the ECBI externalizing scores of 3 year-old children.

	Model 1		Model 2		Model 3	
Variables	*B*	*β*	*B*	*β*	*B*	*β*
Maternal education						
Difference between primary and less than primary	-.492	-.011	2.310	.051+	2.531	.055*
Difference between more than primary and primary	-3.266	-.091+	-2.308	-.065	-2.426	-.068*
Economic well-being						
Difference between middle and low levels	-2.579	-.079	-.947	-.029	-.485	-.015
Difference between high and middle levels	-.588	-.014	.495	.012	-.411	-.010
Learning materials			-.034	-.065	-.037	-.071
Stimulation for learning			-.016	-.026	-.014	.023
Responsiveness			-.059	-.101**	-.028	-.048
Power assertion						
Difference between intense and moderate power assertion			-5.969	-.133**	-6.440	-.144**
Difference between moderate and no power assertion			-5.409	-.166**	-5.521	-.169**
Social support from the neighborhood			-.036	-.045	-.040	-.050+
Physical resources of the neighborhood			-.012	-.020	-.009	-.015
Interaction of maternal responsiveness with power assertion:						
Responsiveness×difference between intense and moderate power assertion					-.010	-.007
Responsiveness×difference between moderate and no power assertion					-.094	-.082+

Interaction of maternal responsiveness with economic well-being:				
Responsiveness×difference between middle and low levels			.011	.010
Responsiveness×difference between high and middle levels			.099	.067+
R^2	.057	.144	.154	

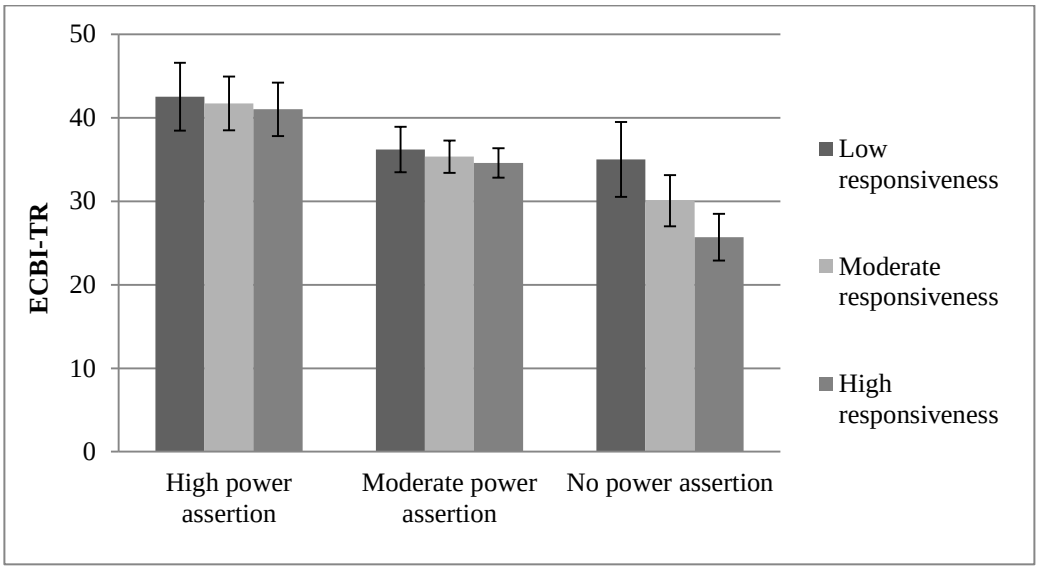
Notes: All models included controls for maternal age, number of children, child's gender, and the rural-urban origin of the family. These coefficients are not listed.
+ $p<.10$; * $p<.05$; ** $p<.01$

Only maternal responsiveness and maternal power assertiveness, but none of the other family or neighborhood resource measures were significantly associated with the ECBI-TR scores (Model 2, Table 5; Paths B and C in Figure 1). We conducted mediation tests for both of these measures. The association of the difference between the highest two categories of maternal education was partly due to mediation by maternal responsiveness (indirect effect estimate: β = -.012, p=.06).

We tested two interactions for externalizing scores. The association of power assertion with ECBI-TR was expected to be moderated by responsiveness and by economic well-being. In this sample, there was a substantial range of variation in responsiveness for each category of power assertion (interquartile range 37.5 for each category). The improvement in R^2 of the regression model was significant when the former interaction was included, $F(2,881) = 3.1$, p=.05. However, the addition of the latter interaction (Path D in Figure 1) did not improve the model fit significantly, $F(2,877) = 2.1$, *n.s.* There was a trend indicating that the difference between no power assertion and moderate power assertion depended on maternal responsiveness (β= -.085, p=.10). The coefficient indicating the difference between no and moderate power assertion was non-significant when maternal responsiveness was lower than the mean by

1.5 SD (*B*=-1.185, n.s.), but significant when maternal responsiveness was at the mean or higher than the mean by 1.5 SD (*B*=-5.272, *p*=.00 and *B*=-8.873, *p*=.00). Figure 3 provides the predicted ECBI-TR scores of the children whose mothers have varying levels of responsiveness and power assertion. Children whose mothers were highly power assertive had high ECBI-TR scores regardless of the level of responsiveness they received. Only when the level of power assertion was low, high levels of responsiveness were associated with low ECBI-TR.

Figure 3. Moderation of the association of maternal responsiveness with ECBI-TR externalizing scores by power assertion.



ASBI-TR Prosocial Behavior Scores

Controlling for the socio-demographic background characteristics, the ASBI-TR score differences between the lowest and middle level of maternal education and economic status were significant (Path A in Figure 1). However, the score differences

between primary and more than primary education of the mothers, and middle and high economic status were not significant (Model 1, Table 6). When family and neighborhood resources and the risk factor were included in the model, the only SES indicator that was significantly associated with the ASBI-TR scores was that quantifying the difference between the low and middle levels of economic well-being (Model 2, Table 6). Availability of learning materials, stimulation for learning, maternal responsiveness, maternal power assertion, and social support from the neighbors were significantly associated with ASBI-TR (Paths B and C in Figure 1).

Table 6. Results of the regression analyses predicting the ASBI prosocial behavior scores of 3 year-old children.

	Model 1		Model 2		Model 3	
Variables	*B*	*β*	*B*	*β*	*B*	*β*
Maternal education						
Difference between primary and less than primary	2.575	.083*	-.193	-.006	-.506	-.016
Difference between more than primary and primary	1.008	.042	-.145	-.006	-.261	-.011
Economic well-being						
Difference between middle and low levels	4.080	.184**	2.147	.097*	1.894	.085+
Difference between high and middle levels	1.327	.048	-.150	-.005	-.172	-.006
Learning materials			.057	.161**	.063	.179**
Stimulation for learning			.082	.200**	.078	.191**
Responsiveness			.046	.118*	.031	.079*
Power assertion						
Difference between intense and moderate power assertion			4.162	.138**	4.382	.145**
Difference between moderate and no power assertion			1.588	.072*	1.756	.080*
Social support from the neighborhood			.064	.119**	.088	.163**
Physical resources of the neighborhood			-.011	-.025	-.013	-.031
Interaction of maternal responsiveness with power assertion:						
Responsiveness×difference between intense and moderate power assertion					-.011	-.011
Responsiveness×difference between moderate and no power assertion					.031	.040
Interaction of maternal responsiveness with economic well-being:						
Responsiveness×difference between middle and low levels					-.071	-.093+
Responsiveness×difference between high and middle levels					.011	.011
Interaction of social support from the neighborhood with maternal education:						
Social support from the neighborhood×difference between primary and less than primary					-.138	-.105**
Social support from the neighborhood×difference between more than primary and primary					.006	.005
R^2	.080		.225		.241	

Notes: All models included controls for maternal age, number of children, child's gender, and the rural-urban origin of the family. These coefficients are not listed.

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

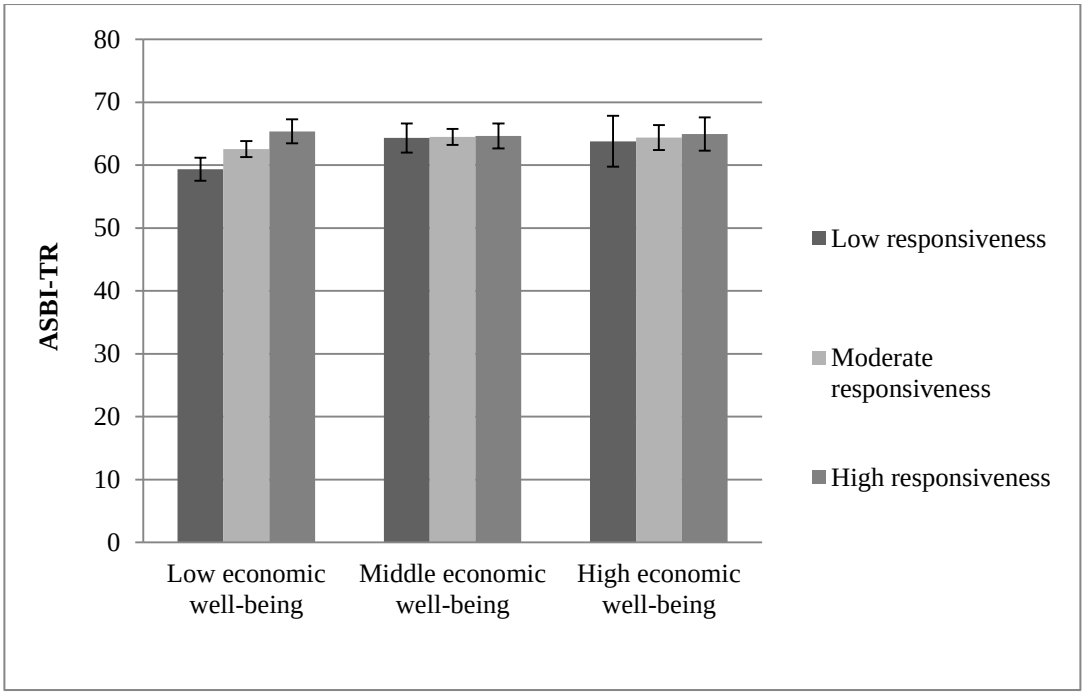
We conducted mediation tests to identify those resource and risk factor measures that mediated the association of the SES indicators with ASBI-TR. The difference between the ASBI-TR of children in the lowest two levels of maternal education was mediated by the availability of learning materials, stimulation for learning, and power assertive parenting (indirect effect estimates: β= .033 , p=.09; β=.037, p=.00; β= .024, p=.01, respectively). Support from the neighbors did not mediate this association. The difference between the ASBI-TR scores of children in the lowest two levels of economic well-being was mediated by maternal responsiveness and the availability of learning materials (indirect effect estimates: β= .020 p=.05 and β=.091, p=.00, respectively). Power assertive parenting and support from the neighbors did not mediate this association.

Three moderated pathways were hypothesized for the ASBI-TR (Paths C and D in Figure 1). The association of power assertive parenting with ASBI-TR was not significantly moderated by maternal responsiveness, $F(2,881)=.6$, *n.s*. The association of maternal responsiveness with ASBI-TR was significantly moderated by economic well-being, $F(2,879)=4.0$, p=.02. Furthermore, the association of support from the neighbors with ASBI-TR was significantly moderated by the level of education of the mother, $F(2,877)=4.6$, p=.01. These moderated associations were probed further.

The difference in the ASBI-TR scores of children in low and middle economic status depended on the maternal responsiveness. This coefficient was significant if maternal responsiveness was lower than the mean by 1.5SD (B=4.977, p=.00) or at the mean level (B=1.954, p=.02), but not if it was higher than the mean by 1.5SD (B=-.709, *n.s.*). As a result, maternal responsiveness was significantly associated with ASBI-TR

scores only in families of low economic well-being (Figure 4). In those families, ASBI-TR scores of the children were as high as the children of families with middle or high economic well-being if the maternal responsiveness was high.

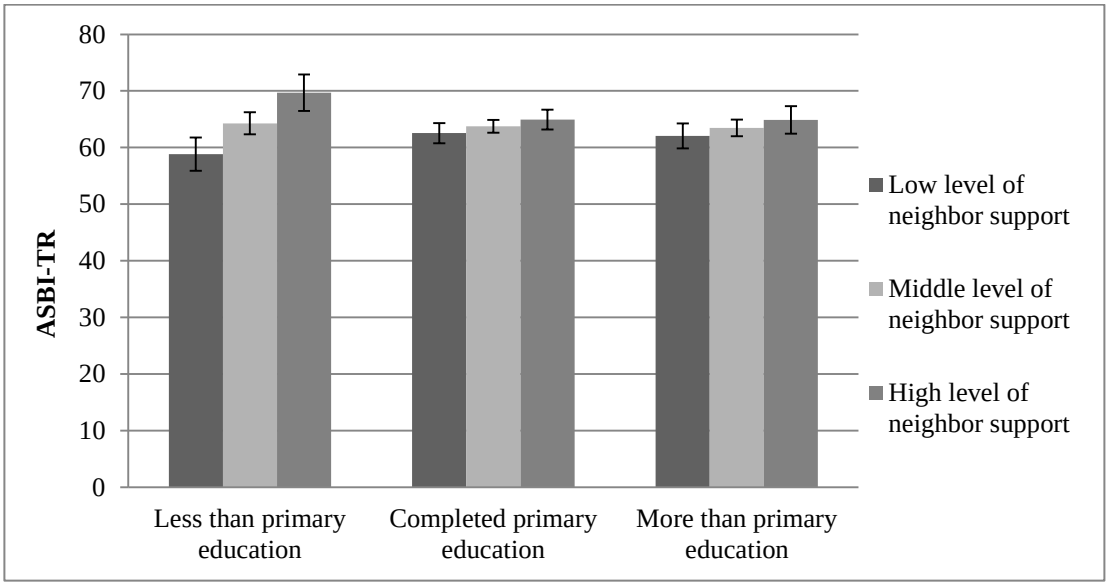
Figure 4. Moderation of the association of maternal responsiveness with ASBI-TR prosocial behavior scores by economic well-being.



The difference in the ASBI-TR scores of children in less than primary and primary education depended on the support from the neighbors. There was almost equal variation in social support among the mothers from each level of education (interquartile ranges for low, middle, and high levels were 28.6, 21.4, and 28.6, respectively). The coefficient contrasting the lowest two categories of maternal education was positive and significant when support from the neighbors was lower than the mean by 1.5SD (*B*=3.698, *p*=.03), non-significant when support was at the mean level (*B*=-.538, *n.s.*), but negative and significant when support was higher than the mean by 1.5SD (*B*=-

4.775, *p*=.01). The way this interaction played out, in terms of the predicted mean ASBI-TR scores is depicted in Figure 5. Only when maternal education was low, a high level of support from the neighbors was significantly positively associated with ASBI-TR (Figure 5).

Figure 5. Moderation of the association of support from the neighbors with ASBI-TR prosocial behavior scores by maternal education.



DISCUSSION

We focused on the consequences for three year-old children of their family SES. We presented data from a sample that aimed to be representative of the population of three year-old children in Turkey. There were significant and substantial SES differences in the characteristics of the family and neighborhood environments, and in the developmental indicators of these children. Owing to the use of measures that were comparable to other studies, the size of these differences could be qualitatively compared to those in the U.S., as discussed below.

We investigated the association of SES (indicated by maternal education and family economic well-being), three indicators of family resources (availability of learning materials, stimulation for learning, and maternal responsiveness), an indicator of a family risk factor (power assertion), and two indicators of neighborhood resources (physical resources and support from the neighbors) with developmental outcomes. It was possible to disentangle the role of maternal education from the role of economic well-being because these two indicators did not overlap in the middle and upper levels. Receptive vocabulary of children, externalizing behaviors, and prosocial behaviors were the outcomes considered. We investigated the mediating roles of the family resources and the risk factor, and neighborhood resources in the chain of associations that link SES indicators to developmental outcomes. We also investigated whether the links from the family and neighborhood resources to the developmental outcomes were moderated. This broad net of empirical analyses cast over these data, provided us with a good overview of the developmental processes that might be operating in this under-studied but large population (about 77 million and growing at an annual rate of 0.012; TSI, 2012).

In this study, we considered maternal education and economic well-being as ordinal indicators, although continuous distributions underlay both. This approach has the disadvantage of limiting variability, and therefore statistical power. At the same time, it has the disadvantage of being somewhat arbitrary. However, in our study, this approach had the advantage of allowing us to discover differential associations of SES indicators with children's outcomes over the range of SES. For example, the vocabulary scores of children were differentiated in the upper range of maternal education, and the

prosocial behaviors of children were differentiated in the lower range of maternal education.

Our analyses demonstrated that SES played a strong role in differentiating family and neighborhood environments of the three year old children. Children of low SES had access to fewer learning materials, received less stimulation for learning, received less responsiveness from their mothers, and were disciplined with a more power assertive approach than children of high SES. The orders of magnitude of these differences were large compared to the Western samples, underscoring the benefits of studying samples from different parts of the world. In the U.S., the effect sizes (*d*) for poverty status differences in stimulation for learning and maternal responsiveness were about 0.5-0.6, and 0.4-0.5, respectively (NICHD Early Child Care Research Network, 2005). The analogous differences (*d*) were approximately 1 and 0.8, respectively, in the current sample. These differences emerged whether SES was defined by maternal education or by family economic well-being. The reason for larger differences in this sample than in U.S. samples could be due to the wide range of SES and the culture of high power distance in Turkey.

There were also substantial differences in the developmental outcomes of children by SES, even at the age of three. Maternal education and family economic well-being were associated with large differences in receptive vocabulary ($d>0.9$), and moderate differences in externalizing and adaptive behaviors of the children (*d* just under 0.25 and just over 0.5, respectively). The effect sizes (*d*) for poverty status differences in receptive vocabulary in European American children were 0.5-0.6

(Bradley et al., 2001b; NICHD, 2005). Externalizing behavior problems differences were also small in U.S. samples, (*d* about 0.3; Bradley et al., 2001b; NICHD, 2005).

One reason for the large SES differences in receptive vocabulary in this sample may be that a vast majority of Turkish children spend their early childhood in the home environment, and therefore are particularly vulnerable to a lack of resources in that environment. Interestingly, the same reason may have resulted in slightly smaller SES differences in behavioral outcomes than in the U.S. (Bradley et al., 2001b). It was found that early child care that is not of high quality may result in an early increase in externalizing behaviors (McCartney et al., 2010). Turkish children who spend almost all of their time with their immediate family and community may be vulnerable to deficiencies in the family environment but may also be protected from the undesirable effects of low quality early non-maternal care.

Maternal education and family economic well-being were not always similarly associated with family and neighborhood resources, and children's developmental outcomes. It was possible to examine the separate effects of maternal education and ecoonomic well-being, because they were not strongly associated in this sample (see also Coddington et al., 2014). However, the families who were in the lowest category of economic well-being and the lowest category of maternal education somewhat overlapped. This may have confounded some of the findings pertaining to the differences between the lowest two categories of the SES indicators. The families and children who were of the lowest SES were especially deeply differentiated from the families of middle SES as compared to the differences between the middle and high SES. Furthermore, verbal and social developmental disadvantages of children in the

lowest SES families could not be accounted for by the differences in their family resources. These findings might be due to the combined effects of very low education and very low income. These findings also suggested that the repercussions of social stratification (the perception of lack of opportunity, power, and prestige) might be particularly severe for the children of families with very low SES in the context of a culture with a high power distance. Non-linear patterns of association of resources and developmental outcomes with economic well-being were also detected in the U.S. samples (Brooks-Gunn & Duncan, 1997).

We tested the extent to which the family and neighborhood characteristics mediated the association of SES with the three developmental outcomes of interest. Although these tests were informative, causal inferences might not be appropriate because in correlational designs such as the current study, there may be confounding variables that account for both the mediators and the outcomes biasing the tests of mediation (Imai, Keele & Tingley, 2010; Muthen, 2011). The differences in the developmental outcomes of children by the indicators of SES (especially between the middle and lower categories) were strongly, though not totally, mediated by the family developmental resources. For verbal and social development, differences in the availability of learning materials, stimulation for learning, and maternal responsiveness accounted for the SES differences. For behavioral development, differences in maternal responsiveness and power assertive parenting accounted for the SES differences.

Our analyses revealed much similarity and limited differences in the association of the family and neighborhood resources and the family risk factor with the developmental outcomes across families that differed in their SES. Specifically, the

provision of learning materials and stimulation for learning were similarly associated with the developmental outcomes regardless of SES. Availability of learning materials was positively associated with receptive vocabulary and adaptive social behavior, and the effect size was over 0.25 for receptive vocabulary. This is noteworthy, because given adequate funds, the provision of learning materials to children may be logistically easy to do.

Stimulation for learning was also positively associated with receptive vocabulary and prosocial behaviors. This resource could be especially salient in this sample because probably almost all children learned verbal and social skills primarily from their mothers due to limited formal preschool attendance and very low maternal employment. The effect size for stimulation for learning was substantial for prosocial behaviors, underscoring the importance of positive stimulating interactions for social development. Indeed, a parenting intervention in Turkey that was designed to promote cognitive development was found to improve behavioral outcomes as well (Kagitcibasi, Sunar, & Bekman, 2001). A similar finding was reported only for the children in poverty in the U.S. (Bradley et al., 2001b). Considering that most of the range of income in Turkey corresponds to the lower ranges in the U.S., stimulation for learning (a parenting skill that may be taught and learned) emerges as a valuable human capital to support both cognitive and social development of children whose families have limited financial capital.

The characteristics of the family environment that pertained to the emotional tone of the interactions were differentially associated with the developmental outcomes depending on the SES. This is noteworthy because this characteristic of the family

environment may be more a repercussion of social stratification than a consequence of limited financial or human capital. Warm and responsive parenting was a valuable resource for verbal, behavioral, and social development of children in families of low SES only. Thus, the families who could protect the well-being of the mother-child relationship despite socioeconomic hardship were able to protect the verbal and social development of their children from the ramifications of low SES in early childhood. As such, maternal responsiveness in this sample, was truly a protective factor (Rutter, 1987).

The current study had important findings pertaining to power assertive parenting. Our measure of power assertive parenting measured harsh verbal and physical punishment, and especially at its high end, it was not merely a measure of control. However, it was also not a measure of authoritarian parenting because it did not encompass parental rejection. Power assertive parenting was associated with negative developmental outcomes regardless of the concurrent presence of maternal responsiveness. Furthermore, maternal responsiveness was associated with a low level of behavioral problems only when mothers did not display power assertive behaviors. Power assertion also partly mediated the association of maternal education with behavioral and social development. These findings suggested that, as hypothesized, even moderate levels of harsh parenting might inhibit exploration, might result in coercive interactions between the mother and the child, and might constitute a negative role model, regardless of whether the mother was concurrently responsive.

Neighborhood resources were only associated with early childhood social development. Support from the neighbors was associated with a high level of prosocial

behaviors in children whose mothers had a low level of education. This resource acted like a protective factor: the children whose mothers did not complete primary education had prosocial behaviors that did not differ from their advantaged counterparts if the mothers received support from their neighbors. Thus, social support was a valuable resource for children whose mothers had limited human capital. Another study also pointed to the contribution of social support for the children of high risk families in Turkey (Baydar et al., 2014).

This study was a correlational study that intended to provide a broad overview of early childhood developmental ecologies in a sample from a large non-Western population. Although the data could not address causal developmental processes, the results were consistent with the expectations based on developmental theories. The present study is suggestive of areas of fruitful research that have longitudinal designs to delineate the processes that lead to optimal development in early childhood. Among these are the role of learning materials, stimulation for learning and maternal responsiveness in contributing to developmental trajectories for readiness for school. The characteristics of the current sample also suggest areas of applied research that might explore early childhood interventions other than institutional preschool education in societies where this modality is not preferred or not sought by the families.

CHAPTER 3

MOTHERS' POWER ASSERTION CONTRIBUTES TO THE TRAJECTORIES OF AGGRESSION IN EARLY CHILDHOOD

ABSTRACT

This study investigates the inter-individual variation in trajectories of aggressive behaviors in children. Based on the dynamic systems theory of antisocial behavior, we proposed a model of the association of trajectories of three different types of parenting behaviors (responsiveness, parental warmth, and power assertion) with the level and change in aggression in early childhood. Child gender, socioeconomic status, and the temperamental reactivity of the child were also considered. The data were from a longitudinal and nationally representative study of 1,009 children and their mothers from Turkey. Observers and mothers reported on parenting behaviors. Results indicated that: (i) on average, children's aggression declined by about 1SD in early childhood; (ii) maternal power assertion also declined during early childhood but that decline was small as compared to that of children's aggression; (iii) the change in maternal power assertion was positively and significantly associated with the change in child aggression such that a delay in the decline in power assertive behaviors by 1.5SD resulted in a 2-year delay in the decline in aggression when the children were 7; (iii) the association of temperamental reactivity with the trajectories of aggression was direct, and also mediated by the level and change in power assertive parenting behaviors; (iv) the simultaneous use of high maternal responsiveness and high power assertion was associated with increases in child aggression. These results highlighted the importance of power assertive parenting as factors to escalate the trajectories of aggressive behaviors in children that supported the dynamic systems theory.

Keywords: Aggression, early childhood, latent growth models, parenting, power assertion, maternal responsiveness, temperamental reactivity

INTRODUCTION

Most children are highly aggressive around the age of 2 (Hay, 2005; Lipscomb et al., 2011). As they get older, they learn to regulate their emotions and behaviors, they develop an understanding of others' thoughts and feelings, develop alternative and adaptive ways to manage their problems, and they develop an ability to flexibly adapt in the course of social interactions (Gurland & Grolnick, 2005; Rubin & Mills, 1990). It is well established, however, that some children's developmental trajectories diverge from this norm (Campbell, 2002). It is estimated that 3-8% of children age 3-6 display levels of aggression that are substantially higher than what is normative for their age (Fanti & Henrich, 2010; Campbell et al., 2006). This may be because of persistent rather than declining levels of aggression through early childhood, or it may be because of escalating levels of aggression during this period. The current study is focused on delineating familial factors that are associated with trajectories of aggressive behaviors in early childhood between ages 3 and 7.

It is particularly relevant to study the developmental trajectories of aggression during the years preceding school entry. At the time of school entry and during early years of school, aggressive children face substantial psychological, academic and social difficulties that set them up for poor outcomes in the long term (Hinshaw, 1992; Reef, Diamantopoulou, Meurs, Verhulst, & Van der Ende, 2010). A number of studies demonstrated that aggressive children tend to be rejected by their non-aggressive peers, setting them up for affiliations with aggressive and deviant peers who experience a multitude of problems in late childhood and adolescence such as substance use, delinquency, and difficulty with authorities (Dishion, Patterson, Stoolmiller, & Skinner,

1991). Aggressive children also suffer poor relationships with their teachers that lead to academic failure, a lack of sense of school belonging, and achievement problems down the line (Patterson, Reid, & Dishion, 1992). Furthermore, the rank order of aggression was substantially stable following school entry (Reef, Diamantopoulou, Meurs, Verhulst, & van der Ende, 2010).

We present findings on children's developmental trajectories of aggression based on 5-year longitudinal data from a nationally representative study of children in Turkey (Early Childhood Developmental Ecologies in Turkey, ECDET). We investigated the role of three proximate factors that might be associated with individual trajectories of aggression: trajectories of maternal warmth, trajectories of maternal responsiveness, and trajectories of maternal power assertion. We also considered an environmental factor, the family socio-economic status (SES), and two child factors, the gender and the temperamental reactivity of the child. We focused on overt aggression and its developmental trajectory during early childhood. The aim of the current study was to delineate the familial and child factors that could predict maladaptive trajectories that could jeopardize long-term academic and social outcomes.

Much developmental theory accounts for the way an individual is expected to develop or change. In this context, development and change is intuitively defined in comparison to the current status of the individual or, alternatively, in comparison to that individual's 'usual' status. However, much statistical analyses focus on the pattern of covariances (e.g., regression, path analyses, structural equation models) that define an individual's status in comparison to the average status of the sample (Reitzle, 2013). Thoughtful critique of this approach has been published (Fergusson & Horwood, 1988;

Hertzog & Nesselroade, 1987). In the current study, we focus on the individual developmental trajectories of aggressive behaviors, to account for *interpersonal differences in intra-individual change*. Moreover, we present a model that quantifies the association of intra-individual change in aggression over early childhood with intra-individual change in parenting behaviors of the mother.

Theoretical Framework

Several theoretical approaches delineated how familial factors could contribute to the development of aggression. Here, we adopted Granic and Patterson's (2006) dynamic systems theory of antisocial development that linked micro level real-time interactions between the mother and the child to developmental patterns of change in aggression (i.e., changes over "developmental time"). This theoretical framework combined the principles of systems theory with the principles of operant conditioning and observational learning, providing a comprehensive approach.

According to Granic and Patterson (2006), a common pattern of coercive interaction starts with a maternal demand from the child, and is followed by the child's aversive response, and the mother's retreat from the demand. These interactions result in mounting anger in both the mother and the child. The mutual displays of this anger lead to the consolidation of mutual negative appraisals by both the mother and the child. This pattern, when repeated over a number of situations and over a period of time, results in the formation of an "attractor" state and the interaction increasingly tends to this attractor. Once this happens, the mother-child dyad is pulled into this pattern of interaction increasingly frequently. Over time, alternative interaction patterns at the time of conflict are minimized and this coercive pattern will become dominant. The

opposition of the child increasingly rapidly results in the frustration of the mother that is expressed as anger and power assertive means of eliciting compliance. The child also experiences frustration and anger, and will learn power assertive strategies to achieve his or her goals. Over time, negativity, anger, and aggression between the mother and the child will escalate and solidify. The child does not develop alternative approaches to conflict resolution owing to the rigidity of the coercive interactions. His or her aggressive pattern of interaction becomes dominant in peer and adult interactions.

Predictors of Aggression in Early Childhood

A substantial body of research addressed the factors associated with aggression in early childhood. It was established that, in line with the theoretical framework outlined above, aggression in early childhood was positively associated with power assertive strategies of discipline (Patterson, 1982). Children of mothers who displayed high levels of power assertive parenting showed high levels of aggressive behaviors (Aunola & Nurmi, 2005; Baumrind, 1996; Deater-Deckard & Dodge, 1997; Narvaez et al., 2013). These negative parenting behaviors prevented children from developing self-regulation and social reasoning skills, resulting in an inability to resolve conflicts, cope with frustration, and moderate anger, resulting in aggressive behaviors (Baumrind, Larzelere, & Owens, 2010; Knafo & Plomin, 2006).

Responsive parenting, on the other hand, was associated with low levels of aggression (Denham et al., 2000; Sanders, 1999). Responsive and supportive interactions between the mother and the child pointed to “multistability”, i.e., alternative attractor states other than coercive and hostile states (Granic & Patterson, 2006). In addition, warm and loving interactions with the mother created a positive valence in the

relationship (Rohner, 2004). This positive valence had further benefits such as improving the regulatory abilities of children, and was found to be negatively associated with aggression in early childhood (Denham et al., 2000).

Some studies pointed to the complexity of the association of power assertive discipline and responsiveness with children's aggression. Children of parents who simultaneously displayed power assertion with over-responsiveness showed high levels of aggression and this was linked to the inconsistency in the parental approach to child demands (Chen, Liu, Li, 2000; Xu, Farver, Zhang, 2009). High levels of responsiveness could result in reinforcing the aggressive behaviors of children by tolerating their aggression and escalating child aggression eventually resulted in parental anger (Reid & Patterson, 1989; Xu et al., 2009). Studies with over-responsive parents found that children of parents who used inconsistent discipline displayed steepest increase in their aggressive behaviors especially when the parents also used high levels of punitive discipline (Fletcher, Walls, Cook, Madison, & Bridges, 2008; Luyckx et al., 2011).

Previous studies demonstrated that low socioeconomic status was associated with the development of aggressive behaviors in children (Brooks-Gunn & Duncan, 1997; Campbell et al., 2006; Gurland & Grolnick 2005; Knutson, DeGarmo, Reid, 2004; Mistry at al., 2002; NICHD ECRN, 2004; Patterson, DeBarsyshe, & Ramsey, 1989). This association was mediated by the psychological distress in the home environment and patterns of parenting behaviors. The psychological distress due to negative life conditions of socioeconomic disadvantage was associated with parents' emphasis on obedience, intrusive and controlling behaviors, use of power assertive strategies, low

levels of warmth, and low levels of responsiveness (Corwyn & Bradley, 1999; Gershoff, 2002; McLeod & Shanahan, 1993; McLoyd, 1990; Miller & Votruba-Drzal, 2013).

In addition to familial factors, aggression was associated with the temperamental characteristics of children. Reactive children had a tendency to display aggressive behaviors because of two reasons. First, reactive children had a low regulatory capacity resulting in an inability to regulate their emotions and behaviors (Deater-Deckard, Dodge, Bates, & Petit, 1998; Ursache, Blair, Stifter, & Voegtline, 2013). Second, because of deficits in their ability to regulate, temperamentally reactive children tended to elicit more negative, intrusive, coercive, and power assertive parenting (Bates, Bayles, Bennett, Ridge, & Brown, 1991; Bryan & Dix, 2009; Campbell, 1995; Rubin & Mills, 1988), they experienced less parental warmth and responsiveness than non-reactive children (Collins, Maccoby, Steinberh, Hetheringon, & Bornstein, 2000).

Trajectories of Aggression and Their Predictors

While research established that levels of aggression declined in early childhood, it also documented that some children's behavioral development lagged behind (Fanti & Henrich, 2010; Campbell et al., 2006; 2002; Underwood, Beron, & Rosen, 2009). The number of studies that focused on the predictors of intra-individual changes in aggressive behaviors was relatively few. Two types of research addressed the question of the association of changes in positive and negative parenting behaviors with the changes in aggression: basic longitudinal developmental research, and intervention research (particularly, evaluations of parenting interventions).

Many studies found that aggressive behaviors declined during early childhood (Jester, et al., 2005; Reef et al., 2010). Furthermore, children with a high initial level of

aggressive behaviors showed a decline in their aggression levels at a higher rate (Bongers et al., 2003; Prinzie et al., 2006), pointing to a negative association between the level of aggression and its rate of change. Very few studies documented an increase in trajectories of aggression in early childhood, except for extremely high risk groups (e.g., Munson, McMahon, & Spieker, 2001).

Basic research on the factors associated with the trajectories of aggression provided support to the theoretical framework presented above. High levels of negative parenting behaviors (e.g., coercion, power assertion), and low levels of positive parenting behaviors (e.g., responsiveness, affection) were related to both high initial levels of aggressive behaviors and slow declines in child's aggressive behaviors in different developmental periods (Fanti & Henrich, 2010; McFadyen-Ketchum, Bates, Dodge, & Petit, 1996; Prinzie, Onghena, & Hellinckx, 2006; Underwood et al., 2009). However, the association of maternal responsiveness with trajectories of aggression was not unanimously confirmed (e.g., Jester, et al., 2005).

Additional strong support for the influence of trajectories of parenting behaviors on the trajectories of child aggression comes from intervention research. Power assertive parenting behaviors got the most attention from intervention studies, as a factor that contributed to the development of aggressive child behaviors. Many intervention programs aimed at reducing negative parenting behaviors (e.g, inconsistent discipline, harsh and power assertive parenting) and promoting positive parenting behaviors (e.g., positive discipline strategies, positive play and interaction with children, the use of praise) in order to reduce children's aggression (Sanders, 1999; Reid, Webster-Stratton, & Baydar, 2004). Parent training programs were effective to reduce antisocial behaviors

and aggression, especially in early childhood years (Kaminski, Valle, Filene, & Boyle, 2008; Piquero, Farrington, Welsh, Tremblay, & Jennings, 2009; Reid et al., 2004). Moreover, children with the highest initial levels of aggressive behaviors and children of mothers with the highest levels of negative parenting benefited most from the intervention programs (Reid et al., 2004). Thus, it was inferred that the changes in the parenting behaviors could lead to changes in aggressive behaviors.

The Context of the Current Study

The ECDET study was conducted in Turkey, a country located between Europe and the Middle East, with a population of about 73 million (OECD, 2010, http://stats.oecd.org/Index.aspx?DataSetCode=AEO_TAB13_DEMOGRAPHIC_INDICATORS#). The population of Turkey is young (36% of the population under 15 years of age) and its economic well-being is modest (per capita GDP for Turkey and the USA were about $14,000 and $47,000, respectively, in 2008).

The social context of the present study suggests that the findings may differ from those of similar studies with North American samples. Particularly relevant here, is the cultural differences pertaining to parenting behaviors and expectations from children. The Turkish society recently experienced a change from a traditional and agricultural society to a modern and industrial society. The cultural norms governing interpersonal relations lagged behind this change (Sunar & Fisek, 2005). Turkey was ranked the 37th out of 93 countries (Hofstede, Hofstede, & Minkov, 2010) in collectivism-individualism scale that implied an emphasis on close relationships, family dependency and obedience to family rules (Kagitcibasi, 1996).

Turkish children are raised in the family environment. Few children attend preschool and few mothers work (OECD, 2009). The current sample was no exception (98% at age 3, 94% at age 4, and 91% at age 5 attended no non-maternal care). It was repeatedly shown that Turkish parents used high levels of intrusive and power assertive strategies in disciplining their children, accompanied by a high level of warmth (Akcinar & Baydar, 2014; Kagitcibasi, 1996; Kircaali-Iftar, 2005). This social context provided an excellent opportunity to study the influence of the trajectories of parental power assertiveness, warmth, and responsiveness on the trajectories of child aggressive behaviors.

Hypotheses

Similar to the previous studies of aggression in early childhood (Calkins, 1994; Hay, 2005), we expected that aggressive behaviors would decline between the ages of 3 and 7 because children would learn to regulate their emotions and behaviors in the face of frustration, and would be able to think of alternative strategies to resolve conflict. We expected that this decline would have considerable inter-individual variation, such that a small proportion of children might even have increasing trajectories of aggressive behaviors. We similarly expected that power assertive parenting behaviors would decline over early childhood, as children develop their regulatory capacities and their language skills. These maturational changes would imply that they would require less behavioral control and when they did require such control, verbal reminders would be adequate. We did not expect a trend in maternal warmth during early childhood. Changes in maternal warmth could arise from family conditions such as economic stress, birth of a sibling, or maternal depression (Conger et al., 1992; McLeod & Shanahan,

1993; Jenkins, Rasbash, & O'Connor, 2003), but not because of the maturation of the child between the ages of 3 and 7.

We expected that maternal responsiveness would increase during early childhood because the child would be increasingly articulate about his or her needs, facilitating the communication between the mother and the child. Especially in the Turkish context, where a vast majority of children do not attend to preschool and were cared for by their mothers, we expected the mother to develop her capacity to be responsive to her child. We also expected that there would be substantial interpersonal variation in the level of maternal responsiveness, and maturational changes in it. The mothers who supported the autonomy of their children and who communicated well with their children would be increasingly responsive, where others who tended to be power assertive would have persistently low levels of responsiveness, or might even become less responsive over time.

Level and deviations from maturational change in aggressive behaviors were expected to be strongly and positively associated with the level and change in maternal power assertive behaviors. When maternal power assertive behaviors increased in intensity and frequency over early childhood, we expected three processes to take a hold. First, coercive interactions would become an increasingly stronger attractor triggering anger in both the mother and the child. Second, the maternal power assertive behaviors would be an increasingly stronger model of addressing conflict and dealing with anger for the child. Third, a child's capacity to self-regulate would diminish when he or she experienced a high frequency of anger (Baumrind, 1996; Baumrind et al., 2010).

We expected that a high level of maternal warmth would be associated with a low level and a declining trajectory of aggressive behaviors because a high level of warmth would moderate escalation of anger between the mother and the child. This would then circumvent the negative valence and the escalation of anger that often accompanied real time coercive interactions (Granic & Patterson, 2006; Rohner, 2004). In addition, a positive valence in mother-child interactions would improve the self-regulatory abilities and could signal the presence of alternative attractors (Denham et al., 2000). In developmental time, these real time processes would imply a negative association of maternal warmth with child aggressive behaviors and the likelihood of persistently high aggressive behaviors during early childhood (Landry, Smith, Swank, Assel, & Vellet, 2001).

The level of maternal responsiveness would be negatively associated with the level of child aggression because of positive real time interactions, alternative attractors in the mother-child system, and because of modeling by the mother, of positive responses to others' needs and requests (Denham et al., 2000; Granic & Patterson, 2006; Sanders, 1999). Supportive parental behaviors could also reduce the instances of frustration, reducing the level of anger in mother-child interactions. However, we also expected that a combination of a high level of power assertion with a high level of responsiveness (i.e., inconsistent parenting behaviors) would signal a likelihood of increasing coercive interactions over time (Granic & Patterson, 2006), and would therefore predict undesirable trajectories of aggressive behaviors.

Family SES was expected to be indirectly associated with the level and change in aggressive behaviors, through its association with the level and change in parenting

behaviors. Family SES was shown to be negatively associated with power assertive and positively associated with warm and responsive parenting. Further, low SES families had a number of stresses in their lives, lived in more crowded conditions, and perceived less safety in their homes and neighborhoods than their high SES counterparts (Baydar & Akcinar, 2014; Coleman, 1988, Conger et al., 1992; Cox & Paley, 1997). Therefore, mothers of low SES were expected to remain more power assertive and less autonomy granting with their children than mothers of high SES (Corwyn & Bradley, 1999; McLoyd, 1990; Miller & Votruba-Drzal, 2013), even as their children matured. Family SES was not expected to be associated with maternal warmth. However, family SES was expected to be positively associated with maternal responsiveness and increases in maternal responsiveness during early childhood. Particularly high maternal education (a component of SES) was expected to be associated with positive modeling, self-efficacy in parenting, and recognition of the child's changing needs due to maturation.

We expected that child reactivity would be associated with high levels of maternal power assertion because reactive children tended to be more difficult to manage than non-reactive children (Jenkins et al., 2003; Paulussen-Hoogeboom, Stams, Hermanss, & Peetsma, 2007). Temperamental characteristics tended to be relatively stable (Hagekull, 1989). Nevertheless, reactive children were expected to develop regulatory skills as they matured and maternal power assertion could decline during early childhood, albeit later than for non-reactive children. Reactive children were expected to have higher aggression than non-reactive children in early childhood (Bradley & Corwyn, 2008; Rothbart & Bates, 1998). We did not have a strong hypothesis about the association of reactivity with the trajectories of aggression.

Because the temperamental differences were expected to become less pronounced as children matured, the decline in their aggression could be rapid, helping catch up with non-reactive children as one longitudinal study suggested (Cabrera, Hofferth, & Hancock, 2014).

We included child gender in our models because of higher aggression in boys than in girls (Prinzie et al., 2006). Testing gender differences in behavioral trajectories was not a goal of the current study. We did not expect maternal warmth and responsiveness, nor changes in maternal responsiveness to be different for boys and girls. We also did not expect declines in aggression in early childhood to be gender specific. Nevertheless, we included gender in our models as a control.

METHOD

Sample

The data were obtained from the ECDET study, a five year longitudinal study of a nationally representative sample of children from Turkey. At the baseline, the children were between 36 and 47 months of age (for detailed information and access to the data, see http://tecge.ku.edu.tr). The analyses presented here used data collected annually from the same sample between 2008 and 2012. The eligibility of the participants were determined by the age of the children and the mothers' ability to speak sufficient Turkish to respond to the survey questions. The adult participants were the female primary caretakers of the children who were the biological mothers of the children in almost all cases except for seven families where the mother figure was the grandmother (0.7%). The sampling procedure and the representativeness of the sample were discussed elsewhere (Baydar & Akcinar, 2014).

The analyses presented here used a sample of 1,009 mother-child dyads who were interviewed when the children were 3 years old, eliminating 43 dyads who provided inadequate information to compute the socio-economic status of the family. The sample sizes for each of the five waves were 1,009, 879, 837, 786 and 762, respectively. A brief attrition analysis is presented in the Results. The procedure of ECDET consisted of in-person interviews with the mothers, assessments of the mothers and the children, and observations by trained interviewers in the homes of the participants.

Measures

Children's aggressiveness, children's reactivity, a majority of the indicators of SES, about half of the items pertaining to parenting behaviors, and children's sex were reported by the mothers. Another half of the items on parenting behaviors and two of the SES indicators were reported by the observers.

Child Aggressiveness. The measure of aggressive behaviors was based on a subset of the items of the Turkish adaptation of the Eyberg Child Behavior Inventory (ECBI-TR). The ECBI (Eyberg & Robinson, 1983) measured conduct problems of children between the ages of 2 and 17. It consisted of 36 items describing potentially problematic behaviors. The ECBI-TR was adapted for use with Turkish mothers (Batum & Yağmurlu, 2007; Baydar et al., 2007) where the frequencies of occurrence of behaviors were rated on 5-point scales instead of the original 7-point scales. The 9-item aggression intensity scale (e.g., "Fights with the peers", "Hits parents"), was used in the present research (range 0-100, α= .80 to .93 for ages 3-7). This scale measured both proactive and reactive overt aggression. It did not measure relational aggression. Higher

scores indicated more aggressive behaviors and/or more frequent occurrence of aggressive behaviors.

Reactivity. Child temperament was measured with the 30-item Short Temperament Scale for Children (STSC; Prior, Sanson, & Oberklaid, 1989). The Turkish adaptation of this measure (Yagmurlu & Sanson, 2009), maintained the original dimensional structure of STSC, however the rating scale in ECDET was changed to a 5-point scale. The reactivity subscale had 9 items (e.g., "When upset or annoyed at a task, my child throws things, screams, or slams doors", "(S)he has difficulty getting over her anger", "When (s)he opposes something, this resistance can go on for months"), and was assessed at the baseline interview. Higher scores indicated a higher level of reactivity (range 0-100, α=.75).

Parenting Behaviors. We used measures of three different dimensions of parenting: power assertion, warmth, and responsiveness. Five consecutive annual assessments were available for each dimension, based on both maternal reports and observer reports. The self-report items came from the Turkish adaptations of the Parenting Questionnaire (PQ-TR) and the observer reports came from the Home Observation for the Measurement of the Environment (HOME-TR).

The original PQ (Sanson, 1994) consisted of 30 self-report items on the frequency of specific parenting behaviors. It had four subscales: obedience demanding behavior, punishment, parental warmth, and inductive reasoning. PQ-TR (Yağmurlu & Sanson, 2009) also had 30 items that were rated on 5-point scales.

The original HOME was an observational instrument (Bradley, 1981)**.** A subsequent revision of HOME for large scale studies included both maternally reported

and observational items (Bradley et al., 2001a). The early childhood (ages 3-5) and middle childhood (ages 6-7) versions of HOME -TR were adapted for ECDET (Baydar & Bekar, 2007; Baydar & Akcinar, 2010). The early childhood version included 52 closed-ended items that were modified in order to render them relevant to the living conditions of Turkish children (R. H. Bradley, personal communication, May 20, 2008). The items pertained to positive and negative parenting behaviors, the mother's verbal interactions with the child, the quality of the physical environment of the home and the neighborhood, and activities and materials provided to the child. The middle childhood version of HOME-TR consisted of 56 items. In addition to the content of the early childhood version, it included items that assessed the household responsibilities of the child.

In the original dimensions of PQ-TR and HOME-TR, warmth and responsiveness were combined in a single dimension. In longitudinal analyses we expected that warmth would be mostly stable and responsiveness could change as the child matures. Therefore, we constructed separate scales for warmth and responsiveness, although cross-sectionally, the two dimensions are highly correlated.

Power assertive parenting. Two measures were used for power assertive parenting: the punishment scale of PQ-TR, and the power assertive parenting scale of HOME-TR. The PQ-TR punishment scale had 8 items (e.g., "When my child misbehaves, I use physical punishment"; range 0-100, α between 0.82 and 0.86 for the five years). There were six items in HOME-TR that assessed power assertive parenting behaviors (e.g., "Mother addressed the child in a harsh manner, scolded at or made derogatory remarks about him/her.", "Mother hit, slapped or otherwise physically

punished the child."). Three of these items were based on the observation of a physical or harsh verbal punishment by the interviewer, and the remaining three were maternally reported (range 0-100, α between 0.60 and 0.65 for the five years). In models of change in aggressive behaviors, the two measures of power assertive parenting were combined in a latent variable for each year.

Maternal warmth. This scale was developed for the current study, and had 9 items that combined the items pertaining to the positive affect in mother-child interactions in PQ-TR and HOME-TR. Five of these items were maternal reports and four items were observer reports (e.g., "I express my love to my child by kissing, cuddling, and hugging him/her", "When speaking to the child, parent's voice conveys positive feelings"; range 0-100, α between 0.70 and 0.77 for the five years of data).

Maternal responsiveness. Maternal responsiveness scale was developed for this study by combining the relevant items of PQ-TR and HOME-TR. Due to the differences in the early childhood and middle childhood versions of HOME-TR, there was a slight variation in the scale for ages 3-5 and 6-7. The responsiveness scale for ages 3-5 had 13 items and the scale for ages 6-7 had 12 items. Four of these items came from PQ-TR and were identical for all ages (e.g., "I try to soothe my child, when s/he feels sad or scared".) One maternally reported item from the HOME-TR was also identical for all ages ("How often do you take the child to outings that are planned specifically for his/her enjoyment"). Among the observer reports, 6 items were identical for all ages (e.g., "The mother listens to the child and encourages him/her to speak."). One of the items present in early childhood version ("The mother encouraged the child to perform a skill for the visitor, such as singing or drawing") was not repeated in the middle

childhood version of HOME-TR. This item was imputed for the middle childhood version using random imputation and information from the identical items. The scale range was 0-100 and α was between 0.72 and 0.84 for the five years of data.

Socioeconomic Status. The data for the socioeconomic status of families came from the first wave of data collection. A factor score was calculated on the basis of three indicators: maternal education, paternal education, and a composite measure of family economic well-being that combined information on the material possessions of the family (e.g., a car, a dishwasher, a computer), the monthly per person expenditures of the household, the real or estimated value of the family residence, and the physical quality of the home and the neighborhood environments reported by the observer (Baydar et. al., 2014).

School Indicator. A variable indicating whether the child attended school at age 6 interview was created to account for possible effects of school entrance on parent and child behaviors. In Turkey, preschool attendance is nearly null (2% of 3 year-old children in the current sample). Children are expected to start school in September if they complete 6 years of age before December 31st. However, many parents delay school till age 7. In this sample, only 51% of children attended school at the time of the age 6 interview.

Statistical Methods

In order to allow an evaluation of the quality of the longitudinal data, we provided simple descriptive information about the sample that was lost from follow-up and the sample that was retained. The comparisons of the two samples were made with

2-sample t-tests for interval level variables, and with χ^2-tests for ordinal and nominal variables.

The focus of the current study is on intra-individual change in aggression and parenting behaviors. In order to understand the nature of these trajectories and factors associated with their inter-individual variation, we adopted latent growth models (LGM). All analyses were conducted with MPLUS version 7.11 (Muthen & Muthen, 1998-2012). First, we conducted analyses investigating whether age trajectories of aggression and parenting behaviors could be represented with a linear, quadratic, or a higher order polynomial pattern. When a pattern was established, we investigated if the parameters of that pattern significantly varied in this sample. This was needed because our model aimed to estimate the association of the inter-individual differences in the trajectories of aggression with the inter-individual differences in the trajectories of change in parenting behaviors.

The modeling of intra-individual change. The specification of the time scale of the trajectories of aggression and parenting behaviors required some thought. The participants of ECDET were interviewed once a year in a time span of about 4 months. The children's ages varied slightly at each interview, and not all interviews were exactly 12 months apart. Because of the young age of the participants when there was much maturational change, the trajectories could most accurately be modeled when the time scale was specified as age. Because the home visits were not exactly 12 months apart, there was individual variation in baseline age and in subsequent time points of observation. This variation could be taken into account by using a LGM that accounted for the variation in the timing of observations. However, there were several

disadvantages of this modeling strategy: (1) the models were numerically more difficult to estimate than the models with fixed time points of observation; (2) the goodness of fit indices that could be estimated for these models did not allow the testing of alternative nested specifications; (3) standardized coefficients could not be estimated with this strategy; and, (4) mediation testing was not possible and the estimation of moderation effects were numerically too burdensome. The models that accounted for the variation in timing of the interviews, however, had the obvious advantage of accounting for the maturational differences between the children and the varying amounts of time elapsed between observations. We therefore followed the following strategy: we estimated the trajectories of change in child aggression and parenting behaviors using both approaches. The goodness of fit of these two approaches were qualitatively compared using AIC and BIC fit statistics. Upon confirmation that the two models led to extremely similar conclusions with AIC and BIC statistics that were virtually indistinguishable, further multivariate analyses were conducted using the simplified (fixed time points) specification, where the time points were fixed at average time between home visits for the entire sample.

The modeling of inter-individual differences in change. The inter-individual variation in developmental trajectories can be represented via two alternative models: a model where a limited number of discrete "types" of trajectories are represented, and a model where a continuous distribution of trajectories are represented. In the current study, we investigated the fit of alternative representations of variation in trajectories of child aggression and parenting behaviors. For a model of discrete types of trajectories, we estimated Latent Class Growth Analyses. These models identified whether there

were clearly delineated groups of participants with trajectories that had a high level of within group similarity but were distinct from other groups. If they were confirmed, we could then model the probabilities of being in a certain class of trajectories on the basis of trajectories of parenting behaviors and other predictors. Similar to another recent test of discrete versus continuous treatment of inter-individual differences in trajectories of aggression (Walters & Ruscio, 2013), we found no support for models of discrete types of trajectories. We presented these findings and we proceeded with modeling continuous distributions underlying the inter-individual variation in trajectories of change. We estimated a multivariate structural model of level and change in aggression (i.e., a multivariate LGM for aggression).

RESULTS

Table 1 compares the characteristics of the children and their families who were lost from follow-up during the study (N=249), and those who had complete data (N=760). Those who were lost to follow-up had higher SES, higher maternal education, lower birth order, and the children were of slightly younger age than the others. High SES could imply a high rate of mobility for young families, resulting in higher rates of attrition than low SES families. The attrited sample was no different from those who were retained in terms of gender, maternal age, child aggression, child reactivity, and any of the parenting behaviors considered here.

Table 1. Comparison of participants by follow-up status.

	Follow-up	Lost to Follow-up	t or χ^2-statistic	*p*
Socio-economic status of the family	-.045	.138	2.3	0.03
	.936	1.166		
Age of the mother at baseline	30.3	29.7	1.4	0.17
	5.8	5.7		
Age of the child in months at baseline	41.7	41.0	2.6	0.01
	3.6	3.6		
Boy[1]	54.7	57.0	0.5	0.64
Birth order of the child[1]			24.9	0.00
1	47.8	65.9		
2	29.7	20.5		
3	12.5	7.2		
4 or higher	7.5	1.6		
Maternal education[1]			24.2	0.00
Less than primary	14.3	16.9		
Primary completed	57.5	41.8		
Some secondary	10.8	12.4		
Secondary completed	12.4	22.9		
Some college or more	5.0	6.0		
Reactivity of the child at baseline	49.3	49.8	0.5	0.64
	16.3	16.7		
Aggression score	37.3	36.9	0.2	0.83
	19.4	20.0		
Mother's depressive symptoms score	14.7	14.5	0.2	0.87
	17.9	19.1		
Power assertiveness – Observer	12.1	11.0	1.0	0.34
	17.0	16.2		
Power assertiveness – Self report	29.8	28.7	0.9	0.36
	17.1	17.1		
Maternal warmth – Combined observer and self reports	82.6	82.2	0.3	0.75
	17.5	16.4		
Maternal responsiveness – Combined observer and self reports	67.6	67.7	0.1	0.94
	20.5	21.4		

Note: The quantities given are percentages. Comparisons of the samples were conducted with a χ^2-test.

Table 2 provides the means and standard deviations of ECBI aggression scores, and the four measures of parenting behaviors. Only age 3, age 5, and age 7 measures were given in this table for the sake of parsimony. Two-year autocorrelations between aggression scores were around 0.4-0.5, very similar to other studies (e.g., Lipscomb et al., 2011; Lee, Altschul, & Gershoff, 2013). Autocorrelations between maternal reports of power assertive parenting were higher (0.3-0.4) than the observer reports (0.2-0.3) probably because observer reports were more strongly influenced by situational factors. Autocorrelations between responsive parenting and maternal warmth were around 0.3. These autocorrelations point at some stability but not a high level of stability, underscoring early childhood as a period of change in mother-child relationships. Cross-domain correlations revealed much stronger correlations of aggression with power assertive parenting than with responsiveness and warmth. Concurrent correlations between power assertive parenting and responsive parenting were negative and in -0.3 to -0.4 range, indicating a tendency towards highly power assertive parenting to co-exist with a low level of responsiveness. The concurrent correlations between power assertive parenting and maternal warmth were rather low, though significant because of the large sample size.

Table 2. Descriptive Statistics of the Study Variables

	Mean (SD)	N	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age 3 ECBI Aggression	37.18 (19.51)	1009	.42**	.34**	.41**	.24**	.21**	.32**	.23**	.17**	-.13**	-.11**	-.13**	-.10**	-.10*	-.11**
2. Age 5 ECBI Aggression	26.78 (19.64)	836		.51**	.30**	.49**	.30**	.30**	.40**	.25**	-.18**	-.20**	-.17**	-.13**	-.13**	-.17**
3. Age 7 ECBI Aggression	20.57 (17.68)	761			.23**	.26**	.39**	.18**	.23**	.36**	-.23**	-.21**	-.24**	-.19**	-.19**	-.24**
4. Age 3 M.R of power assertion	29.53 (17.10)	1009				.33**	.29**	.46**	.27**	.17**	-.22**	-.20**	-.15**	-.31**	-.18**	-.13**
5. Age 5 M.R of power assertion	27.61 (17.65)	837					.40**	.27**	.51**	.24**	-.16**	-.34**	-.20**	-.10**	-.33**	-.21**
6. Age 7 M.R of power assertion	26.03 (17.99)	761						.21**	.28**	.43**	-.13**	-.17**	-.40**	-.16**	-.17**	-.47**
7. Age 3 O.R of power assertion	11.88 (16.82)	1009							.30**	.11**	-.10	-.19**	-.10*	-.20**	-.16**	-.11**
8. Age 5 O.R of power assertion	13.71 (16.43)	817								.19**	-.13**	-.36**	-.20**	-.15**	-.36**	-.22**
9. Age 7 O.R of power assertion	15.74 (18.90)	760									-.17**	-.12**	-.25**	-.17**	-.14**	-.35**

10. Age 3 Responsiveness	67.64 (20.72)	1009			.32**	.33**	.60**	.34**	.25**
11. Age 5 Responsiveness	68.71 (17.87)	820				.37**	.24**	.78**	.32**
12. Age 7 Responsiveness	68.80 (16.56)	760					.24**	.32**	.75**
13. Age 3 Warmth	82.48 (17.22)	1009						.26**	.21**
14. Age 5 Warmth	74.89 (19.51)	837							.28**
15. Age 7 Warmth	81.11 (17.42)	761							

Notes. M.R.: Maternal Reports; O.R.: Observer Reports; ** p<.01, * p<.05.

Intra-individual Change and Its Inter-individual Variation

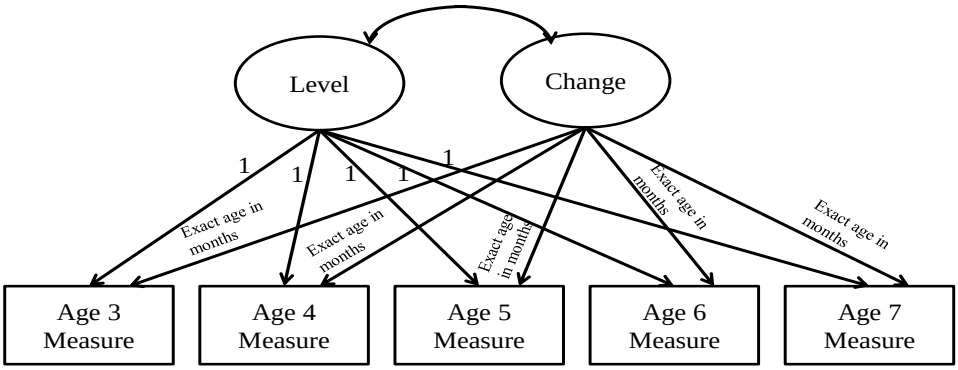
In the following four sections, we present the results of analyses establishing: (1) the patterns of intra-individual change, and (2) the extent and type of inter-individual variation in trajectories of change in aggressive behaviors and the three parenting measures that we considered. Model comparisons for all of these models were based on the AIC and BIC values given in Table 3.

Table 3. Comparison of models of intra-individual change in aggressive behaviors of children, maternal power assertion, and maternal responsiveness.

	Aggressive Behaviors		Maternal Power Assertion		Maternal Responsiveness	
Model	AIC	BIC	AIC	BIC	AIC	BIC
Individually varying time points and a linear trajectory	37,811	37,861	74,269	74,378	37,817	37,867
Individually varying time points and a quadratic trajectory	39,780	39,825	76,290	76,394	39,925	39,969
Fixed time points and a linear trajectory with continuous variation in the trend	37,812	37,862	74,268	74,377	37,818	37,868
Fixed time points and a linear trajectory with 2 latent classes	37,971	38,021	74,324	74,433	37,852	37,902
Fixed time points and a linear trajectory with 3 latent classes	37,782	37,847	74,208	74,332	37,769	37,834
Fixed time points and a linear trajectory with 4 latent classes	37,721	37,800	74,136	74,275	37,690	37,770
Fixed time points and a linear trajectory with 5 latent classes	37,680	37,774	--	--	37,671	37,765
Fixed time points and a linear trajectory with 6 latent classes	37,673	37,783	--	--	--	--

Trajectories of aggressive behaviors. The mean level of aggressive behaviors gradually declined over early childhood from a mean of 37.2 at age 3 to a mean of 20.8 at age 7 (Table 2). In order to explore the intra-individual trajectories of aggressive behaviors, we estimated a linear latent change model with individually varying time points of observation, as depicted in Figure 1. The results of this model pointed to gradually declining trajectories during the early childhood period spanning age 3 to 7. The estimated monthly rate of decline was -.311 (p<.001), on a scale of measurement that ranged from 0 to 100. An average 3 year-old who had an aggressive behavior score of 37.2, was expected to have a score of 22.3, by the time s/he was 7. There was significant variation in both the intercept and the slope of the linear trajectories ($\sigma^2_{intercept}$= 280.9, p<.001; σ^2_{slope}= .024, p=.015). As expected, the latent level and linear change were negatively associated ($\sigma_{intercept, slope}$=-1.677, p=.013), indicating that the decline in aggression would be more precipitous, the higher the level of aggression at age 3. The estimated slope and its variance indicated that about 3% of the children had escalating trajectories of aggressive behaviors.

Figure 1. The latent growth model for the trajectory analyses of ECBI aggression, maternal warmth and maternal responsiveness.



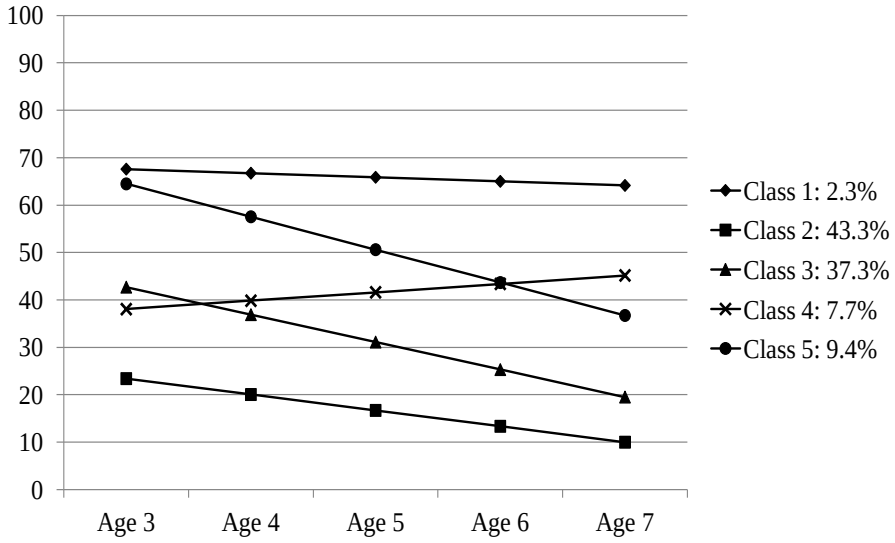
Note: The coefficients of latent change were fixed at values that represented the average duration between interviews for the models with fixed time points of observation.

We investigated whether the aggression scores had a quadratic trajectory, using a similar latent growth model. The findings indicated that the trajectories were largely linear. The model with a quadratic term had many indicators of a very poor fit (e.g., the condition number of the information matrix, non-convergence unless the variances of the linear and quadratic slopes were set to 0); and, once a numerically satisfactory solution was reached, the AIC and BIC indices pointed to a worse model than the linear model with variable intercept and slope terms (Table 3). We concluded that the trajectories could be adequately modeled as a linear function of age.

The model that was estimated using individually varying times of observation was compared to a model with fixed time points of observation (Figure 1). The fit indices of the two models were nearly indistinguishable (Table 3), favoring the latter specification for simplicity. The likely reason for the similarity of the two models could be that the timing of the home visits was completely random with respect to child characteristics.

In order determine whether discrete “types” of trajectories or a continuous distribution of trajectories might better represent the observed trajectories, we estimated a series of latent class growth models. Those analyses indicated that the latent trajectories of aggressive behaviors could be classified in 5 classes (Table 3; Lo-Mendell-Rubin adjusted $LRT(df=3)=45.6$, $p=.03$ against a 4 class model). A 6 class model was not supported (Lo-Mendell-Rubin adjusted $LRT(df=3)=11.1$, $p=n.s.$ against a 5 class model). Nevertheless, the 5-class model had a low entropy (0.67) and the estimated probabilities of class membership indicated that unambiguous classification of individuals into these five classes was not possible. Further investigation of the estimated trajectories (see Figure 2) suggested that the trajectories of aggressive behaviors of approximately 10% of children in this sample were worrisome with either an escalating pattern or a stable but high pattern. Although the latent classes provided some insight into the variation in observed trajectories, the unsatisfactory fit of the model suggested that we must proceed with a view of continuous (quantitative) range of differences in trajectories of aggressive behaviors rather than qualitative differences between distinct and internally homogenous groups of children.

Figure 2. The predicted trajectories based on a 5-class solution of a latent class growth model of ECBI aggression scores.



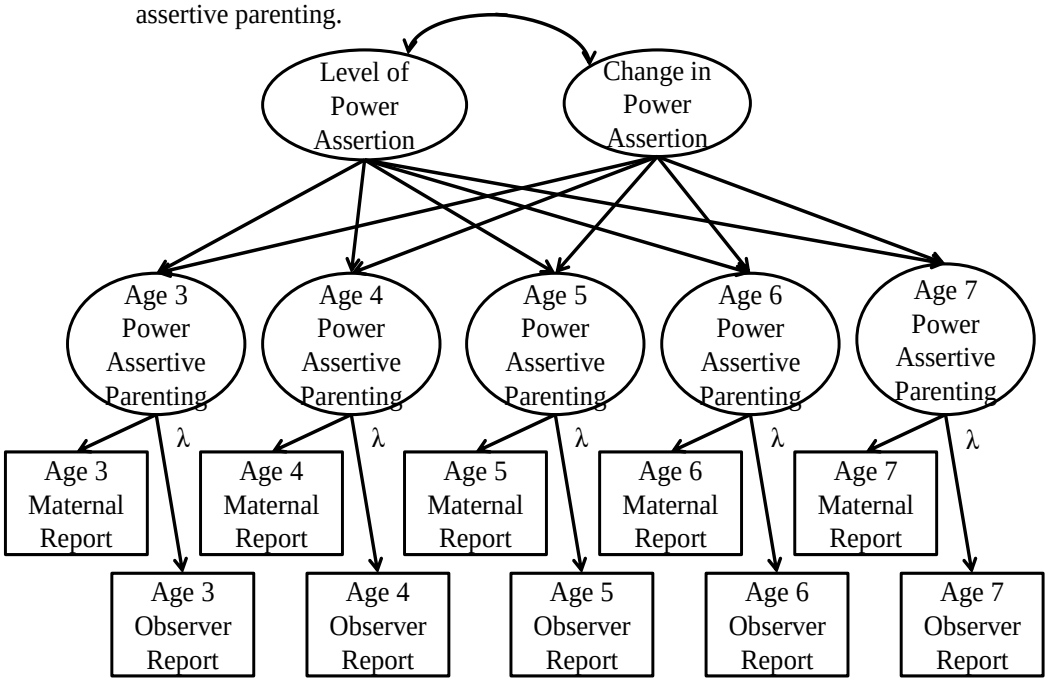
Trajectories of power assertive parenting. Maternal reports of power assertive parenting indicated a slow decline during early childhood, although the observer reports indicated a modest increase. However these changes were small as compared to the standard deviations of these measures (Table 2).

The two measures of power assertive parenting were combined in a series of five latent variables for ages 3-7. First, a measurement model was tested. This model included the two measures of power assertive parenting with factor weights and observed variable intercept constrained to be equal across the years. The latent variables for power assertive parenting were allowed to be freely correlated across the years. This measurement model had adequate fit even though additional correlations across

measures of the same type (or a "method" factor) were not included, $\chi^2(37)=186.9$, $p<.001$; *RMSEA* = 0.062, CI 0.053-0.071, *CFI*=.93, *SRMR* = 0.045.

Next, we estimated a second-order latent growth model for power assertive parenting (Figure 3). There was a significant negative slope for power assertive parenting during early childhood (*slope*=-.038, $p=.014$) and the variances for both the intercept and the slope were significant (191.0, $p<.001$ and .023, $p<.01$). The intercept and the slope were negatively associated ($\sigma_{intercept,\ slope}$=-1.353, $p=.024$). The estimated slope and its variance indicated that about 40% of the children experienced an escalating trajectory of power assertive parenting in early childhood.

Figure 3. The second-order latent growth model for the trajectory analyses of power assertive parenting.



Note: The coefficients of latent change were fixed at values that represented the average duration between interviews for the models with fixed time points of observation.

We investigated whether a quadratic trajectory might better represent the intra-individual change in power assertion. There was no empirical support for this model

(Table 3). As before, we estimated an equivalent LGM with fixed time points. The fit indices of the two models were nearly equal (Table 3). The remainder of the analyses presented here used the simpler LGM with fixed time points.

We estimated a series of latent class growth models for power assertive parenting, in order to ascertain whether discrete types of trajectories could be identified. The results pointed to a simple 2-class characterization of these trajectories. However the entropy of this model and all of the alternative characterizations with more classes indicated rather ambiguous delineation of the classes. Nevertheless, the 2-class model suggested a highly power assertive and stable pattern of parenting (33%), and a moderate level with declining power assertion (67%). These analyses supported proceeding with a model that allowed a continuous distribution of trajectories of power assertive parenting.

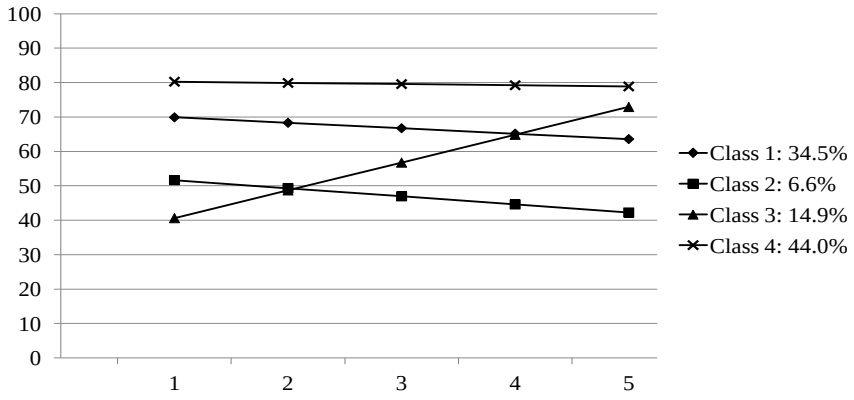
Trajectories of warm parenting. The age specific means and standard deviations of the measures of maternal warmth are listed in Table 2. The means of maternal warmth measures indicated little change during early childhood. The exploratory analyses of trajectories of maternal warmth provided no support for a linear trend (*slope*=-.020, *p*=*n.s.*; σ^2_{slope}= .013, *p*=*n.s.*). In view of this finding, in structural models predicting the level and change in aggressive behaviors, we used maternal level of warmth assessed at age 3 only.

Trajectories of responsive parenting. Despite our expectation that maternal responsiveness would increase during early childhood, the cross-sectional means and standard deviations suggested no systematic changes (Table 2). The latent growth analysis of trajectories of responsive parenting, however, showed substantial variability

in the slope of these trajectories, although the mean trajectory was stable (*slope*=-.015, *p*=*n.s.*; σ^2_{slope}= .020, *p*=.05). The comparison of a quadratic trajectory with a linear trajectory favored a linear representation as before (Table 3). The use of a simpler fixed time point specification rather than individually varying times of observation resulted in a model that was very similar both in terms of the parameter estimates and the goodness of fit (Table 3).

The latent class growth models of responsiveness identified 4 groups of trajectories (Lo-Mendell-Rubin adjusted *LRT*(*df*=3)=81.6, *p*=.05 against a 3 class model) although the entropy of the latent class growth model was far from satisfactory (0.62) and pointed to a lack of well delineated groups. The 4-class model (Figure 4) yielded a large class with a stable and high level of responsive parenting (%44); another 35% of mothers who displayed a moderate level of responsiveness that declined very gradually; and two small groups, one with a low level of responsiveness that rapidly increased during early childhood (14%) and one with a low level of responsiveness that slightly declined (7%). Owing to the lack of empirical support for the existence of discrete groups, we proceeded with a model of responsive parenting that allowed a continuous distribution of trajectories.

Figure 4. The predicted trajectories based on a 4-class solution of a latent class growth model of maternal responsiveness.



The structural model of trajectories of aggressive behaviors in early childhood

The structural model tested the association of the level and change in power assertive and responsive parenting, and the level of warmth with the level and change in aggressive behaviors, controlling for child gender, SES, and the temperamental reactivity of the child. The level and change in measures of parenting mediated the association of SES with the level and change in aggressive behavior scores.

The estimated coefficients of the full structural LGM and their standard errors are given in Table 4. The following associations were non-significant in the full model: child gender was not associated with the level or change in power assertive parenting; maternal warmth was not associated with the level or change in child aggressive behaviors; and change in maternal responsiveness was not associated with the change in child aggressive behaviors. LGMs tend to be numerically demanding, and estimation of

several non-significant parameters could deteriorate the quality of the numerical results. Therefore, we estimated a reduced model that eliminated maternal warmth and the associations that were non-significant in the full model. The reduced model was not significantly different from the full model in its overall goodness of fit, $\chi^2(12)=8.2$, $p=.77$. Therefore we focus on the results of the reduced model (Table 4, the last two columns). The reduced model had a satisfactory overall goodness of fit $\chi^2(235)=736.5$, $p=.00$, *RMSEA*=.046, 90% *CI* .042-.050, *CFI*=.914, *SRMR*=.049. Furthermore, R^2 estimates for the level and change in aggressive behaviors were high, .677 and .614, respectively. The resulting structural LGM and its standardized coefficients are presented in Figure 5. For purposes of clarity, the correlations between the observed independent variables, and observed and latent mediating variables were not depicted in this figure.

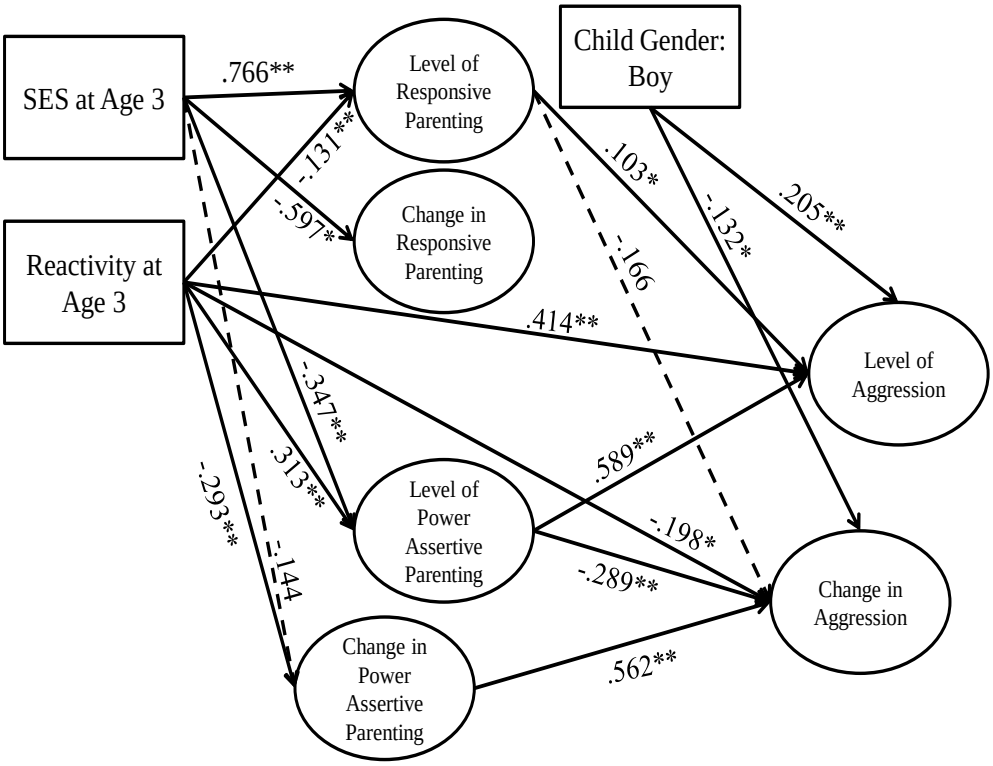
Table 4. The estimated parameters and their standard errors of the structural latent growth model of child aggression.

	Full Model		Reduced Model	
Variables	Parameter	Standard Error	Parameter	Standard Error
Effects of child gender on:				
Level of power assertion	.970	.818	--	--
Change in power assertion[1]	.288	.279	--	--
Level of child aggression	5.716**	.918	5.770**	.880
Change in child aggression[1]	-.732*	.341	-.697*	.296
Effects of family socioeconomic status at age 3 on:				
Level of power assertion	-3.502**	.432	-3.614**	.430
Change in power assertion[1]	-.278+	.152	-.219	.148
Maternal warmth (age 3)	5.086**	.500	--	--
Level of responsiveness	8.545**	.486	8.598**	.475
Change in responsiveness	-.505**	.171	-.539**	.167
Effects of reactivity at age 3 on:				
Level of power assertion	.199**	.026	.199**	.026
Change in power assertion[1]	-.028**	.009	-.027**	.009
Maternal warmth (age 3)	-.061*	.029	--	--
Level of responsiveness	-.097**	.021	-.090**	.020
Change in responsiveness	.004	.003	--	--
Level of child aggression	.353**	.031	.354**	.031

Change in child aggression[1]	-.047**	.016	-.043**	.015
Effects of level of maternal power assertion on:				
Level of child aggression	.787**	.072	.793**	.073
Change in child aggression[1]	-.054*	.027	-.046*	.024
Effects of level of maternal warmth on:				
Level of child aggression	.002	.042	--	--
Change in child aggression[1]	-.009	.014	--	--
Effects of level of maternal responsiveness on:				
Level of child aggression	.113+	.064	.129*	.062
Change in child aggression[1]	-.097+	.059	-.036	.024
Effect of change in maternal power assertion on:				
Change in child aggression[1]	.767**	.305	.898**	.312
Effect of change in maternal responsiveness on:				
Change in child aggression[1]	-1.281	1.047	--	--

Note: A dummy variable indicating school start age of 6 was included to account for an increase in aggressive behaviors and an increase in power assertive parenting at age 6.

Figure 5. The results of the structural model that links SES, early reactivity, and parenting behaviors to child aggressive behaviors.



Notes: Standardized coefficients are shown; * $p<.05$; ** $p<.01$

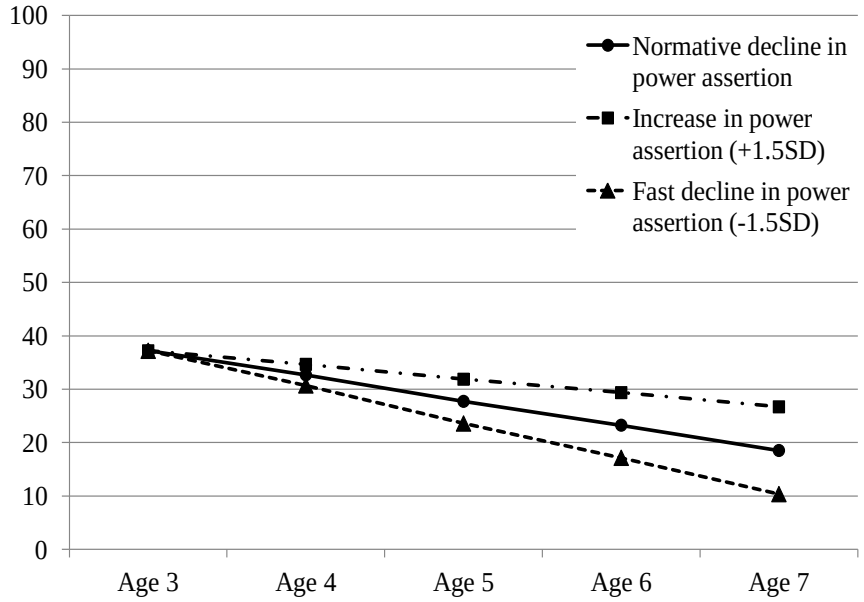
Child gender was not significantly associated with any parenting behaviors. It was, however, significantly associated with the level and rate of decline of aggression. As expected, boys had higher aggression than girls by about 1/3rd of its SD. Aggressive behaviors of boys declined significantly more rapidly than aggressive behaviors of girls during early childhood (standardized β = -.132). Family SES was significantly and negatively associated with the level of power assertion (standardized β = -.347), and significantly positively associated with the level of responsiveness of the mother (standardized β = .766). Unexpectedly, high SES predicted a decline in maternal responsiveness during early childhood (standardized β = -.597).

The child's temperamental reactivity was associated with a high level of maternal power assertion (standardized β =.313), a low level of maternal responsiveness (standardized β = -.131), and a high level of child aggression (standardized β = .589). However, temperamental reactivity was associated with precipitous declines in maternal power assertion and in child aggression during early childhood (standardized β = -.293 and -.289, respectively).

The level of maternal power assertion was positively associated with the level of child aggression (standardized β = .589). As hypothesized, the change in maternal power assertion was also positively and significantly associated with the change in child aggression (standardized β = .562).

The predicted trajectories of child aggressive behaviors in response to maternal power assertion are displayed in Figure 6. Aggressive behaviors of children had a declining trajectory in early childhood, and differences in maternal power assertion within a substantial range (i.e., ±1.5SD) did not reverse this trajectory. Note that, in this sample, a +1.5SD difference in the slope of maternal power assertion implies an escalating trajectory of power assertion. For a reversal of the maturationally driven declining trend in aggressive behaviors, the change in power assertion had to be less favorable than the normative trend by about 2SDs. Additionally, when maternal power assertive behaviors declined rapidly (-1.5SD) versus escalated (+1.5SD) after the age of 3, the difference in child aggressive behaviors at age 7 was in the order of magnitude of 1SD, a rather substantial effect. In this case, the predicted level of aggressive behaviors of the child at age 7 was similar to that of a normative 5 year-old

Figure 6. The predicted trajectories of change in child aggressive behaviors in response to varying trajectories of maternal power assertion during early childhood.



Contrary to our hypothesis, the level of maternal responsiveness was significantly and positively associated with the level of child aggression (standardized β = .103). This unexpected finding required further exploration. The change in maternal responsiveness was not significantly associated with the change in child aggression in the full model, and this association was not estimated in the reduced model.

Based on theoretical premises, maternal responsiveness could have a positive association with child aggression if it co-existed with a high level of power assertion. We estimated a model that included the interaction of the level of power assertion with the level of responsiveness. The overall goodness of fit of this model indicated that it was inferior to the reduced model (*AIC*=142,036.9, *BIC*=142,405.6 compared to *AIC*=142,024.2, *BIC*=142,393.0 for the reduced model). The interaction effect was

significant for change in aggression (unstandardized β=.004, p=.037) but not for the level of aggression (unstandardized β=-.003, *n.s.*). The positive significant finding for change in aggression supported the theoretically based expectation: the children whose mothers were both highly power assertive and highly responsive at the same time (an inconsistent pattern) had slower declines in aggressive behaviors than others.

Mediation testing was conducted, in order to estimate the strength and significance of the association of SES and child reactivity with the changes in aggressive behaviors through parenting behaviors. None of the indirect paths of association between SES and changes in aggression were statistically significant. The temperamental reactivity of the child, however, was associated with a precipitous decline in aggressive behaviors in early childhood, both because of its direct association (see Table 4) and because of its indirect association through its contribution to the decline in maternal power assertion (indirect β = -.024, p=.037, standardized indirect β = -.165).

DISCUSSION

We aimed to study intra-individual changes in aggressive behaviors in early childhood between the ages of 3 and 7, and identified some family factors that were associated with the inter-individual variation in that change. Our approach was grounded in Granic and Patterson's (2006) dynamic systems theory of antisocial development that formulated the linkage between real-time mother-child interactions to children's developmental trajectories of aggressive behaviors. Our sample was from Turkey, where only a small percentage of children attended non-maternal care or attended school prior to age 6. Because of minimal non-family influences on child behaviors, we expected that

the association of the family factors with child aggression would be stronger in this sample than those where a majority of children attend day care, preschool and kindergarten.

Similar to previous studies with a variety of samples from different cultures (Campbell et al., 2006; Fanti & Henrich, 2010; Jester et al., 2005; Prinzie et al., 2006; Reef et al., 2010), we found that for most children, aggressive behaviors declined during early childhood, at a rate of about $1/5^{th}$ of a SD per year. Our exploratory analyses of 5 years of data on aggressive behaviors indicated that about 10% of children in this sample exhibited non-declining trajectories of aggression. These findings were somewhat higher than the statistics reported by previous research on samples from the U.S. For example, Fanti and Henrich (2010) found that 8% of children showed high and stable levels of aggression between ages 2 and 12, whereas the rest of sample had declining trajectories. Similarly, Campbell et al. (2006) found that 3% of children showed a high and stable aggression trajectory when followed from 24 months of age through age 9. Reef et al. (2010), on the other hand, found that 7.7% of the sample had a high but declining (albeit not too rapidly) trajectory of aggressive behaviors in a Dutch sample. Jester et al. (2005) found that 28% of the children had non-declining trajectories of aggression in a high risk sample. Considering the relative socioeconomic disadvantage of this sample, the higher prevalence of escalating trajectories of aggression than the normative U.S. samples was expected.

The trajectories of power assertive parenting, warmth, and responsiveness identified in this study were in agreement with other longitudinal studies. Normatively, power assertive parenting behaviors increased during toddler years (Tierney, Lipscomb,

et al., 2011) and declined thereafter (Kim, Pears, Fisher, Connelly, & Landsverk, 2010; Strauss & Stewart, 1999). Indeed, about two-thirds of the mothers were estimated to have a declining trajectory of power assertion. However, the rate of decline was extremely low, less than 5% of a SD per year. This finding could be evaluated in the light of the collectivistic cultural context of this sample, and the associated parental goals of high levels of obedience and low levels of autonomy.

The current study, similar to the previous studies, found that both maternal warmth and responsiveness were, on average, stable (Behrens, Hart, & Parker, 2012; Rimehaug, Wallander, & Berg-Nielsen, 2011). While there was a lack of inter individual variation in the trajectories of maternal warmth, there was substantial inter individual variation in the trajectories of maternal responsiveness. This finding validated our decision to distinguish between the two constructs, despite their high cross-sectional correlations. While we expected maternal responsiveness to increase during early childhood, this was not empirically supported. Our analyses pointed only to a small proportion of mothers who had a low level of responsiveness when their children were 3 years old, who had increasing trajectories. Multivariate analyses suggested that these were mothers of low SES. A mother whose SES was 1.5SD lower than an average mother in this sample, had a level of responsiveness that was about 2/3rd of a SD lower than the average mother. Her responsiveness increased during early childhood, however, and by the age of 7, her responsiveness was only half a SD below that of an average mother. High SES mothers, on the other hand, had very high levels of responsiveness when their children were 3. Their responsiveness declined during early childhood. This could have been due to two factors: a ceiling effect, and an increase in high SES

mothers' demands on their children due to start of school. We found no other studies of trajectories of maternal responsiveness, to which these findings could be compared.

An important contribution of the current study was the modeling of trajectories of aggressive behaviors in a period of 5 years that spanned the transition to school. The model of changes in aggression in early childhood considered three "prespecified constraints" (Granic & Patterson, 2006): gender, SES, and reactive temperament. In addition, the model included three aspects of mother-child interactions: warmth, responsiveness, and power assertion. The most important findings of the model of intra-individual changes are discussed below.

First, very few factors were associated with intra-individual changes in aggressive behaviors over and above maturation. Nevertheless, those few factors could predict over 60% of inter-individual variation in intra-individual changes.

Second, the prespecified constraints were directly and indirectly associated with trajectories of aggression. Although mothers of boys and mothers of girls did not systematically differ in their behaviors towards their children, boys had a higher level of aggression at age 3 by almost a third of a SD, and their aggression declined more rapidly than the girls. This finding is similar to other studies that found faster decline of boys' aggression (Bongers, Koot, Van der Ende, Verhulst, 2003; Keiley, Bates, Dodge, & Petit, 2000). This direct association suggested sources of influence other than maternal behaviors considered here, including biological and maturational processes. A study of sex differences in aggressive behaviors in early school years found negligible gender differences in the rates of decline (Olson et al., 2013). This finding suggested that

perhaps the rapid decline in early childhood could be temporary, reducing the gender differences in aggression between the ages of 3 and 6, but not annulling them.

Family SES was measured in this study with a combination of parental education and economic well-being. As such, it was a comprehensive indicator of SES. This "prespecified constraint" was indirectly associated with child aggression in early childhood. Again, we must consider the context of this study to evaluate this finding. Without exposure to daycare or early childhood education, children's exposure to likely influences of SES could be through its repercussions in the family environment (Baydar & Akcinar, 2014). Indeed, maternal power assertion and maternal responsiveness were associated with SES. The indirect association of SES with the trajectories of aggression operated through the trajectory of power assertive parenting.

A third "prespecified constraint" considered in this study was the child's reactivity. It was associated both directly and indirectly with intra-individual changes in aggression. Indirectly, it operated through its association with power assertive parenting. The mothers of reactive children were more power assertive when their children were 3. However, their power assertion declined more rapidly as the children grew older, probably because of improving capabilities of self-regulation by highly reactive children as they grew older.

Reactivity was also directly associated with the trajectories of aggression. Reactive children displayed a high level of aggression at age 3, but had a more precipitous decline of aggression thereafter. The predicted trajectory of aggressive behaviors of a highly reactive child (+1.5SD) and a normative child, placed them almost at the same level of aggression at age 7, despite almost 1SD of difference in aggression

at age 3. Our findings were highly similar to those by Cabrera et al. (2014), who, in a large scale longitudinal study with a U.S. sample, found that maternally reported reactivity was positively associated with the level of externalizing behaviors in early childhood, and predicted a precipitous decline in these behaviors until age 10. They also documented a decreasing association of temperamental reactivity with the observed levels of externalizing behaviors between the ages of 4 and 10.

The strongest factor associated with the trajectories of aggression in early childhood was the trajectory of maternal power assertion. The slower the decline of power assertion, the slower was the predicted decline of aggression in early childhood. As with any statistical modeling, our findings could not make a strong case that the changes in maternal power assertion led to the changes in aggression. However, previous studies with much stronger designs that controlled for genetic influences have found that power assertive parenting was strongly associated with child externalizing behaviors and that there was very limited indication that child behaviors influenced maternal behaviors (O'Connor, Deater-Deckard, Fulker, Rutter & Plomin, 1998). We found that when maternal power assertion declined more slowly than the normative decline by 1.5SD, the aggression of the child at age 7 resembled that of a normative child at age 5. This was particularly troubling because of further risk of escalating aggression during the transition to school especially for children who were already highly aggressive (Granic & Patterson, 2006), and the relative stability of rank order of aggression after the start of school (Reef et al., 2010).

The finding regarding the strong association between the changes in maternal power assertion and changes in children's aggression was strongly in support of our

theoretical framework. The dyad got entrenched in coercive interactions such that an increase in coercion by the mother was accompanied by the same in the child. Together, as a dyadic system, they tended towards the coercive "attractor".

The positive association of the level of maternal responsiveness with the level of aggression was counter intuitive and deserved scrutiny. Very few previous studies of intra-individual change in aggression had considered maternal responsiveness as a predictor. One study found a weak association and some others found none at all (Deater-Deckard et al., 1998; Denham et al., 2000; Xu et al., 2009). Further exploratory inquiry of the role of the level of maternal responsiveness on trajectories of aggression suggested that a high level of maternal responsiveness combined with a high level of power assertion was associated with a delay in the decline of aggression. This finding pointed to a set of parenting behaviors that was often described as "inconsistent" (Fletcher et al., 2008; Luyckx et al., 2011). These findings could be interpreted in the light of our theoretical model. Granic and Patterson (2006) suggested that highly cajoling mothers could become increasingly hostile when their children displayed opposition to their requests, which, in turn, would lead to hostility of the child as well. Therefore, mothers who were not efficacious in parenting could fluctuate between a high level of responsiveness and power assertion. This pattern, over time, might lead to increased power assertion of the mother, as well as increased antisocial behavior of the child. Our study provided an indication of a potential repercussion of these real-time interactions for indicators at the level of developmental time. This finding must await replication and validation in future studies.

Our study had some weaknesses that must be considered in interpreting the results. First and foremost, the data on children's aggression and many of its predictors were maternally reported. The parenting measures included both maternal and observer reports, but none of our measures came exclusively from an independent source. We addressed this deficiency to some extent, by including cross-sectional, time specific covariances in the structural models. Second, our focus was on maternal behaviors. Our sample is one where almost all mothers are married and residing with the biological fathers of the children. By studying maternal parenting, one could only gain a partial view of family processes in the development of children's aggression. The cultural context of the current study was a patriarchal culture where gender based division of household responsibilities was paramount (Kagitcibasi & Ataca, 2005). The fathers had a limited role in day-to-day caring of young children. Nevertheless, the association between father's involvement in discipline and children's aggression must be studied in the future.

We presented a model that linked the trajectories of change in the mothers' parenting behaviors to the trajectories of change in children's aggression, and considered some family environmental, and child specific constraints. The availability of nationally representative longitudinal data during the developmental period spanning early childhood to transition to school was an important strength of this study. Our approach that fully exploited these longitudinal data added to the strength of this study. The emergence, once more, of maternal power assertion as the factor that was most strongly associated with trajectories of aggressive behaviors called for a focus on this aspect of mother-child relationship both for basic research and policy development.

CHAPTER 4

DEVELOPMENT OF EXTERNALIZING BEHAVIORS IN THE CONTEXT OF FAMILY AND NON-FAMILY RELATIONSHIPS

ABSTRACT

Based on the dynamic systems theory of antisocial behavior, this study proposed a tri-directional longitudinal model of associations between power assertive parenting, child externalizing problems, and family and non-family support. This transactional process was estimated for the years preceding transition to school. The data were from a four year longitudinal and nationally representative study of 735 children and their mothers in Turkey. The results indicated that power assertive parenting and child externalizing problems were strongly associated concurrently. Maternal power assertion had significant and substantial predictive effects on subsequent child externalizing behaviors, controlling for earlier child and parenting behaviors. However, the externalizing behaviors of the child did not predict later maternal power assertion. There was evidence of several triadic processes that highlighted the role of the mesosystem in this developmental process. In early childhood (ages 3 and 4), there was a significant child-to-father effect, indicating a decline in this kind of support if the child's externalizing behaviors were high. There was an indication of increased salience of the mesosystem at the end of early childhood. At ages 5-6, the support from the father had a direct effect on subsequent decline of child externalizing behaviors. At these ages, there was also evidence of a decline in non-family support in response to mother negativity, and an increase in non-family support in response to the child's externalizing behaviors. The results are discussed in reference to the bi-directionality in the parent-child relationship, and the role of the mesosystem in this relationship.

Keywords: Externalizing behavior, Parenting, Social support, Reciprocal effects, Transactional model

INTRODUCTION

Externalizing behaviors refer to acting out behaviors including aggressive (e.g. fighting, bullying), impulsive, hostile, defiant, oppositional, and destructive behaviors (Achenbach, Edelbrock, & Howell, 1987; Wicks-Nelson & Israel, 2003). The years that precede the transition to school are particularly important for the study of externalizing behaviors. After middle childhood, the rank order of externalizing behaviors tends to be stable (Campbell, 2002), and children who display high levels of externalizing behaviors during these critical years are likely to experience academic difficulties (e.g., academic failure, school drop-out) and social difficulties (e.g., peer rejection) that set them up for poor psycho-social outcomes in the long term (Hinshaw, 1992; Reef, Diamantopoulou, Meurs, Verhulst, & Van der Ende, 2010). Additionally, during these years many parents tend to report difficulties with externalizing behaviors.

There is a normative developmental decline in externalizing behaviors during early childhood (Baydar & Akcinar, 2015; Campbell, Shaw, & Gilliom, 2000; Fanti & Henrich, 2010). This normative decline is a result of the children's increasing ability to regulate their emotions and behaviors and to mobilize these regulatory abilities in their social interactions (Campbell, 2002; Rubin & Mills, 1990). However, there are individual differences in this maturational trend. Children with high levels of externalizing behaviors during early childhood tend to display stable and persistent high levels of externalizing behaviors during their school years (Campbell, 2002).

Here, we present our study of the interplay between children's externalizing behaviors and three attributes of their family ecology: mothers' power assertive behaviors, the support mothers received from the fathers, and the support mothers

received from the extended families and from the neighbors. These findings are based on 4-year longitudinal data from a nationally representative study of children in Turkey (Early Childhood Developmental Ecologies in Turkey, ECDET).

The aim of the current study was to understand the bidirectional nature of the relationships in the micro- and meso-systems of the child's family ecology (Bronfenbrenner, 1992). We first estimated a transactional longitudinal model that allows the modeling of bidirectional influences between child externalizing behaviors and power assertive parenting behaviors. We then added to this dynamic longitudinal model, tri-directional influences of two likely sources of support for the mothers. Specifically, we estimated the effects of social support on subsequent power assertive behaviors of the mother and on the externalizing behaviors of the child. We also estimated the effects of these parent and child behaviors on subsequent social support from the father and the extended social network of the mother. The resulting model provided an understanding of how a child's externalizing behaviors developed in early childhood, in the context that went beyond the dyadic mother-child interactions. This extension of longitudinal transactional models is, to our knowledge, a first.

There is ample research that investigated the effects of various aspects of parenting on child externalizing behaviors. In general, physically coercive, punitive, and power assertive parenting behaviors are characterized as risk factors for the development of externalizing behaviors regardless of the context of warmth (American Academy of Pediatrics, 1998; Gershoff, 2002; Lytton, 1997; Strassberg et al., 1994). Parenting behaviors such as yelling, grabbing, pushing, hitting, physically hurting, shouting, and

using overt expressions of anger are characterized as power assertive behaviors (Patterson, 1982; Strassberg et al., 1994).

A large body of research supported the strong link between maternal power assertion and externalizing behaviors (Gershoff, 2002; Patterson, Reid & Dishion, 1992). Studies on parents' use of power assertive behaviors found that they were associated with increased level of disruptive behavior problems and aggression in children, because these parenting behaviors prevented children from learning self-regulation, developing problem solving skills, and internalizing the rules of conduct (Rubin & Mills, 1990; Sheehan & Watson, 2008). In addition, power assertive behaviors provided negative behavioral models for children (Bandura, 1977) and initiated coercive interaction patterns between the parent and the child (Patterson, 1982).

Transactional models are based on the premise that parenting behaviors and children's behaviors influence each other. It is important to study the bi-directional influences in parent-child relationships because ignoring the transactional nature of the relationships may result in overestimating the parent-to-child effects (Combs-Ronto, Olson, Lunkenheimer, & Sameroff, 2009; Morrell & Murray, 2003; Sheehan & Watson, 2008).

Several theoretical approaches delineated how familial factors could contribute to the development of externalizing behaviors. Here, we adopted Granic and Patterson's (2006) dynamic systems theory of antisocial development. This theory links micro level real-time interactions between the mother and the child to the developmental patterns of externalizing behaviors (i.e., changes over "developmental time"). This theoretical framework combines the principles of systems theory with the principles of operant

conditioning and observational learning, providing a comprehensive approach. According to Granic and Patterson (2006), negative parenting and child behaviors escalate when both the mother and the child behave aversively. The coercive pattern begins with the parent's demand to change the child's behavior with a directive and the child's aversive response (whining, shouting, etc.), resulting in maternal withdrawal of the original demand. This interaction results in anger and frustration in both the mother and the child. When this pattern is repeated over different situations, the negative exchange becomes the prevailing pattern, alternative interaction patterns become less frequent, and the coercive interaction pattern is activated increasingly easily and frequently.

Transactional models posit that both the children and the parents play an active role in the process leading to the escalation of child externalizing behaviors. Recent studies that examined the bidirectional influences between the mother's power assertion and the child's externalizing behaviors provided mixed evidence on whether child behaviors contributed to changes in parenting behaviors. Evidence from some studies suggested that child-to-mother effects were small or non-significant, especially in early childhood. Some studies found no transactional effects prior to age 5 (e.g., Barnes, Boutwell, Beaver, & Gibson, 2013; Berlin et al., 2009). One study found approximately equally strong effects of parenting behaviors on the child and children's behaviors on parenting, for 5-8 year old children (Gershoff et al., 2012). Several studies focusing on child problem behaviors found that power assertive and punitive parenting predicted increases in child externalizing behaviors (Benzies, Keown, & Magill-Evans, 2009; Morrell & Murray, 2003) and the mother-to-child effects were substantially larger in

early childhood than child-to-mother effects (e.g., Lee, Altschul, & Gershoff, 2013; Maguire-Jack, Gromoske, & Berger, 2012). Still other studies found that child-to-parent effects were significant (Fite, Colder, Lochman, & Wells, 2008; Kandel & Wu, 1995; Verhoeven et al., 2010). Studies adopting a transactional framework similar to the one presented here supported the bidirectional influences between negative parenting behaviors and child behavior problems (Besnard et al., 2013; Choe, Olson, & Sameroff, 2013; Eron, Huesmann, & Zelli, 1991; Miller-Lewis et al., 2006; Sheehan & Watson, 2008).

Note that, even in transactional models, there is the possibility of bias due to third variables. Mother-to-child effects and child-to-mother effects could be over estimated if third variables have substantial effects on both the child and the mother behaviors. In this case, the most important third variable might be the genotype. One recent study that controlled for the genetic effects on maternal and child behaviors found no remaining effects of child externalizing behaviors on maternal spanking (Barnes et al., 2013).

Recent studies emphasized the role of social support for the mothers in increasing the quality of parent-child relationship, because it buffers the negative effects of the stresses that the mothers experience (Abidin, 1992; Ataca, Kagitcibasi & Diri, 2005; Kotchick, Dorsey, & Heller, 2005). Social support can be emotional or instrumental (e.g., help with household responsibilities, and care of the children). Social support could be associated with children's social and behavioral development indirectly through parenting behaviors. Previous research indicated that social support from fathers and non-family sources was associated with children's development indirectly through

promoting positive and reducing negative parenting behaviors, by reducing the mothers' stress, and by maintaining the psychological health of the mothers (Baydar et al., 2014; Kotchick et al., 2005; Narvaez et al., 2013; Odgers et al., 2009). More specifically, social support was associated with high levels of parental warmth, sensitivity, and responsiveness, and low levels of harsh and punitive parenting behaviors, in turn leading to low levels of child behavioral problems (Andersen & Telleen, 1992; Baydar et al., 2014; Baydar, Akcinar, & Imer, 2012; Belsky, 1984; Mulsow, Pursley, Caldera, Reifman, & Huston, 2002).

The effects of social support on parent-child relationships are particularly strong for the collectivistic cultures where the family cohesion and extended family relationships are important (Cutrona, Russell, Hessling, Brown, & Murry, 2000; Kagitcibasi, 2010). Several studies that focused on African-American families also found empirical evidence for the positive effects of social support from the extended family members on parent-child interactions (Burchinal, Follmer, & Bryant, 1996; Shook, Jones, Forehand, Dorsey, & Brody, 2010). In Turkey, the association of social support with parenting behaviors could be even stronger than in African American families, because mothers tend to be at home caring for the children (female employment rate is 25%, TUIK, 2010), and the social networks of the mothers consist almost exclusively of the extended family and the neighbors.

Previous theoretical and empirical research on the association of SES with child externalizing behaviors indicated an indirect link through parenting behaviors. Families with low SES experience psychological distress resulting from a lack of economic resources, and limited coping resources. This distress led to a negative emotional climate

in the family and in parent-child relations (Conger et al., 1993). Low SES mothers displayed high levels of power assertive parenting and emphasized obedience (Bradley & Corwyn, 2002; Miller & Votruba-Drzal, 2013).

The present study was conducted in Turkey, located between Europe and the Middle East, with a population of about 73 million (OECD, 2010, http://stats.oecd.org/Index.aspx?DataSetCode=AEO_TAB13_DEMOGRAPHIC_INDICATORS#). The population of Turkey is young (36% of the population is under 15 years of age) and its economic well-being is modest (per capita GDP for Turkey was $14,000, compared to $47,000 for the USA in 2008).

The Turkish family is characterized by collectivistic values (37th out of 93 countries in collectivism-individualism scale; Hofstede, Hofstede, & Minkov, 2010). Although most of the families are nuclear in structure, there is an emotional and material interdependence among the members of the extended family (Ataca et al., 2005). Mothers form support networks by having close interactions with others and these networks influence their child-rearing practices (Kagitcibasi, 2007).

Turkish children are raised in the family environment until they start school. Few children attend preschool and few mothers work (OECD, 2009). The current sample was no exception (98% at age 3, 94% at age 4, and 91% at age 5 did not receive non-maternal care). The rate of divorce is low among the Turkish mothers (2% in this sample), and the father figures of the children are their biological fathers. This profile makes it ideal to study the transactional influences between parenting behaviors of the mothers, support from the fathers, support from the extended family and neighbors, and the externalizing behaviors of the children.

Hypotheses

Based on the transactional framework, the following hypotheses were tested in the current study. First, we expected that power assertive parenting and externalizing behaviors would be positively associated at each time point. Second, as the dynamic systems theory suggests, both parent and child effects would be present. Maternal power assertion would have significant effects on subsequent child externalizing behaviors, whereas child externalizing would also elicit maternal power assertion subsequently. Third, support for the mothers from their husbands, extended families and neighbors would be negatively associated with power assertive parenting and externalizing behaviors concurrently. Fourth, support from these sources would decrease the child externalizing behaviors subsequently because supportive adults would provide positive role models to the child. Fifth, support would predict lower levels of power assertion subsequently because it would buffer the psychological stress of the mothers. Sixth, maternal power assertion and child externalizing behaviors would predict lower levels of support subsequently. The negative valence of the mother-child relationship would discourage support from the meso-system because it would carry over to other relationships of the mother.

METHOD

Sample

The data were obtained from the first four waves of the ECDET study, a five year longitudinal study with a nationally representative sample of children from Turkey. At the baseline, the children were between 36-47 months of age (for detailed information and access to the data, see http://tecge.ku.edu.tr). Data for the current study

were collected annually between 2008 and 2011. Eligibility was determined by the age of the child and the mother's ability to speak sufficient Turkish to respond to the survey protocol. The adult participants of the ECDET study were the female primary caretakers of the children who were the biological mothers of the children in almost all cases except for seven families (excluded from this study) where the mother figure was the grandmother (0.7%). The sampling procedure and the representativeness of the sample were discussed elsewhere (Baydar & Akcinar, 2014). The data used in the present research came from in-person interviews with the mothers and observations by trained interviewers in the homes of the participants.

The sample size for each of the four waves used for the present study were 1052, 916, 871, and 820, respectively. Our aim was to model the transactional process contributing to the externalizing behaviors until the children started school. In Turkey, school start age could be 6 or 7 years, mostly depending on the month of birth of the child. In the current sample, approximately half of the sample (51.2%) started school at age 6. The analyses of the current study used a sample of 735 mother-child dyads. 249 dyads were excluded because the school start age of the child could not be determined due to attrition prior to the start of school. 43 dyads were eliminated from the sample because they provided inadequate information to compute the socio-economic status of the family.

Measures

Children's externalizing behaviors, a majority of the indicators of SES, school starting age, about half of the items pertaining to parenting behaviors, social support mothers received from their husbands, and support from the extended families and

neighbors were reported by the mothers. Another half of the items on parenting behaviors and two of the SES indicators were reported by the observers.

Child externalizing behaviors. The original Eyberg Child Behavior Inventory (ECBI, Eyberg & Robinson, 1983) assesses the frequency and severity of externalizing behaviors in children between the ages of 2 and 17 based on maternal reports. In the current study, a Turkish adaptation of the ECBI was used (Batum & Yağmurlu, 2007). The ECBI-TR included 36 items (e.g., "Fights with the peers.", "Argues with the parents about rules.") and maintained the original structure except that the frequencies of behaviors were rated on 5 point Likert scales instead of 7, to facilitate comprehension and reliable reporting by participants who had little education. A total intensity scale score was computed (range 0-100, α= .93 to .95 for each of the four years; Baydar, Kuntay, Goksen, Yagmurlu, & Cemalcilar, 2007).

Power assertive parenting behaviors. We used four consecutive annual assessments of power assertive parenting that were based on both maternal reports and observer reports. The self-report items came from the Turkish adaptation of the Parenting Questionnaire (PQ-TR; Sanson, 1994; Yağmurlu & Sanson, 2009) and the observer reports came from the Home Observation for the Measurement of the Environment (HOME-TR). The original PQ (Sanson, 1994) consisted of 30 self-report items on the frequency of specific parenting behaviors. It had four subscales: obedience demanding behavior, punishment, parental warmth, and inductive reasoning. PQ-TR (Yağmurlu & Sanson, 2009) also had 30 items that were rated on 5-point scales. We used the punishment scale that had 8 items (e.g., "When my child misbehaves, I use physical punishment"; range 0-100, α between 0.82 and 0.86 for the five years).

The original HOME was an observational instrument **(**Bradley, 1981). A subsequent revision of HOME for large scale studies included both maternally reported and observational items (Bradley et al., 2001). The early childhood (ages 3-5) and middle childhood (ages 6-7) versions of HOME -TR were adapted for ECDET (Baydar & Bekar, 2007; Baydar & Akcinar, 2010). The early and middle childhood versions included 52 and 56 closed-ended items, respectively, that were modified in order to render them relevant to the living conditions of Turkish children (R. H. Bradley, personal communication, May 20, 2008).

There were six items in HOME-TR that assessed power assertive parenting behaviors (e.g., "Mother addressed the child in a harsh manner, scolded at or made derogatory remarks about him/her.", "Mother hit, slapped or otherwise physically punished the child."). Three of these items were based on the observation of a physical or harsh verbal punishment by the interviewer, and the remaining three were maternally reported (range 0-100, α between 0.60 and 0.65 for the five years). In the transactional models presented here, the two measures of power assertive parenting were combined in a latent variable for each year.

Social support coming from the father. The Marital Quality Scale (Baydar & Yumbul, 2004) consisted of 20 items that were rated by the mother with respect to how true or false a specific behavior was on a 3 point Likert scale. Ten of these items were about supportive behaviors of the fathers as perceived by the mothers (e.g. "My husband does not appreciate what I do", "When I need help, my husband does not share household responsibilities with me"; range 0-100, α between 0.86 and 0.84 for the four years; Baydar et al., 2008).

Support coming from the extended family and the neighbors. The ECDET respondents were asked about a variety of types of support that they might have received. The focus in this measure was on the support that was relevant for child related issues because those supportive behaviors were most likely to influence parenting and be observed by the child (Multidimensional Scale of Perceived Social Support (MSPSS; Baydar et al., 2008; Zimet et al., 1988). The internal consistency values for the neighbor support subscale (four items, e.g., "If I have to go somewhere, I can ask someone in the neighborhood to take care of my child", "I can talk to someone in the neighborhood if my child has a problem") and the extended family care subscale (three items, e.g., "I can get help from someone in the family when I feel down", "When I am in need, someone from my family is by my side") ranged .86-.91 and .89-.98, respectively. The two subscales were averaged so that the two sources of support contributed equally to the measure.

Socioeconomic status. The data for the socioeconomic status of families came from the first wave of data collection. A factor score was calculated on the basis of three indicators: maternal education, paternal education, and a composite measure of family economic well-being that combined information on the material possessions of the family (e.g., a car, a dishwasher, a computer), the monthly per person expenditures of the household, the real or estimated value of the family residence, and the physical quality of the home and the neighborhood environments reported by the observer (Baydar et. al., 2014).

School starting age. A variable indicating whether the child had attended school prior to the fourth annual interview was created to account for possible effects of school

on parent and child behaviors. In Turkey, preschool attendance is nearly null (2% of 3 year-old children in the current sample) and very few children attended Kindergarten in this sample (8.8%), although public Kindergartens were, to some extent, available. According to the regulations, children are expected to start school in September if they complete 6 years of age before December 31st. However, many parents delay school till age 7 if the children complete 6 years of age close to September. In this sample, only 51% of children attended school at the time of the fourth round of interviews when the cohort was 6.

Statistical Methods

Preliminary descriptive analyses were conducted using SPSS. In order to understand the nature of the bi and tri-directional associations between parenting, support, and child externalizing behaviors, we developed an autoregressive path model with cross-lagged associations. These analyses were conducted with AMOS software (Arbuckle, 2013). Multigroup models were estimated where the two groups were defined by school attendance at age 6. For the group who started school early, we included data from age 3, 4, and 5 interviews (3 time points). For the group who started school late, we included data from age 3, 4, 5, and 6 interviews (4 time points). Each path model included autoregressive paths from one time point to the next (e.g., child externalizing behaviors at age 3 to child externalizing behaviors at age 4), and second and third order autoregressive paths as necessary. In addition, the models included cross-lagged paths (e.g., age 3 maternal power assertive behaviors to age 4 child externalizing behaviors). Thus, a variable at one point time was controlled by regressing it on the

same variable at previous time points. The estimated cross-lagged path coefficients could be interpreted as coefficients of change.

We first estimated a transactional cross-lagged model for the child externalizing behaviors and maternal power assertive behaviors. Then, we estimated two additional models representing tri-directional transactional processes. These included child externalizing behaviors, maternal power assertive behaviors and support coming from father, and child externalizing behaviors, maternal power assertive behaviors and support from the extended family and neighbors. A model including all four processes was not estimated due to the complexity of that model and the difficulties in interpretation of such a complex process of transactions. As the evaluation criteria, the fit statistics of χ^2 (Chi- square), χ^2/df- ratio (Chi- square to df- Ratio), comparative fit index (CFI), and root mean square error of approximation (RMSEA) were selected.

RESULTS

Table 1 compares the characteristics of the children and their families who were lost from follow-up during the study (N=267), and those who had complete data (N=789). Those who were lost to follow-up had higher SES, higher maternal education, lower support from the extended family and neighbors, lower birth order, and the children were of slightly younger age than the others. High SES could imply a high rate of mobility for young families, resulting in higher rates of attrition than low SES families. The attrited sample was no different from those who were retained in terms of maternal age, child gender, child externalizing behaviors, observer or maternally reported parenting behaviors, and support from the father.

Table 1. Comparison of participants by follow-up status.

	Follow-up	Lost to Follow-up	t or χ^2-statistic	p
Socio-economic status of the family	-.045 (.936)	.136 (1.166)	6.2	0.01
Age of the mother at baseline	30.2 (5.7)	29.6 (5.7)	1.9	0.16
Age of the child in months at baseline	41.7 (3.6)	41.0 (3.6)	7.1	0.07
Boy[1]	54.7%	57.0%	0.8	0.37
Birth order of the child[1]			24.9	0.00
1	47.8%	65.9%		
2	29.7%	20.5%		
3	12.5%	7.2%		
4 or higher	7.5%	1.6%		
Maternal education[1]			23.5	0.00
Less than primary	14.3%	16.9%		
Primary completed	57.5%	41.8%		
Some secondary	10.8%	12.4%		
Secondary completed	12.4%	22.9%		
Some college or more	5.0%	6.0%		
Child externalizing behaviors	33.9 (16.1)	34.1 (16.8)	0.1	0.91
Power assertiveness – Observer	12.1 (17.0)	11.4 (16.5)	0.37	0.54
Power assertiveness – Maternal report	29.6 (17.1)	29.1 (17.6)	0.20	0.64
Support from the father	77.8 (23.7)	79.5 (23.5)	1.00	0.31
Support from the extended family and the neighbors	72.1 (16.5)	69.5 (17.1)	4.729	0.03

Notes:

1. The quantities given are the means (standard deviations) and percentages. Comparisons of the samples were conducted with a t-test for means and a χ^2-test for percentages.

Table 2 provides the means and standard deviations of ECBI scores, measures of power assertive parenting, and measures of social support. Only age 3 and age 5 measures were given in this table for sake of parsimony. Two-year autocorrelations between child externalizing scores were about 0.4, very similar to other studies (e.g., Lipscomb et al., 2011; Lee et al., 2013). Autocorrelations for maternal reports of power assertive parenting were very similar to those for the observer reports (0.33 and 0.31 respectively). These autocorrelations point at some stability but not a very high level of stability, underscoring early childhood as a period of change in mother-child relationships. Higher levels of social support from the father and support from the extended family and neighbors were associated with lower levels of both child externalizing behaviors and power assertive parenting, however these correlations were low, ranging between -0.1 and -0.2. Cross-domain correlations revealed much stronger associations of child externalizing behaviors with power assertive parenting (ranging between 0.3 and 0.5) than with social support measures.

Table 2. Descriptive Statistics of the Study Variables

	Mean (SD)	N	2	3	4	5	6	7	8	9	10
1. Age 3 ECBI	34.00 (16.10)	798	.41**	.41**	.23**	.22**	.22**	-.17**	-.16**	-.08*	-.15**
2. Age 5 ECBI	26.48 (16.76)	793		.26**	.49**	.30**	.40**	-.19**	-.29**	-.08*	-.21**
3. Age 3 M.R of power assertion	29.94 (17.25)	798			.33**	.46**	.26**	-.20**	-.15**	-.05	-.12**
4. Age 5 M.R of power assertion	27.59 (17.44)	794				.29**	.52**	-.14**	-.24**	-.03	-.24**
5. Age 3 O.R of power assertion	12.14 (16.81)	798					.31**	-.16**	-.16**	-.13**	-.10**
6. Age 5 O.R of power assertion	13.57 (16.21)	781						-.13**	-.22**	-.10**	-.17**
7. Age 3 support from the father	77.84 (23.86)	795							.44**	.29**	.11**
8. Age 5 support from the father	83.52 (21.67)	777								.21**	.25**
9. Age 3 support from the extended family and neighbors	72.15 (16.51)	798									.31**
10. Age 5 support from the extended family and neighbors	74.80 (15.83)	794									

Notes. M.R.: Maternal Report; O.R.: Observer Report; ** p<.01, * p<.05

The bi- and tri-directional effects of parent-child, family-child, and parent-family relationships were tested with three separate cross-lagged path models. First, a transactional model of the mother-child relationship was tested. In this and subsequent models, maternal power assertive parenting was represented with a latent construct defined by the mother and observer reported power assertive parenting measures as its two indicators. The loadings of these indicators were fixed across years to ensure that the same underlying construct was represented. Second, a transactional model that represented the mother-child effects, the mother-father effects, and the father-child effects was estimated. Third, a transactional model that represented the mother-child effects, the mother-extended family and neighbor effects, and the child-extended family and neighbor effects was estimated. All three models included the family socioeconomic status as a control variable.

The cross-lagged model for parent-child relationship between ages 3 and 6 had a good fit, χ^2 (77) = 154.2, p=.00; χ^2/df- ratio= 2.00; CFI=.97 and RMSEA=0.035. The unstandardized and standardized regression weights for this model are presented in Table 3. As expected, power assertive parenting was strongly and positively associated with the child externalizing behaviors concurrently (r =0.45 - 0.63). Furthermore, all autoregressive paths were statistically significant, indicating not only a temporal stability between consecutive annual observations, but also significant effects of externalizing behaviors from 2 and 3 years prior. The stability of children's externalizing behaviors and maternal power assertive behaviors was higher for two consecutive time points than longer lags. The standardized coefficients are presented in Figure 1.

Table 3. The results of the transactional model of child externalizing behaviors and maternal power assertion[a].

Predictors	Age 4		Age 5		Age 6	
	b[b]	*β*[c]	*b*[b]	*β*[c]	*b*[b]	*β*[c]
Dependent Variable: ECBI Externalizing Problems						
ECBI -- T-1[d]	.384	.347**	.314	.322**	.331	.359**
ECBI -- T-2	--	--	.190	.176**	.180	.200**
ECBI -- T-3	--	--	--	--	.170	.171**
Power assertion – T-1	.228	.169**	.313	.202**	.048	.039
Dependent Variable: Maternal Power Assertion						
Power assertion – T-1	.515	.607**	.616	.524**	.651	.551**
Power assertion – T-2	--	--	.200	.200**	.380	.273**
ECBI -- T-1	.038	.054	-.054	-.073	.004	.005

Notes:

a. The model included concurrent covariances and socioeconomic status as an exogenous control.

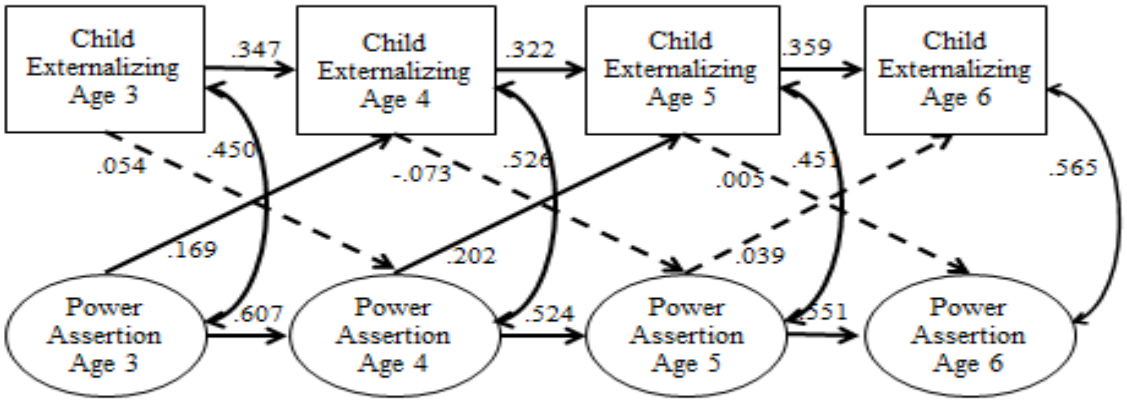
b. Unstandardized coefficient

c. Standardized coefficient

d. T-1 (or T-2, or T-3) indicates the variable from the year (or 2 years, or 3 years) preceding the age indicated in the column.

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

Figure 1. Cross-lagged model of child externalizing behaviors and maternal power assertion



Notes: The given betas are the standardized coefficients. The solid lines are the significant paths. The model included socioeconomic status as an exogenous control.

Controlling for the stability of child and parenting behaviors, and controlling for concurrent associations of these, only two of the six cross-lagged paths were statistically significant. Both of these significant paths represented mother-to-child effects, for ages 3-4 and for ages 4-5. Power assertive parenting at age 5 did not significantly predict child externalizing behaviors at age 6 (Figure 1). An increase in maternal power assertive behaviors predicted a subsequent increase in child externalizing behaviors for ages 3-5 but not for ages 5-6.

The standardized total effects of power assertive parenting at age 3 on child externalizing behaviors at age 6 were larger than the total effects of child externalizing behaviors at age 3 on power assertive parenting at age 6. Specifically, the total mother-to-child effect for this age range was $\beta = 0.117$, whereas the total child-to-mother was $\beta = 0.018$, a 6.5 fold difference. These results indicated that, in early childhood, the effect of parenting on child behaviors were substantially larger than the effect of child behaviors on parenting behaviors.

Next, we estimated a cross-lagged model that included the mother-child relationship and the support from the father (Figure 2). This model had a good fit, χ^2 (137) = 244.9, p=.00; χ^2/df- ratio= 1.79; CFI=.97 and RMSEA=0.031. Controlling for socioeconomic status, and all stability paths, concurrently, support from the father was significantly negatively associated with the mother's power assertive behaviors and the child's externalizing behaviors ($-0.36<r<-0.16$). These correlations were stronger for age 6 than for earlier ages. They indicated that when father support was high, both maternal power assertion and child externalizing behaviors were low.

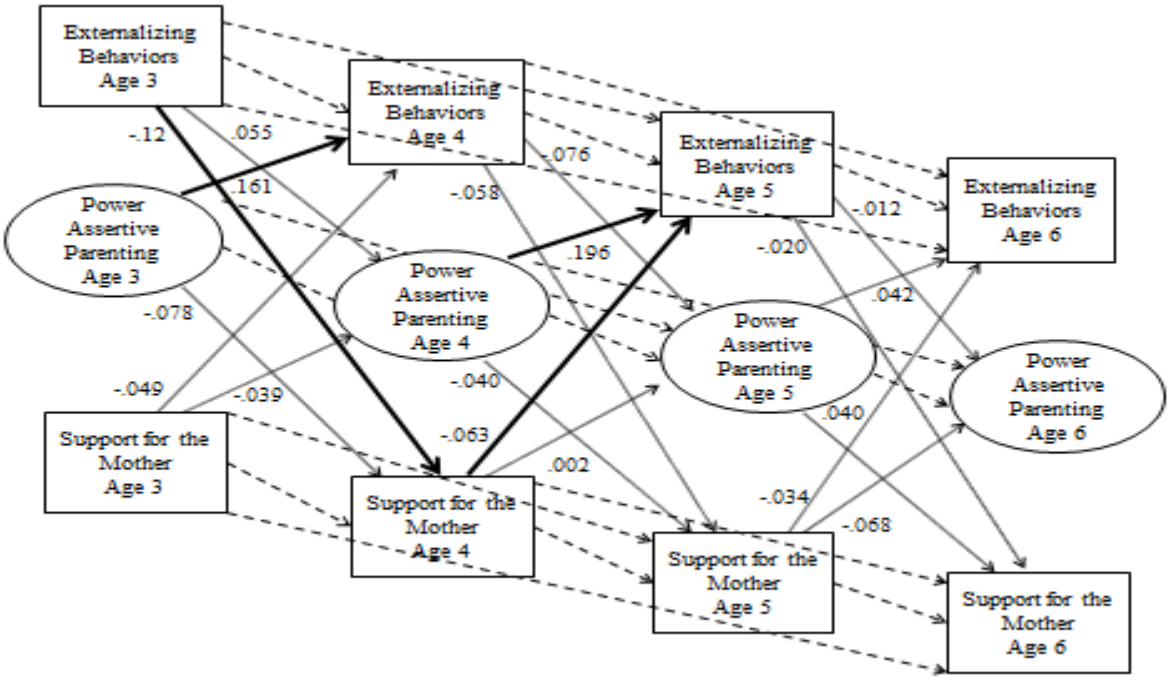
Table 4. The results of the transactional model of child externalizing behaviors, maternal power assertion, and support for the mother from the father.[a]

Predictors	Age 4		Age 5		Age 6	
	b[b]	*β*[c]	*b*	*B*	*b*	*β*
Dependent Variable: ECBI Externalizing Problems						
ECBI -- T-1[d]	.379	.347**	.301	.311**	.322	.345**
ECBI -- T-2	--	--	.185	.174**	.173	.192**
ECBI -- T-3	--	--	--	--	.177	.179**
Power assertion – T-1	.221	.161**	.304	.196**	.052	.042**
Support from the father – T-1	-.037	-.049	-.046	-.063*	-.027	-.034
Dependent Variable: Maternal Power Assertion						
Power assertion – T-1	.507	.592**	.622	.527**	.636	.544**
Power assertion – T-2	--	--	.206	.203**	.377	.272**
ECBI -- T-1	.037	.055	-.056	-.076	-.01	-.012
Support from the father – T-1	-.018	-.039	.001	.002	-.051	-.068
Dependent Variable: Support from the father						
Support from the father – T-1	.468	.475**	.305	.353**	.328	.281**
Support from the father – T-2	--	--	.230	.270**	.178	.176**
Support from the father – T-3	--	--	--	--	.245	.247**
ECBI -- T-1	-.175	-.120**	-.067	-.058	-.027	-.020
Power assertion – T-1	-.142	-.078	-.073	-.040	.072	.040

Notes:
a. The model included concurrent covariances and socioeconomic status as an exogenous control.
b. Unstandardized coefficient
c. Standardized coefficient
d. T-1 (or T-2, or T-3) indicates the variable from the year (or 2 years, or 3 years) preceding the age indicated in the column.
** p<.01, * p<.05

Longitudinally, there were limited and mostly non-significant bidirectional effects between the support from the father and the mothers' subsequent parenting behaviors; and, between the support from the father and the children's subsequent externalizing behaviors (Table 4 and Figure 2). There were two exceptions to this. First, in early childhood, there was a significant child-to-father effect (Table 4, last panel). Externalizing behaviors at age 3 predicted a drop in the support from the father to the mother at age 4 (β = -0.12, p=.00). Second, an increase in the support from the father between ages 3 and 4 predicted a modest decline in the externalizing behaviors of the child at age 5 (β = -0.06, p=.03; Table 4, top panel). Nevertheless, the standardized total effects of child externalizing behaviors at age 3 on father support at age 6 (β = -0.07) was substantively small, and the total standardized effect of support from the father on child behaviors was even smaller (β = -0.03). Interestingly, despite moderate concurrent correlations, father support did not contribute to reductions in maternal power assertion when the stability of this parenting behavior was taken into account.

Figure 2. Cross-lagged model of child externalizing behaviors, maternal power assertion, and support for the mother from the father.



Notes: The given betas are the standardized coefficients. The solid bold lines are the significant paths. The other solid lines are non-significant paths. The dash lines are the autoregressive paths. The model included socioeconomic status as an exogenous control.

The third transactional model was also tri-directional. It included support for the mother from her extended family and neighbors in addition to the bidirectional effects between maternal power assertion and child externalizing behaviors (Figure 3). This model had a good fit, χ^2 (137) = 276.5, p=.00; χ^2/df- ratio= 2.01; CFI=.95 and RMSEA=0.036. As expected, there were negative concurrent associations of support from the extended family and the neighbors with maternal power assertive parenting (-0.23< *r*< -0.08). The associations of this type of support with the externalizing behaviors of the children were weak (-0.10<*r*< -0.05). These negative correlations indicated that high levels of support from the extended family and neighbors were weakly associated

with low levels of child externalizing and maternal power assertive behaviors concurrently.

Longitudinally, support from the extended family and the neighbors had no significant effects on subsequent externalizing behaviors, controlling for the concurrent associations (Table 5, top panel). This type of support also did not significantly predict the subsequent maternal power assertion (Table 5, middle panel). However, towards the end of the age span that we studied, at ages 5 and 6, we identified substantial mother-to-mesosystem, and child-to-mesosystem effects. The results indicated that an increase in the child externalizing behaviors at age 5 predicted an increase in the support from the extended family and neighbors subsequently, at age 6 (Table 5, last panel; $\beta = 0.13$, p=.00). Furthermore, we identified negative effects of power assertive parenting on this type of support between the ages of 5 and 6. An increase in the maternal power assertive behaviors at age 5 predicted a decline in the support from the extended family and neighbors subsequently ($\beta = -0.18$, p=.00).

Table 5. The results of the transactional model of child externalizing behaviors, maternal power assertion, and support for the mother from the extended family and the neighbors.[a]

Predictors	Age 4		Age 5		Age 6	
	b[b]	*β*[c]	*b*	*β*	*b*	*β*
Dependent Variable: ECBI Externalizing Problems						
ECBI -- T-1[d]	.382	.348**	.316	.324**	.330	.357**
ECBI -- T-2	--	--	.187	.174**	.180	.200**
ECBI -- T-3	--	--	--	--	.170	.171**
Power assertion – T-1	.232	.171**	.307	.200**	.049	.041
Support from the extended family and the neighbors – T-1	-.008	-.007	-.027	-.033	-.003	-.003
Dependent Variable: Maternal Power Assertion						
Power assertion – T-1	.527	.610**	.601	.517**	.662	.557**
Power assertion – T-2	--	--	.211	.210**	.372	.269**
ECBI -- T-1	.038	.054	-.049	-.065	-.005	-.006
Support from the extended family and the neighbors – T-1	.044	.062	.008	.013	-.060	-.06
Dependent Variable: Support from the extended family and the neighbors						
Support from the extended family and the neighbors – T-1	.349	.269**	.148	.199**	.274	.218**
Support from the extended family and the neighbors – T-2	--	--	.223	.232**	.167	.179**
Support from the extended family and the neighbors – T-3	--	--	--	--	.207	.171**
ECBI -- T-1	-.014	-.011	-.039	-.044	.151	.132*
Power assertion – T-1	-.140	-.087	-.273	-.196	-.264	-.176**

Notes:

a. The model included concurrent covariances and socioeconomic status as an exogenous control.

b. Unstandardized coefficient ; c. Standardized coefficient

d. T-1 (or T-2, or T-3) indicates the variable from the year (or 2 years, or 3 years) preceding the age indicated in the column.

** p<.01, * p<.05a. Unstandardized coefficient

DISCUSSION

The current study had a four-fold contribution to the literature. First, the development of child externalizing problems was investigated during the critical years that preceded the transition to school. Second, the bi-directional association between power assertive parenting and child externalizing behaviors was investigated, shedding light on major theories of behavioral development, and identifying the relative contributions of the child and the mother to the process that could lead to the escalation of externalizing behaviors. Third, the roles of two sources of social support in this transactional process were identified. To our knowledge, this is the first effort to investigate a tri-directional transactional process that quantifies the role of social support from a variety of sources in this process, in a collectivistic cultural context. This effort helped us understand the role of family and non-family support systems in intercepting the negative coercive cycles that are known to lead to the escalation of externalizing behaviors in early childhood. Fourth, our study participants were from a relatively collectivistic culture. This allowed us to test longitudinal transactional hypotheses derived from developmental theories that were rarely tested in samples other than North American and Western European samples.

The social and cultural context of our sample must be borne in mind when interpreting our results and considering their implications. Our sample was from Turkey, where collectivistic, patriarchal, and traditional values prevail (Ataca, Kagitcibasi, & Diri, 2005; Kagitcibasi, 2007). Only a small percentage of mothers with young children work, mothers are responsible for the household duties and caring for the children, they have limited opportunities to socialize outside of the extended family and the neighbors,

and tight connections are maintained in that social network (Ataca et al., 2005; TUIK, 2010). As a result of these norms and a family centered value system, nearly all mothers in our sample were married with the co-residing biological fathers of their children, and only a small percentage of children attended non-maternal care or attended school prior to age 6. In this context, we expected that the quality of the relationships in the social networks of the mothers (i.e., extended family and neighbors) would influence their parenting behaviors and their children's behaviors as strongly as the quality of the within family (mother-father) relationships.

Similar to previous longitudinal transactional studies of child externalizing and power assertive parenting behaviors, the results of our analyses provided consistent evidence of within domain stability both for child and mother behaviors. Also, concurrently, there was a strong association between parenting and child behaviors. The cross-lagged analyses that focused on transactions in "developmental time", indicated no evidence for bi-directionality of mother-child relationship. Instead, we found consistent evidence of effects from earlier maternal power assertive parenting to subsequent child externalizing behaviors between ages 3 and 5, resulting in a substantial cumulative mother-to-child effect in early childhood, but no child-to-mother effect.

The absence of child-to-mother effects is neither specific to this sample, nor unique. These results were in congruence with the previous studies that found substantially larger mother-to-child effects in early childhood than child-to-mother effects (Barnes et al., 2013; Berlin, et al., 2009; Maguire-Jack et al., 2012). Child-to-mother effects may be small or non-significant, especially in early childhood, especially

prior to age 5 (e.g., Berlin, et al., 2009; Maguire-Jack et al., 2012). We propose three reasons for the lack of child-to-mother effects.

First, mothers may believe in the importance of controlling and directing their children's behaviors in early childhood (Rubin & Mills, 1990), and consequently may not be prone to changing their approach depending on their children's behaviors in early childhood. Furthermore, mothers may anticipate externalizing responses to their efforts to control the child's behavior in younger ages when the child has little regulatory capacity. If mothers view externalizing as normative in early childhood, these behaviors might not elicit anger or frustration in the mother. This interpretation implies a weaker coercive cycle in early childhood than in middle childhood.

Second, and regarding the social and cultural context of this study, the effects of parenting on child behaviors may be more dominant in this sample than in samples from less collectivistic (and more autonomy supporting) cultures. Historically, obedience to family rules have been an important parenting goal for the Turkish parents (Kagitcibasi, 1990), although some recent studies found that the importance placed on obedience has substantially diminished (Kagitcibasi & Ataca, 2005). Nevertheless, it has been repeatedly shown that Turkish parents use high levels of control with intrusive and power-assertive strategies in disciplining their children (Akcinar & Baydar, 2014; Kagitcibasi, 1996; Kircaali-Iftar, 2005). For example, in a cross-cultural comparison, the average number of commands (an indicator of control) issued by Turkish mothers was 14.5 per minute in a community sample, whereas this number ranged between 1.5 and 9 per minute among the mothers of Head Start children, the mothers of children with

ADHD, and the mothers who were referred to family protective services in the U.S. (Akcinar & Baydar, 2011; Arslan, 2010; Baydar, Reid, & Webster- Stratton, 2003).

Third, Turkish children are raised in the family environment. This implies no other ecological contexts by which the child could be influenced. This factor probably contributes to a high level of stability in both child and mother behaviors. Similar to our findings, maternal negative parenting behaviors ($0.50<B<0.55$) and child externalizing behaviors ($0.24<B<0.48$; showed stability across studies during the early childhood years (Barnes et al., 2013; Coley et al., 2014; Lee et al., 2013). Thus, it is likely that the mother-child relationship is shaped early in infancy and remains relatively stable. Previous research confirmed the association of parenting behaviors, including power assertive behaviors, with the child's temperament in this and other cultural contexts (Gallagher, 2002; Lengua & Kovacs, 2005).

A goal of the current research was to investigate the role of the mesosystem in mother-child relationship from a longitudinal and transactional perspective. Note that this sample is from a cultural context where mother-father, mother-extended family, and mother-neighbor relationships are strong, and most mothers do not participate in other social networks (Ataca et al., 2005; Kagitcibasi, 2007). Nevertheless, we found sparse evidence of transactional influences between these mesosystems and the child's externalizing behaviors.

The findings on the role of father support in mother-child relationship indicated that concurrently, support from the father was strongly and negatively associated with the mother's power assertive behaviors and the child's externalizing behaviors. We had expected that father support would alleviate maternal stress, contributing to declines in

power assertive behaviors of the mother. Contrary to this expectation, father support did not predict lower levels of power assertion of the mother longitudinally. This may be because of a strong gender based division of responsibilities in Turkish households, where fathers have limited role in day-to-day care of their children (Gürsimsek, Kefi, & Girgin, 2007; Taskin & Erkan, 2009). If mothers do not expect support for day-to-day parenting of young children, and if fathers provide a low level of support to the mothers for issues that have to do with parenting (instead, focusing on their roles as breadwinners), this source of support may become irrelevant in predicting maternal behaviors.

We had expected that supportive behaviors of the father would constitute a model for the child, predicting declines in externalizing behaviors. There was very limited and weak evidence of this process. The effect of the father on subsequent child behaviors was small and significant only for age 5. The positive model of father-mother relationship may have larger effects on social adaptive child behaviors than the problem behaviors. The longitudinal nature of the association of support from the father and child problem behaviors needs further investigation.

In the transactional model that we estimated, we found a single piece of evidence of child-initiated effect: a high level of externalizing behaviors at age 3 predicted a decline in the father's support to the mother. Although the fathers' emotional and behavioral investment in children are also associated with the children's social and behavioral development (Lamb, 1997; Lewis & Lamb, 2003), they are less involved with their children than the mothers even in societies that do not endorse gender based division of responsibilities (Coiro & Emery, 1998; Bouchard & Lee, 2000). When

fathers are involved, they tend to be involved in play activities rather than socialization and discipline (Lamb, 1997). As a result, when children display problematic behaviors, fathers may not have built their skills to deal with these problems effectively, and may withdraw from the situation. Furthermore, the fathers may perceive mothers as responsible for the child's undesirable behaviors. These attitudes and behaviors of the fathers may likely be interpreted by the mother as a lack of support.

The findings for the role of extended family and neighbor support in parent-child relationship indicated that concurrently, high levels of support from the extended family and neighbors were weakly associated with low levels of child externalizing and maternal power assertive behaviors. However, towards the middle childhood, we identified substantial transactional effects between power assertive parenting, child externalizing behaviors, and support that the mothers receive from the extended family and the neighbors. Specifically, we found that an increase in maternal power assertion when the child was 5, predicted a decline in this type of support. When a negative valence prevails in mother-child relationships, and when the mother is with the child nearly full time, this negative valence may spill over to other relationships of the mother (Erel & Burman, 1995). There may be limited anger and frustration in power assertive behaviors of the mother when the child is young, because in an obedience oriented culture, it is expected that a high degree of control is normatively needed in early childhood. However, expectations of obedience may increase as the child gets older, and maternal power assertion may increasingly be accompanied with negativity. This negativity may lead to the withdrawal of support and availability of the extended family

and the neighbors. The continuity of the negative effect of maternal power assertion on this type of support in middle childhood remains to be investigated.

We found a positive effect of an increase in child externalizing behaviors on subsequent support from the extended family and neighbors between ages 5 and 6. When the child gets older, especially before the school entry, she/he is expected to display fewer externalizing behaviors (Scales et al., 2001). An increase in externalizing behaviors may signal an unusual situation in the family or with the mother (e.g., birth of a sibling or maternal depression). Support from the extended family or neighbors may be mobilized in this case, to help alleviate the maladaptive development of the child. A previous study found that extra familial support was high and it was associated with child cognitive outcomes in high-risk families, as indicated by a low socioeconomic status and a high level of depression (Baydar et al., 2014). Evidence from the current study is consistent with this framework. It is likely that an increase in externalizing problems is interpreted as a need for support in extended family and neighborhood networks, especially in anticipation of the child's transition to school.

This study had two important limitations. The first limitation stems from our effort to seek bi-directional influences between the mother and the child using data that unfolded in "developmental time" rather than in "real time" (Granic & Patterson, 2006). While this approach has been adopted by many previous studies, it may not be an ideal approach to capture and quantify real time coercive processes that embody both mother-to-child and child-to-mother influences. Observational measures that focus on sequences of interactions in real time, and that assess behaviors in a limited time interval within a specific situation may be better suited to understand behavioral triggers and their

consequences in micro level interactions (Stafford & Bayer, 1993). To our knowledge, a quantitative approach to study real time interactions has not been established in this field of research. Most widely used observational measures are designed to quantify maternal behaviors and child behaviors separately, but not sequences of particular types of behaviors (e.g., DPICS, Robinson & Eyberg, 1981). While the difficulties of quantifying interactions are obvious, this may be an area that deserves further development.

The second limitation of the present research is our strong reliance on maternally reported measures. This may have biased our results in favor of mother-driven effects, rather than bi-directional effects because mothers who escalate their power assertive behaviors may have a tendency to perceive an escalation of externalizing behaviors. Our modeling of concurrent associations and the inclusion of autoregressive paths that represent the stability of maternal and child behaviors may have partially alleviated this potential source of bias.

The present study addressed the transactional processes between maternal power assertive behaviors, child externalizing behaviors, and emotional and instrumental support that mothers may receive from the fathers, extended family, and neighbors. This latter aspect of our study seeks to incorporate the mesosystem in the study of the mother-child microsystem, and may be particularly relevant in collectivistic social contexts. Furthermore, we considered the mother, the child, the father, and the members of the extended family or neighborhood as potentially active agents in the development of externalizing behaviors. Accordingly, we provided a comprehensive model of examination of triadic child-microsystem-mesosystem relationships. To our knowledge, this is the first effort to understand the dynamic systems of children with a tri-directional

transactional process, shedding new light on major developmental theories of behavioral development.

THESIS DISCUSSION

The main purpose of the current dissertation was to investigate the associations between parenting behaviors and child externalizing behaviors. Parent and child behaviors are parts of the mesosystem, and prone to be affected by the environmental factors (e.g., socioeconomic status and maternal education) and the cultural context they live in (e.g., support from father, family, and neighbors). Externalizing behaviors received special attention in developmental literature because they occur early in life and tend to be stable, and led to problems both in social and academic development (Aunola & Nurmi, 2005; Coie & Dodge, 1998; Campbell, 1995; Deater-Deckard & Dodge, 1997). Although these problem behaviors decline as the child gets older, it is estimated that 3-8% of children age 3-6 display levels of aggression that are substantially higher than what is normative for their age (Fanti & Henrich, 2010; Campbell et al., 2006). It is especially important to study parenting behaviors and their effects on child developmental outcomes in Turkey because, most children in early childhood years are raised in family environment (OECD, 2009). The attendance rates of non-maternal care in Turkey are very low (98% at age 3, 94% at age 4, and 91% at age 5 did not receive non-maternal care, TECGE 2011). Besides, the maternal employment rates are very low (in general %26.7, TUİK, 2010 and in mothers of children aged 3-6 is % 12; TEÇGE, 2010).

This thesis investigated parent-child relationship and different factors that may affect this relationship. First, Western and Turkish literature review of major ecological factors (family structure, maternal characteristics, child characteristics, family, and neighborhood environment) that are known to affect parenting behaviors were

summarized. Then, the effects of maternal education, socio-economic status, and support mothers received from their husbands, family, and friends on the mothers' responsiveness and power assertive behaviors were identified. The importance of the study was that it allowed the identification of the risk and protective factors for the parenting behaviors shedding light on applied developmental science.

Second, the association of socioeconomic status (SES) and child developmental outcomes (e.g., externalizing behaviors, prosocial behaviors, and receptive vocabulary development) of 3 years old children was examined. The importance of this study is due to the definition and factors associated with SES. There are wide range SES differences in Turkey (low per capita GDP - $14,000 in 2008 as compared to $47,000 in the U.S.) and education and economic well-being of women do not overlap. Thus, the moderation role of SES for the parent-child relationship may be different than the Western literature. The results indicated that some parenting behaviors and neighborhood resources support cognitive and behavioral development of children when other resources are scarce. These results emphasized the protective factors that may be related with child and parenting behaviors than gain salience in disadvantaged groups.

Third, the developmental trajectories of aggressive behaviors of individual children between ages 3 and 7 was examined. We explored the shape and the variability in trajectories of aggressive behaviors, maternal power assertion, maternal warmth, and maternal responsiveness. To our knowledge, this is the first study in Turkey that explored the aggressive trajectories in early childhood years. The study results specified the association of maternal power assertive behaviors with child aggressive behaviors. It was important to find that the change in maternal power assertion was positively and

significantly associated with the change in child aggression such that, a delay in the decline in power assertive behaviors by 1.5SD resulted in a 2-year delay in the decline in aggression when the children were 7. In this case, the predicted level of aggressive behaviors of the child at age 7 was similar to that of a normative 5 year-old, suggesting an important factor contributing to child problem behaviors, preceding the years that span school transition.

Forth, as the dynamic systems theory of antisocial behavior suggests (Granic & Patterson, 2006), this study proposed a tri-directional model of association for power assertive parenting, child externalizing problems, and family and non-family support. To our knowledge, this is the first study in Turkey and in abroad. The previous studies examined the bi-directional relationship of the mother-child interaction, but the child-mother-mesosystem dynamic interaction was investigated as a first time. The results of child-to-father, mother-to-mesosystem, and child-to-mesosystem effects of this thesis will shed new light on the theories and application about the effects of the developmental ecologies and their influence on the developmental processes.

The study had a remarkable sample from Turkey, the Study of Early Childhood Developmental Ecologies in Turkey (ECDET) which was a 5-year longitudinal and nationally representative study (N=1052 - 735, 19 provinces and 33 communities). This study focused on the developmental ecologies and their influence on the developmental processes. Developmental ecologies are defined as the nuclear family, the extended family, the school and the community contexts of the child, as well as the interactions of these contexts with each other. They contain all social-environmental factors that influence the cognitive, social, and emotional development of children during early

childhood. Understanding the interaction between the developmental trajectories of children and the developmental ecologies is the prevailing goal of developmental science and such an understanding is necessary for the formulation of effective educational policies and intervention programs. This developmental process could only be studied using a longitudinal design. The sample size and representativeness of the sample also allowed for the generalizability of the all four study results in Turkish context.

To conclude, the current dissertation contributed to parenting literature in various ways. First, identification of risk (low socio-economic status and low maternal education) and protective factors (family and neighborhood resources, and support from the social context) for parenting behaviors, shed light on identifying the specific conditions that affect the children's development. Second, identification of the trajectories of child aggressive behaviors during the critical years that span transition to school, highlighted the importance of power assertive parenting as factors to escalate the trajectories of aggressive behaviors in children. Third, focusing on the mesosystem of children by studying the effects of mother, father, extended family and neighbors on the development of child externalizing behaviors, shed light on major developmental theories. The examination of triadic child-microsystem-mesosystem relationships was the first effort to understand possibly active agents in the development of child externalizing behaviors.

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