THE RELATION OF ATTACHMENT SECURITY WITH MATERNAL RESPONSIVENESS AND CHILD'S SOCIOEMOTIONAL COMPETENCE: USING THE ATTACHMENT Q-SET WITH A TURKISH PRESCHOOL SAMPLE

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The Relation of Attachment Security with Maternal Responsiveness and Child's Socioemotional Competence: Using the Attachment Q-Set with a Turkish Preschool Sample

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Thesis Abstract

Akif Ercihan Yerlioğlu, "The Relation of Attachment Security with Maternal Responsiveness and Child's Socioemotional Competence: Using the Attachment Q-Set with a Turkish Preschool Sample"

This study aimed to examine the concurrent associations among maternal responsiveness, child's attachment security, effortful control, and social competence and to investigate the utility and validity of the Attachment Q-Set (AQS) in laboratory settings. Seventy-six Turkish preschool-aged children, their mothers, and preschool teachers participated in the study. By using hierarchical regression analysis, maternal responsiveness was found to predict AQS scores of preschoolers, even when the effortful control was controlled for. Furthermore, maternal responsiveness mediated the relationship between attachment security and effortful control. Contrary to our predictions and assumptions of the theory, there was not a significant link between attachment security and socioemotional adjustment ratings of mothers (CBCL) as well as preschool teachers (ERC, SCBE-30). Nevertheless, there was an interactive role of child's effortful control and attachment security on socioemotional adjustment outcomes. Contrary to our expectations, children with higher effortful control and higher scores on the AQS were rated by their teachers as having more lability/negativity and anxiety-withdrawal problems. Finally, the AQS system was found to be a valid and useful instrument for laboratory assessments of attachment security. Findings were discussed through a cross-cultural framework.

Tez Özeti

Akif Ercihan Yerlioğlu, "Çocuğun Bağlanma Davranışının Anne Hassasiyeti ve Çocuğun Sosyo-duygusal Yetkinliğiyle İlişkisi: Bağlanma Davranışları Sınıflandırma Setinin, Okul Öncesi Dönemdeki Türk Çocuklarıyla Kullanılması"

Bu çalışma, çocuğun bağlanma davranışı, anne duyarlılığı, çocuğun kendini denetleme becerisi ve sosyal yetkinliği arasındaki ilişkiyi incelemeyi; Bağlanma Davranışı Sınıflandırma Seti'nin (BDSS) laboratuvar ortamında uygulanabilirliği ve geçerliliğini araştırmayı amaçlamıştır. Katılımcılar, 76 okul öncesi çağdaki Türk çocuğu, anneleri ve anaokulu öğretmenlerinden oluşmaktadır. Hiyerarşik regresyon analizleri kullanılarak, anne hassasiyetinin, kendini denetleme becerisi kontrol edildiğinde dahi, çocuk BDDS puanlarını yordadığı bulunmuştur. Bununla birlikte, anne hassasiyetinin bağlanma davranışı ve kendini denetleme becerisi arasındaki ilişkide aracı rol oynadığı görülmüştür. Beklentilerimizin ve teorinin varsayımlarının aksine, çocuğun bağlanma davranışı ve annenin (CBCL) ya da öğretmenin (ERC, SCBE-30) sosyo-duygusal uyum değerlendirmeleri arasında anlamlı bir ilişki bulunmamıştır. Ancak, çocuğun kendini denetleme becerisi ve bağlanma davranışının, sosyo-duygusal uyum üzerinde anlamlı bir etkileşimi olduğu görülmüştür. Beklentilerimizin aksine, kendini denetleme becerisi ve bağlanma davranışı yüksek puanlanan çocuklar, anaokulu öğretmenleri tarafından daha duygusal değişme eğiliminde/negatif ve endişeli-çekingen olarak değerlendirilmiştir. Son olarak, BDDS sisteminin, bağlanma davranışlarının laboratuvar ortamında değerlendirilmesinde geçerli ve kullanışlı bir araç olduğu görülmüştür. Araştırmanın sonuçları, kültürlerarası bir çerçevede tartışılmıştır.

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CONTENTS

CHAPTER 1

INTRODUCTION

Attachment theory is one of the most influential theories for students of both developmental and clinical psychology. Since it has implications for current and future social functioning and psychological health, many researchers from various sub-disciplines of psychology have examined the assumptions and predictions of the theory. Recent research has focused on the manifestations of attachment security during the preschool period (e.g. NICHD Early Child Care Research Network, 2001; Humber & Moss, 2005; Britner, Marvin, & Pianta, 2005; Posada, 2006). In the present study, we examined the relationship between attachment security, maternal responsiveness, and child's socioemotional outcomes. By recruiting a Turkish sample of mother-preschooler dyads, we also explored the applicability and validity of the Attachment Q-Set (AQS) in the laboratory context. Drawing on past work in attachment research and theory, concurrent associations among child's attachment security, maternal sensitivity, child self-regulatory competence, and social competence were investigated to explore the validity of the AQS as a measure of preschoolers' attachment behavior evaluated outside the home setting.

The Introduction has four sections. First, we provide an overview of the attachment theory and review the correlates and consequences of attachment security. Then our focus is on the cross-cultural findings to critically evaluate the validity of the attachment theory in non-Western contexts. Third section gives information about the assessment methods of attachment security, especially for children in the preschool period. It should be noted that this review is not an

exhaustive summary of the attachment literature, yet it mostly focuses on studies dealing with non-clinical samples of preschoolers.

The Attachment System

During his observations in hospitalized and institutionalized children, Bowlby sought for antecedents to psychopathology and normal development. He claimed that a warm and unceasing connection with the mother (or a primary caregiver) is needed for the healthy development of a child (Cassidy, 1999; Bretherton, 1992). In addition, Ainsworth and colleagues further stated that a secure attachment relationship also requires that the mother should function as a secure base from which to explore (Ainsworth, Blehar, Waters & Wall, 1978).

Bowlby (1969/1982) argued that the attachment system has an evolutionary function. That is to say, a secure attachment bond would increase the survival chances of an infant. Therefore, Bowlby moved away from the Freudian perspective that an infant becomes attached to his caregiver for food and shelter (Bretherton, 1992). On the contrary, the infant seeks proximity to the mature caregiver, since the caregiver is better equipped to eliminate predators. Thus, the "set goal" of the attachment behavioral system involves gaining proximity to the caregiver. Sroufe and Waters (1977) later redefined the set goal as "felt security." Concerning the parental side of this interaction, the caregiver has a caregiving behavioral control system that is responsible for responding to the infant's needs (Bell & Richard, 2000).

Two sets of behavioral systems are closely associated with the attachment behavioral system. These are the exploratory behavioral system and fear behavioral

system (Cassidy, 1999). When the fear system is activated, it also usually activates the attachment system. On the other hand, when exploratory system is activated, the activation of the attachment system is decreased. Therefore, if the infant feels secure, s/he starts to explore what is around him/her. However, when s/he feels threatened, s/he seeks the attachment figure, most often one or a few specific caregivers. The balance between the exploratory and attachment system is generally manifest in "secure base behavior" that is retaining a comfortable psychological contact with the attachment figure while playing and exploring (Cassidy, 1999). For instance, an infant who has a secure bond with his/her mother may play away from her, yet maintain his/her communication with the mother through looks, smiles, and calls. In addition, s/he can return to his/her mother for affection and support when needed. Taken together, the psychological presence of the mother and the child's confidence about the mother's availability are essential for secure base behavior.

A crucial aspect of the attachment behavioral system is its "goal-corrected" nature (Cassidy, 1999). To provide a balance between exploration and safety, the system of attachment is goal-corrected. That is, a child can arrange his/her behaviors according to the environmental changes while achieving the set goal of attachment behavior system. Early interactions with the attachment figure play a significant role in establishing the "internal working models" about the caregiver and the infant him/herself. These mental models involve expectations from the attachment figure and also ideas pertaining to how the attachment figure views the infant (e.g. acceptable vs. unacceptable, valued vs. devalued). That is to say, internal working models help the infant draw information from past experiences and build up representations about external and internal world. These models have essential

implications into the preschool period given that children use the internal working models of their attachment figure in order to feel secure when she is not physically present (Bretherton & Munholland, 1999).

Attachment Security and Maternal Responsiveness-Sensitivity

Bowlby (1969/1982) viewed mother's sensitivity in responding to her infant as one of the main routes that leads to a secure relationship. Ainsworth and colleagues investigated this proposition empirically (Ainsworth et al., 1978). In Baltimore, 26 mother-infant dyads were observed in their houses during the first year of the infant. Observations ranged up to 70 hours in each home. When the infant became one year old, these dyads were observed in laboratory settings by using the Strange Situation procedure. The authors attempted to figure out which maternal variables were influential in establishing a secure attachment bond. They indicated that "sensitive responsiveness to infant signals and communications" was the most crucial maternal dimension that contributed to the security of the relationship (Ainsworth et al., 1978, p.152).

There are mixed findings regarding the link between maternal sensitivity and attachment. While some studies (e.g. Pederson & Moran, 1995; Teti, Nakagawa, Das, & Wirth, 1991) have supported this association, a few studies (e.g. Mangelsdorf, Gunnar, Kestanbaum, Lang, & Andreas, 1990; Rosen & Rothbaum, 1993) yielded a weak connection between the two variables. De Wolff and van IJzendoorn (1997) conducted a meta-analysis including 66 attachment research studies. The authors stated that maternal sensitivity was moderately associated with the Strange Situation ratings of security (r = .24). In a more recent meta-analysis, van IJzendoorn, Vereijken, Bakermans-Kranenburg and Riksen-Walraven (2004)

included studies that used the AQS as the attachment assessment, and indicated a higher level of sensitivity-attachment association (r = .39).

Thompson (1998) has pointed out a number of reasons for the reliable yet not so robust relation between maternal sensitivity and attachment security. One explanation for the incongruent findings among many studies may be the variety in the measurement methodology (Seifer, Schiller, Sameroff, Resnick, & Riordan, 1996). In other words, researchers used divergent measurement tools in order to assess caregivers' sensitive responsiveness (De Wolff & van IJzendoorn, 1997). As noted above, Ainsworth made intensive observations in her Baltimore study. Most studies following Ainsworth are generally not comparable to her original study in terms of their methodology (Seifer et al., 1996). Thompson also emphasized that extensive home observations may give rich information about the parental responsiveness relative to highly structured or novel assessment conditions. Nevertheless, even those studies that used elaborate observational methods did not yield consistent results (see Thompson, 1998).

Another explanation for the inconsistency among sensitivity research may be that even though maternal sensitivity could be related with security in some studies, it fails to predict the specific type of insecurity (Thompson, 1998). In other words, although some studies show that maternal sensitivity differentiates secure children from insecure ones, it fails to draw a distinction between resistant children and avoidant or disorganized ones. Belsky and colleagues (Belsky, Rovine, & Taylor 1984; Isabella & Belsky, 1991; Isabella, Belsky, & von Eye, 1989) provided interpretation and empirical evidence pertaining to the association between sensitivity and insecure categories. They indicated that during the first year of life,

mothers' intrusive overstimulation might lead to the development of avoidant children, whereas mothers' persistent unresponsiveness might lead to development of resistant children. In the light of this evidence, Thompson (1998) underscored that a more complex model would help us to comprehend the contribution of caregiving in the development of attachment security.

A further reason for the relatively weak link between sensitivity and attachment security might be that the implications of sensitivity may depend on other factors such as the infant's age and the contexts that caregiving takes place (Thompson, 1998; Posada, Jacobs, Carbonell, Alzate, Bustamante, & Arenas, 1999). For instance, mother's sensitive reaction might be more influential in terms of providing security when the child is frustrated compared to contexts such as feeding and play, in which there is more opportunity for peaceful interaction. Thompson (1998) also stated that the sensitivity assessments should take into consideration the child's developmental stage given that a responsive maternal act might have a more crucial impact at a specific stage relative to an earlier or later one. Furthermore, it should be noted that maternal sensitivity may also depend on the consistency of responsiveness (Thompson, 1998).

With regard to a methodological issue, it should be pointed out that all studies included in the meta-analytic investigation of van IJzendoorn and colleagues (De Wolff & van IJzendoorn, 1997; van IJzendoorn et al., 2004) were correlational studies. Therefore, a causal relationship between maternal responsiveness and attachment security cannot be drawn by using those research findings. However, in their exploratory meta-analysis, van IJzendoorn, Juffer, and Duyvesteyn (1995) pointed to the short-term intervention studies that aimed at increasing maternal

sensitivity. Those intervention programs were found to be influential in enhancing children's attachment security (as cited in Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003). The combined effect size for these short-term interventions was *d* = .48. In a more recent meta-analysis, Bakermans-Kranenburg et al. (2003) indicated that the interventions were influential on improving parental sensitivity (*d* = .33) and enhancing attachment security (*d* = .20). These findings indicate that a causal role might be attributed to parental responsiveness in the development of secure attachment.

It should also be noted that sensitivity does not refer to mothers' specific personality characteristics (Posada, Carbonell, Alzate, & Plata, 2004). Since sensitive caregiving takes place in a dyadic interaction, both mother and child contribute to this exchange. Generally investigators primarily attempt to evaluate mothers' actions in this essential relationship with the child; however, we should always keep in mind that child's contributions might also influence the mother's quality of caregiving.

Attachment Security and Temperament

Considering the fact that security of the child is constructed in a dyadic relationship, maternal responsiveness depends more or less on what the child needs with regard to his/her individual characteristics (Thompson, 1998; Thompson, Easterbrooks, & Padilla-Walker, 2003). Thompson suggested that child characteristics contribute to the organization of attachment in a few ways. Child's earlier experiences, temperamental qualities, and the presence of emotional or behavioral disorders are essential points with regard to how the child may act to influence caregiving.

Of particular importance to this study is child's contribution to maternal caregiving quality as a function of his/her temperamental characteristics. Temperament is commonly defined as "constitutionally based individual differences in emotional, motor, and attentional reactivity and self-regulation" (Rothbart & Bates, 1998, p. 109). Individual differences in emotional self-regulatory capability, that is the potency to manage the expression of emotions, particularly the negative ones, emerge in the first years of life (Calkins, 2004). Effortful control is one of the essential self-regulatory mechanisms and defined as "the ability to inhibit a dominant response to perform a subdominant response" (Rothbart & Bates, 1998, p. 137). Specifically, effortful control is viewed as an active system that has significant implications for planning and attention and has been associated with the anterior attention network in the midprefrontal cortex (Rueda, Posner, & Rothbart, 2004). Research has shown that effortful control was related to the development of conscience, empathy and sympathy and fewer behavior problems in preschoolers and older children (Gurthrie, Eisenberg, Fabes, Murphy, Holmgren, Maszk, & Suh, 1997; Murphy, Eisenberg, Fabes, Shephard, & Gurthrie, 1999; Henry, Caspi, Moffitt, Harrington, & Silva, 1999; Caspi, Henry, McGee, Moffitt, & Silva, 1995; Kochanska, Murray, & Coy, 1997; Olson, Sameroff, Kerr, Lopez, & Wellman, 2005).

In his review, Thompson (1998) pointed out that studies investigating the association between temperament and attachment in general have produced either nonsignificant or mixed results (e.g. Belsky & Isabella, 1988; Belsky & Rovine, 1987). Some studies revealed that there might be a link between temperamental difficulty and resistant attachment (Frodi, 1983; Weber, Levitt, & Clark, 1986).

Furthermore, some research findings indicated that temperamental characteristics are related to the subcategories of attachment classifications (Belsky & Rovine, 1987). For example, Kochanska (1998) argued that child's temperament was not associated with security-insecurity distinction; rather, child fearfulness differentiated among the insecure classifications. The author noted that resistant infants were more fearful than avoidant infants.

In his review, Thompson (1998) underlined that there is a moderate influence of temperament on attachment security that should not be ignored. Nonetheless, he pointed out that little research has dealt with how the child's temperamental characteristics contribute to the complex relationship of maternal sensitivity and attachment security. Thompson concluded that aside from the dichotomous perspectives viewing maternal sensitivity or temperament as the primary component of attachment security, we need transactional models taking into account the joint impact of temperament and maternal responsiveness.

There are only a few studies that measured both infant temperament and maternal behavior as predictors of attachment quality. For example, Seifer and colleagues' (1996) longitudinal investigation concerning the link between maternal sensitivity, temperament and attachment in the first year of life displayed that temperament was more strongly associated with sensitivity and also with Q-sort security compared to the modest relationship between maternal sensitivity and security ratings for both the AQS and the Strange Situation. Recently, authors focused on the interactive effects of some temperamental variables and attachment security on child outcomes (van Brakel, Muris, Bögels, & Thomassen, 2006; Shamir-Essakow, Ungerer, Rapee, 2005; Burgess, Marshall, Rubin, & Fox, 2003). Overall,

these findings call for a need to scrutinize the complex relationship among three main concepts: responsiveness, temperament and attachment.

Attachment Security and Socioemotional Adjustment

Sroufe, Egeland and Carlson (1999) indicated that there are five routes through which early experiences with the primary caregiver influence later social adjustment. Firstly, constant availability and sensitive responsiveness of the mother leads to positive expectations about future relationships. Therefore, secure attachment with the mother constructs the "motivational" base for other social interactions. Secondly, the child feels that s/he has an impact on the mother in this dyadic relationship, which sets the stage for the establishment of self-worth and self-esteem. This is the "attitudinal" base for social adaptation. Thirdly, having a secure base from which to explore provides the child with essential skills for gaining mastery over his environment. This "instrumental" base helps the child for developing better social competence. Fourthly, since emotion regulation is achieved through early dyadic interactions, this provides the "emotional" base for the social world. Lastly, fundamentals of a relationship are learned in the early dyadic interaction. Exchange of emotions, empathy, turn-taking, and reciprocal care are experienced in a secure attachment relationship. Therefore, these form the "relational" base for social life.

One of the predictions of the attachment theory is that security of the child makes an essential contribution to the social adaptive behavior in home and school settings (Erickson, Sroufe, & Egeland, 1985; Thompson, 1999). In a recent meta-analysis, van IJzendoorn and colleagues (2004) revealed a small size relationship between AQS assessments of security and social competence (r = .22 across 33 studies). This finding is in line with the meta-analytic study of Schneider, Atkinson,

and Tardif (2001), in which both the Strange Situation and the AQS assessments were included to examine the link between child-parent attachment and peer relations of children. Schneider et al. found a small size of association between caregiver-child bond and peer relations (r =.20 across 63 studies).

Problem Behaviors

Developmental psychopathology perspective formulates the influence of attachment on socioemotional outcomes as a risk or a protective factor (Thompson, Flood, & Goodvin, 2006; Deklyen & Greenberg, 2006; Kobak, Cassidy, Lyons-Ruth, & Ziv, 2006). In other words, although early attachment quality is essential for the development of interactive regulation of emotions, having an insecure attachment does not refer to the presence of psychopathology (Deklyen & Greenberg, 2006). Moreover, both temperamental and relational factors might contribute to the development of dysregulated behavior (i.e. anger, withdrawal, conduct etc.) (Olson, Bates, Sandy, & Schilling, 2002).

In a secure attachment relationship, the child turns to the mother to interpret the events surrounding him/her and learn which emotions are acceptable and/or should be modulated (Guttman-Steinmetz & Crowell, 2006; Thompson et al., 2003; Thompson et al., 2006). In this light, Guttman-Steinmetz and Crowell (2006) portrayed attachment as a "relational emotion regulation system". Many studies related secure attachment with more socioemotional adaptation in preschoolers. Children with secure attachment were found to have lower levels of problem behavior, higher levels of emotional understanding and better peer relationships (Laible, Thompson, 1998; Moss, Bureau, Cyr, & Dubois-Comtois, 2006; Cicchetti, Rogosch, & Toth, 1998; De Mulder, Denham, Schmidt, & Mitchell, 2000; Howes &

Ritchie, 1999; Park & Waters, 1989; Easterbrooks, Davidson, & Chazan, 1993; Bohlin, Hagekull, & Rydell, 2000). In previous studies, insecure children were found to have higher rates of problems with aggression and self-regulation, as well as conflicts with peers during preschool years and later (Moss, Rousseau, Parent, St-Laurent, & Saintonge, 1998; Thompson, 1999; Thompson et al., 2003; Moss et al., 2006). Avoidant children were characterized by externalizing problems such as disruptive behaviors, acting impulsively towards their peers in the school context (De Klyen & Greenberg, 2008) and during laboratory observations of peer play (Burgess et al., 2003). Ambivalent children were reported to have less self-confidence, withdraw from social circumstances and lack assertiveness (Rubin & Burgess, 2001). In the Minnesota Parent-Child Project, a longitudinal study with a high-risk sample, it was reported that insecure children tended to have more adjustment problems concerning aggression and depression, compared to their secure counterparts (Weinfield, Sroufe, Egeland, Carlson, 2008). Especially in high-risk families, combined with other disadvantages, insecurity of the child was found to have a predictive power on later socioemotional adjustment problems.

Guttmann-Steinmetz and Crowell (2006) argued that for externalizing behavior problems especially, most symptoms manifest themselves in middle childhood and later; however, we have golden standard instrument of attachment security designed for the infancy period, the Strange Situation. Therefore, more research should be conducted to validate the instruments that assess post-infancy period. The present study used the AQS system which is an alternative tool for measuring attachment security for preschool period and investigated the links between attachment scores and problem behavior.

Cross-Cultural Viewpoint

Basic premises of the attachment theory are founded in ethology. Moreover, Bowlby stated that attachment has an evolutionary function that primates need to be taken care of by a stronger and wiser one (Bretherton, 1992). Therefore, one would expect to observe similar attachment related behaviors in any part of the world though specific cultural differences may emerge. In a detailed review, van IJzendoorn and Sagi (1999) included attachment studies from different parts of the world and investigated the main hypotheses of the attachment theory. These were universality, normativity, sensitivity and competence hypotheses. If those fundamental assumptions have empirical support across cultures, then fundamental assertion of the theory with regard to the evolutionary function of the attachment system would be supported. Therefore the attachment theory could be viewed as a cross-cultural theory. The authors incorporated studies from Gusii (Kenya), Hausa (Nigeria), Dogon (Mali), Efé (Zambia), !Kung San (Botswana), China and Israel in their review.

The universality hypothesis can be summarized as the assumption that all infants are equipped to establish a relationship with their primary caregiver, whether secure or insecure. van IJzendoorn and Sagi (1999) stated that the universality hypothesis is confirmed by most of the studies they have reviewed (e.g. Kermoian & Leiderman, 1986; Konner, 1977; Takashashi, 1986; as cited in van IJzendoorn & Sagi, 1999). Furthermore, findings of Posada, Gao, Wu, Posada, Tascon, Schoelmerich, Sagi, Kondo-Ikemura, Haaland and Synnevaag (1995) revealed that mothers have a similar portrayal of an ideal child across cultures. These descriptions also closely resemble to experts' definition of "optimally secure" child.

Secondly, many studies conducted in the Western culture revealed that although the distributions differ, secure attachment is the predominant category. If the same trend is observed in other cultures, it would be in line with the normativity hypothesis. The authors indicated that predominance of secure attachment styles in different parts of the world were similar to the rates observed in Western cultures supporting the normativity hypothesis (van IJzendoorn & Sagi, 1999).

Another central assumption of the attachment theory is the sensitivity hypothesis referring to the association between caregiver sensitivity and the security of the relationship (van IJzendoorn and Sagi, 1999). As stated before, the sensitivity hypothesis has been at most moderately supported by studies done in the Western, industrialized cultural contexts (van IJzendoorn et al., 2004; De Wolff & van IJzendoorn, 1997). Some researchers have pointed out that the sensitivity concept mostly embraces the Western values. For example, Rothbaum and colleagues claimed that Japanese mothers differ from the American mothers in terms of what they expect from their children, as well as in terms of how and when they interact with them (Rothbaum, Weisz, Pott, Miyake, & Morelli, 2000). On the other hand, in an attempt to validate the basic premises of the attachment theory in a different cultural context, Posada and colleagues investigated Colombian mothers' understanding of sensitivity (Posada et al., 2004). In this study, 6- to 11-month-old infants and their mothers were observed in their homes in Bogotá. An ethnographic methodology sensitive to the cultural practices of mothering in Colombia was used while observing maternal behavior. The findings of this study have indicated that the manifestation of maternal sensitivity in Colombia mostly overlapped with the original formulations of Ainsworth's sensitivity. Finally, van IJzendoorn and Sagi

(1999) reviewed the cross-cultural findings with regard to the sensitivity proposition of the attachment theory. Based on their review, the authors also concluded that the sensitivity proposition is supported outside the Western cultures; although, not as strong as the other assumptions of the theory.

Finally, there are also assumptions concerning the link between attachment security and child's social competence. If secure children in any culture are found to be socially more competent, compared to their insecure counterparts, in domains such as emotion regulation, cognitive abilities and general social functioning (Schneider et al., 2001; van IJzendoorn et al., 2004), cross-cultural evidence would be obtained for the competence hypothesis. The competence hypothesis has been weakly supported by cross-cultural research (True, 1994, as cited in van IJzendoorn & Sagi, 1999; Sagi, Lamb, Lewkowicz, Shoham, Dvir, & Estes, 1985). One of the main reasons for failure to find a significant and consistent pattern across cultures pertaining to children's competence might be the divergence of instruments that have been used. Furthermore, there is scarcity of previous cross-cultural data to assess socioemotional competence. In the examination of van IJzendoorn and Sagi, only two studies had available direct evidence for the competence hypothesis. Therefore, more studies are needed in order to comprehend the role of attachment on the development of social, emotional and cognitive competence in non-Western cultures.

The Strange Situation

Ainsworth's fieldwork and home observations suggested that the relationship between the mother and the child is reflected on the child's security. In other words, differences observed in the level of security might stem from the quality of the interaction between the mother and the infant. Ainsworth had the opportunity to validate this proposition by her Strange Situation procedure (Bretherton, 1992).

Strange Situation consists of eight episodes. The first episode involves introduction of mother and infant to the observation room for one minute. In the second episode, the infant explores the room and the mother accompanies him/her if necessary (3 minutes). In the third episode, a stranger comes in and begins to interact with the infant during the last minute (3 minutes). In the fourth episode, the mother leaves the room; and the infant stays with the stranger (3 minutes). In the fifth episode, the mother returns and the stranger leaves the room (3 minutes). In the sixth episode, the mother leaves the infant alone (3 minutes). In the seventh episode, the stranger comes back and stays with the infant (3 minutes). In the eighth episode, the mother returns and the stranger leaves again (3 minutes). There are two separations (Episode 4 and 6) and two reunions (Episode 5 and 8) in the assessment. The infant's responses to these separations and reunions are essential in terms of security classification (Solomon & George, 1999).

Ainsworth's system classifies children into three main categories: secure (type B), insecure avoidant (type A), and insecure resistant (type C) (Ainsworth et al., 1978). Type B infants use their mothers as a secure base from which to explore.

During separations, the infant has observable indications that s/he has missed the mother. When reunited, the infant eagerly greets the mother with vocalizations, gestures or smiles. Secure infants typically return back to exploration when calmed down. Type A infants show little or no indication of affect. They start to explore as soon as they enter the room. During separations, they do not exhibit any clear signs of distress. When reunited, these infants avoid the mother. These children usually get stiff when their mothers attempt to pick them up. Type C infants show signs of distress when entering into the room. These infants are generally in an uncomfortable state that hinders them from exploring the room. This unsettled state continues during separations with visible indications of distress. During reunions, they go between calls for contact and angry protests. They may also be too upset or passive. Subsequently, these children rarely get soothed when reunited with the mother. Main and Solomon (1986) added "Type D" to Ainsworth's classification system (as cited in Solomon & George, 1999). Type D infants are reported to lack a clear purpose or explanation during separations and reunions. In other words, these infants do not have an organized attachment strategy.

Since the Strange Situation is designed for infants up to one-year, there have been many attempts to adapt a method for measuring the attachment security of older children (Solomon & George, 1999). Descriptions for the Cassidy and Marvin System and the Attachment Q-Set, which are the most commonly used types of attachment measurement approaches for preschool-aged children, are included in this review.

The Cassidy and Marvin System (Preschool Attachment Classification System)

Cassidy, Marvin, and the MacArthur Working Group (1987, 1990, 1991, 1992) continued the attempt to establish a classification system for preschool children labeled as the Preschool Attachment Classification System (PACS) (as cited in Solomon & George, 1999). Consequently, they came up with guidelines known as the Cassidy and Marvin system for assessing children from 2½ to 4½ years old in the Strange Situation. The authors worked with a sample of 6-year-old children whose attachment classification had been measured when they were younger. This system holds that there are four insecure groups, namely: avoidant (A), ambivalent (C), controlling/disorganized (D) and insecure/other (IO).

Although it was noted that the Cassidy and Marvin system is associated with other measures of attachment such as Bretherton's doll-play (Bretherton, Ridgeway, and Cassidy, 1990) and the Separation Anxiety Test (Shouldice and Stevenson-Hinde, 1992), Posada, Waters, Marvin and Cassidy (in press) pinpointed that they failed to find any significant link between Attachment Q-Sort (AQS) and the Cassidy and Marvin system (as cited in Solomon & George, 1999). In line with this, Posada (2006) also noted that neither the global AQS scores, nor the scores on specific scales pertaining to mother-child interaction were associated with the PACS classifications.

The Attachment Q-Set (AQS)

The AQS was developed by Waters and Deane (1985) in order to assess the quality of attachment security of children from 1 to 5 years. The AQS comprises 90 items, which characterize secure base behavior of a child. Ideally, at least two raters make a

few home observations ranging from one hour to three hours, in order to identify the most salient secure base behaviors of the child. The authors noted that parents, as devoted observers of their own child, can also sort the AQS items. It was reported that sorting made by trained observers and parents may yield inconsistent results (Solomon & George, 1999); nevertheless, if enough training and supervision are provided to parents, the association between professional and parental sorts increases (Teti & McGourty, 1996).

In the AQS system, items are arranged into nine piles, ordered from the most characteristic behaviors to the most uncharacteristic behaviors of the child. The rater should determine which items are the best markers in portraying the child, not merely focusing on the frequency of the observed behavior. In other words, a detailed examination of the child is needed while keeping in mind what specific age appropriate secure behaviors are expected to be observed. In the AQS assessments, usually the observed behavior of a child is compared with a criterion sort. The criterion sort refers to a Q-sort, which provides a description of a hypothetically secure child based on various experts' judgments in the attachment theory literature (Waters & Deane, 1985). The comparison of the observed child behavior with the hypothetically secure child is typically conducted by computing the correlation between these two sets of scores.

The reliability and validity of the AQS has been examined in a meta-analytic study by van IJzendoorn and colleagues (2004). The reliability of the AQS system has been established by assessing inter-rater agreement. Solomon and George (1999) noted that the studies using the AQS methodology have acceptable to high inter-rater reliability ranging from .72 to .95. In their meta-analytic study, van IJzendoorn et al.

(2004) emphasized that the observer AQS can be a valid measurement of attachment security, while assessments done by untrained sorters (e.g. mothers, fathers) failed to meet the validity criteria.

Meta-analytic findings of van IJzendoorn et al. (2004) indicated that the AQS system has convergent validity with the Strange Situation Procedure (r = .31). However, there have also been some mixed findings in the more recent literature. For example, Moss et al. (2006) found partial support for the associations between maternal Q-sort ratings of preschoolers and the Cassidy-Marvin classifications. Specifically, although the AQS scores of ambivalent and disorganized children were lower than secure children, maternal Q-sorts failed to distinguish controlling and avoidant children from secure ones. Solomon and George (1999) pointed out that the inconsistency between the AQS and the Strange Situation assessments might stem from different circumstances in which the observations take place (i.e., laboratory versus home). They argued that home observations may capture not only the attachment security but also partly a reflection of child's temperamental characteristics and environmental features of the home.

Predictive validity demands that the AQS should let us make predictions about the constructs related to attachment security. Caregiver's sensitivity has long been associated with security of the child (Bakermans-Kranenburg et al., 2003). In line with this relationship, results of the meta-analysis by van IJzendoorn et al. (2004) indicated that the AQS has predictive validity with measures of sensitivity (r = .39).

Finally, discriminant validity illustrates that the measurement method is not closely associated with the constructs that are theoretically unrelated. van IJzendoorn

and colleagues (2004) reported that the AQS has a weak association with temperament (r = .16) which led to the conceptualization of these two variables as separate constructs. However, it is worthwhile to note that the relationship between temperament and attachment is more complex, possibly reflecting a joint contribution of temperament along with maternal sensitivity to the attachment security (Vaughn & Bost, 1999; Thompson, 1998; see also Vaughn et al., 1992 for the link between attachment and temperament).

The present study

The goal of the present study was to explore the concurrent associations between the attachment quality and parent (i.e., maternal sensitivity) as well as child variables (i.e., child temperament, socioemotional competence) by using a sample of Turkish preschool-aged children. To date, few studies have examined attachment during the preschool period and focused on the joint contribution of maternal sensitivity and child temperament to predict attachment security. In order to measure children's attachment security, we used the AQS system. The investigation of the associations among maternal sensitivity, temperament and child outcomes would also provide the initial evaluation of the validity of the AQS system in the laboratory context. Although the Strange Situation paradigm is considered the gold standard assessment instrument for attachment security, incorporating other methodologies may be more productive for the preschool period when representations about self and others gain complexity and integrity (Thompson, 2000). Since participants in the present study were preschoolers, the AQS appeared to be a better instrument to detect individual differences in secure-base behavior of those children. Solomon and George (1999) argued that the AQS is not capable of detecting child's secure-base behavior, which

can be portrayed as confident exploration and seeking and getting comfort when distressed, given that home observations rarely create a situation that activates the child's attachment system. In other words, the child would not have to worry about where the mother is, or whether something unfamiliar would happen as long as the child is in his/her ordinary circumstances. Nonetheless, in the present study, participant children were invited to a laboratory where they were challenged by games that demanded frustration tolerance, emotion regulation and delay of gratification. Furthermore, in a few instances, child was left alone with an experimenter, though knowing that the mother was in the next room. Therefore, we argue that in our design, neither the child was distressed as he/she would be in the Strange Situation; nor he/she was comfortable as in his/her familiar home environment, providing us greater opportunity to observe secure base behaviors.

Drawing on the main assumptions of the attachment theory, the following main hypotheses were tested in the present study with a Turkish preschool sample. First, we predicted that maternal sensitive responsiveness and child attachment security would be significantly and positively associated. Considering the previous research findings, the strength of the association was expected to be moderate at best.

Secondly, secure children were predicted to have higher levels of socioemotional adjustment relatively to insecure children. Thus, we proposed a negative relationship between the AQS scores and behavior problems (i.e., externalizing as well as internalizing behaviors). Furthermore, as mentioned before, secure children are generally found to be better at social functioning in home and school settings. Therefore, we expected to find that higher security scores were related to more socially competent behavior as reported by their teachers. Finally, we

hypothesized that there will be a significant, yet modest relationship between effortful control and attachment security of the child. Children who show self-regulatory competence, as manifested by higher levels of effortful control scores, would be expected to show higher levels of secure base behaviors compared to their less regulated counterparts.

As an exploratory hypothesis, we also examined the joint contribution of maternal sensitivity and child temperament on attachment security. We hypothesized that maternal sensitivity would moderate the impact of child characteristics on child's attachment security. A child who has difficulty sustaining attention and inhibitory control might challenge a mother's caregiving efforts, who in turn might gradually respond less frequently, and less quickly. Therefore, children with poor effortful control and unresponsive mothers were predicted to have particularly insecure attachment scores. On the other hand, if a child had poor self-regulatory competence as evidenced by low effortful control during the lab tasks but a responsive mother, the strength of the relationship between effortful control and attachment security would be expected to be stronger.

CHAPTER 2

METHOD

Participants

The sample consisted of 76 preschoolers (45 boys, 31 girls), their mothers and preschool teachers. Child age ranged from 32 to 72 months (M = 55.23, SD = 10.17).

Mean maternal age was 36.19 years (SD = 3.58) and mean paternal age was 40.21 years (SD = 5.71). Eighty-eight percent of the families participated in the present study were intact and 67% of the mothers were either part-time or full-time employed. The majority of the fathers (93.4%) were full-time employed. Most of the families represented high socioeconomic status, such that 69% of the families had a monthly income above 7000TL and 87% percent of the mothers and fathers had at least university or 2-year college degrees. In the present study, children were selected by convenience sampling. Recruitment was mostly accomplished through contacting the principals of the private preschools.

Measures

Attachment Q-Set (AQS) Version 3

AQS Version 3 (Waters, 1987) was used for the assessment of attachment security. The AQS includes 90 items that describe various behavior patterns pertaining to the secure base behavior (e.g. “Child enjoys relaxing in mother’s lap.”, “Child asks for and enjoys having mother hold, hug, and cuddle him.”, “Child clearly shows a pattern of using mother as a base from which to explore.”). These items and instructions were all translated to Turkish by Sumer and colleagues (Sumer, Sayil, &

Berument, 2009). Based on the mother-child dyadic interactions and child's behavior, the rater divides the behavioral descriptors relevant to secure-base phenomenon into nine piles ranging from Pile 9 including the behavior indicators that are the most salient features of secure-base behavior, to Pile 1 that involves the behaviors that are the most uncharacteristic features of the observed child's secure base behavior. When sorting is completed, a Q-sort profile of a given child is obtained. This sort is compared to the ratings done by experts in the attachment field, which is taken as the criterion sort. The criterion sort is presumed to define an optimally secure child (Waters & Deane, 1985). A given Q-sort profile scores are correlated with the criterion sort yielding a correlation coefficient, *r*, (ranging from -1.00 to +1.00), which represents the security score of the child in question. The closer the *r* is to 1.00, the more similar is the child to an optimally secure child.

Reliability of the AQS system was established by assessing inter-rater agreement as noted before. Studies using the AQS methodology have been reported to have inter-rater reliability ranging from .72 to .95 (Solomon & George, 1999). In the present study, intraclass correlations (ICC) between three raters ranged from .61 to .71.

Maternal Responsiveness

Maternal responsiveness coding was based on direct behavioral observations of mother-child interactions during six activities by using a coding system adopted from Ainsworth, Bell and Stayton (1971). Maternal responsiveness was defined along three dimensions, namely, sensitivity, cooperation and acceptance. Maternal reactions to the child in terms of synchrony and appropriateness along these three dimensions were rated using a 7-point Likert scale (*1: Higly unresponsive 2:*

Unresponsive 3: Somewhat unresponsive 5: Somewhat responsive 6: Responsive 7: Highly responsive; There is no four). Two trained observers rated the level of maternal responsiveness during each of the six activities: warming up/adaptation to the room, mother-is-busy episode, snack time, free play, cleaning up the toys, and a teaching task (Kochanska & Aksan, 1995; Aksan, Kochanska, & Ortmann, 2006). In each activity, these three dimensions of maternal responsiveness were correlated with each other, and hence they were averaged. These aggregated responsiveness scores for each of the six activities were also averaged and transformed into a composite responsiveness score. Intraclass correlations (ICC) for sensitivity ranged from .64 to .71, acceptance ranged from .73 to .77, and cooperation ranged from .78 to .79.

Dysregulated Affect and Self-Regulation

Emotion Regulation Checklist

The Emotion Regulation Checklist (ERC) measures children's emotionality and regulation skills based on mother and teacher report (Shields & Cicchetti, 1997). The scale involves 24 items rated on a 4-point Likert scale (*1: Rarely never 2: Sometimes 3: Often 4: Almost always*). The ERC has two subscales: Lability/Negativity and Emotion Regulation. The Lability/Negativity (L/N) subscale involves 15 items portraying a lack of flexibility, mood swings, and dysregulated negative affect (e. g. *"Exhibits wide mood swings" "Responds angrily to limit-setting by adults" "Displays negative emotions when attempting to engage others in play"*). The Emotion Regulation (ER) subscale involves 8 items about contextually appropriate affective displays, adaptive regulation, empathy, and emotional self-awareness (e.g. *"Responds positively to neutral or friendly overtures by peers" "Can say when s/he is feeling sad, angry or mad, fearful or afraid" "Is empathic towards others; shows*

concern when others are upset or distressed"). High internal consistency of these subscales were reported in previous research; .96 for the L/N and .83 for the ER (Shields & Cicchetti, 1997). Internal consistency of the composite ERC score was found to be .89 (Shields & Cicchetti, 1997). Previous studies supported the validity of the instrument such that a distinction between regulated and dysregulated children can be made as in emotion regulation Q-sort (Shields & Cichetti, 1997). In the present study, two subscales of the ERC based on teacher report were significantly and negatively correlated, $r = -.30$, $p < .01$. In addition, the Cronbach's alphas for the ER and the L/N subscales was .67 and .79, respectively.

Effortful Control Battery

Individual differences in children's effortful control were measured during six game-like activities. These activities were adapted from the preschool age battery of Kochanska, Murray, Jacques, Koenig, and Vandegeest (1996). Two of the tasks (Bridge and Walk-A-Line-Slowly) were designed to assess children's ability to slow down their motor activity when required. The other two activities (Snack Delay and Gift Wrap) were designed to focus on children's ability to delay gratification. Finally, the last two games (Bear and Dragon, Day and Night) measure children's ability to suppress a dominant response and initiate a subdominant response in accord with situational demands.

Bridge: In this task, the experimenter showed the child a picture of a land divided into two by a river. The experimenter explained the child that he/she should draw lines, representing bridges, to help three animals on one side of the land reach to their food. First, the experimenter demanded that the child should draw a line for the cat, to obtain the baseline time. Secondly, the experimenter asked the child to

draw a line as fast as he/she can to obtain the fast-draw score of the child. Thirdly, the child draws a line "as slowly as possible" for the turtle to get across to obtain the slow-draw score of the child. The difference between the durations for the slow- and fast-draw was recorded as the total score of the Bridge task.

Walk-A-Line-Slowly: In this task, the experimenter demanded the child to walk on a ribbon of 183 cm length without going out of borders of the ribbon. The first trial of the child without any other instructions established the baseline duration. The second and third trials, the experimenter asked the child to walk very slowly on the ribbon. For each trial, durations and errors were recorded. Durations for the two slow trials were averaged to generate a total score for the Walk-A-Line-Slowly activity. Errors were not included into the total score given that these scores did not correlate with latency scores.

Bear-Dragon: In Bear-Dragon activity, the experimenter used a bear and a dragon puppet. The experimenter asked the child to do what the Bear puppet says such as "Touch your nose", and ignore what the Dragon puppet says. There were six turns for the Bear and six turns for the Dragon. Child responses for the Bear trials were coded as following: *0 = fails to respond; 1 = performs a partial response; 2 = performs a wrong response; 3 = performs full, correct response.* Reverse coding was used for the Dragon trials. Scores earned during the Dragon trials were summed up to generate a total Bear-Dragon score. Child's failures to respond were subtracted from his/her total score as penalty. The Bear trials were ignored, since those episodes were not related to the inhibition of a dominant response.

Day-Night: The experimenter showed the child a card with sun stickers representing day and another card with moon stickers representing night. The child

was required to point to the day card when the experimenter said “Night”; and point to the night card when the experimenter said “Day”. A total of ten trials were coded as following: *0 = fails to respond; 1 = incorrect response and never self-corrects; 2 = self-corrects; 3 = correct response and does not change his/her mind.* Scores for each trial were summed up to generate a total Day-Night score. Similar to Bear-Dragon task, child’s failures to respond were subtracted from his/her total score as penalty.

Snack Delay: The child was required to keep his hands on the table while the experimenter put a candy under a transparent cup and wait until the experimenter rang a bell. When the bell rang, the child was allowed to eat the candy. The task consisted of six trials and the duration for each trial was as following: 5 seconds, 10 seconds, no pause, 20 seconds, no pause, and 40 seconds. Child responses were coded as following: *0 = eats the candy before the bell; 1 = attempts to grab the candy, but the trial ends; 2 = doesn’t eat the candy, but touches the coverage or the plate before the bell; 3 = waits for the bell, but doesn’t keep hands in required position; 4 = waits for the bell as demanded.* The child was also observed for signs of fidgeting such as talking aloud about the situation, asking for the experimenter to ring the bell, acting restlessly and the latency scores for fidgeting were coded. Scores in each trial were converted into z-scores. These standardized scores of those trials that correlated with each other were averaged to generate a total response score. Similarly, the latency scores were standardized and scores of the trials that correlated with each other were averaged to generate a total latency score.

Gift Wrap: There were two phases of the Gift Wrap task. In the first phase, the child was required to remain seated and wait without turning back and peeking

for 60 seconds, while the experimenter was wrapping a gift for the child. Latency scores for fidgeting and peeking, as well as a seat score were coded. In the second phase, the experimenter told that she should look for a ribbon for the gift outside the room, and requested the child not to leave his/her chair or touch the gift until she came back. This episode lasted for 180 seconds. Latency scores for fidgeting and touching, and a seat score, as well as a touch score were coded. Latency, seat and touch scores for two phases were standardized and averaged to generate a total score for the Gift Wrap.

Effortful Control Composite Score. All standardized total scores for the six tasks were averaged to generate an Effortful Control composite score. The Cronbach's alpha for the composite score was .75.

Socioemotional Adjustment

Child Behavior Checklist

The Child Behavior Checklist (CBCL) aims to assess children's behavioral and emotional problems based on parent report. The checklist consists of 100 items. Mothers were asked to rate each item on a 3-point scale *(0: not true, 1: somewhat or sometimes true, 2: very true, often true).* Externalizing subscale including 17 items (e.g. *"Can't concentrate, can't pay attention for long" "Destroys things belonging to his/her family or other children" "Doesn't seem to feel guilty after misbehaving"*) and Internalizing subscale comprising 29 items (e.g. *"Gets too upset when separated from parents" "Disturbed by any change in routine" "Nervous moments or twitching" "Avoids looking others in the eye"*) were used in the present study (Dumenci, Erol, Achenbach, & Simsek, 2004). With a Turkish preschooler sample, it

has been shown that the checklist has satisfactory psychometric features (Erol, 2002). In the present study, the Cronbach's alpha for the Internalizing and the Externalizing subscales were .82 and .84, respectively

Social Competence and Behavior Evaluation Scale

Teacher ratings of child social competence and behavior problems were obtained with Social Competence and Behavior Evaluation Scale (SCBE-30, La Freniere & Dumas, 1996). The SCBE-30 consists of 30 items and teachers were asked to rate each item on a 6-point Likert scale (*1: Never 2: Rarely 3: Sometimes 4: Often 5: Frequently 6: Always*). The SCBE-30 comprises three subscales: social competence (SC), anxiety-withdrawn (AW), and anger-aggression (AA). The SC subscale is associated with the social adaptation of the child, such as adjustability, flexibility, emotional maturity and pro-social behaviors (e.g. *"Works easily in a group" "Accepts compromises when reasons are given" "Helps with everyday tasks"*). The AA subscale has items related to negative social behavior such as angry, aggressive, selfish, and oppositional behaviors (e.g. *"Gets angry when interrupted" "Gets into conflict with other children" "Hits, bites, or kicks other children"*). The third subscale, the AW subscale, portrays anxious, depressed, isolated and overly dependent behaviors (e.g. *"Maintains neutral facial expression" "Inactive, watches the other children play" "Worries"*).

In the past studies, inter-rater reliability for each scale ranges from .78 to .91 (La Freniere & Dumas, 1996). The scale has a test-retest reliability ranging from .78 to .86 for a two-week interval, from .75 to .79 for a six-month interval (La Freniere & Dumas, 1996). Internal consistency of the subscales was also high, ranging from .80 to .92 (La Freniere & Dumas, 1996). This scale was also used with a sample of

417 Turkish preschoolers in a recent study which documented satisfactory psychometric features of the SCBE-30 (Çorapçı, Aksan, Arslan, & Yağmurlu, in press). In the present study the Cronbach's alphas for the AW, the AA and the SC were .75, .82, and .86, respectively.

Procedure

The present study mainly used an observational procedure. Mothers and their preschool-aged children were invited to the developmental psychology laboratory at Koç University to participate in several activities for about 3 hours. All of the activities were recorded with a video camera. The laboratory was decorated to look like a typical living room to increase the ecological validity of the assessments. Six of the 18 activities were designed to observe the ordinary interactions that mothers and children engage during typical daily activities in the laboratory circumstances. Those activities involved warming up/adaptation to the room, mother-is-busy episode, snack time, free play, cleaning up the toys and a teaching task. Mothers were busy with filling out a packet of questionnaires involving demographic variables and CBCL in mother-is-busy episode. These six activities approximately took 58 minutes. The remaining 12 activities helped experimenters assess the child's socio-emotional competence and receptive language abilities: effortful control (in 6 activities for 29 minutes), frustration tolerance (4 minutes), fearfulness (3 minutes), attention level (6 minutes), internalization of maternal rules and requests (8 minutes), receptive vocabulary (20 minutes), level of exuberance (3 minutes). At the end of the activities, experimenters thanked the participants and children were allowed to keep the gift they received from the Gift Wrap task.

Mothers filled out a packet of questionnaires including demographic

information and the CBCL during the laboratory visit (see Appendix N for mother questionnaire packet). Preschool teachers of the participant children were contacted and requested to complete the SCBE-30 and the ERC to report on the child's social-emotional adjustment in the preschool setting (see Appendix O for teacher questionnaire packet).

Through an extensive training, which involved lectures, watching videos from previous studies, role plays, a pilot study with two children, and ongoing supervision, graduate level developmental psychology students were trained on the administration of the six effortful control tasks. Maternal responsiveness and the AQS coding also took place when graduate students from Boğaziçi and Koç University were trained to an initial inter-observer reliability criterion of intraclass correlation of .75 or above. Reliability checks were made throughout coding on a randomly selected 10% of the tapes.

Two trained raters sorted the AQS items. Raters were trained by AQS training tapes provided from German Posada. Nevertheless, contrary to the general application of AQS in natural settings, observations were done by using video recordings of the mother and the child engaging in several dyadic and individual tasks for approximately 3 hours (e.g., free play time, clean up time, snack time, child effortful control tasks). The procedure involved instances that allowed observers to assess the child's secure base behavior and was assumed to activate the attachment behavioral system of the child by creating circumstances similar to the Strange Situation such as staying with the experimenter while the mother was gone or left alone in the room.

CHAPTER 3

RESULTS

Descriptive Statistics and Intercorrelations among the Study Variables

Table 1 in Appendix A presents a summary of the descriptive statistics for the demographic variables of the study. Table 2 in Appendix B presents a summary of the descriptive statistics for the study variables. Linearity, normality and homoscedasticity assumptions were examined before testing the hypotheses of the study. Scores on the study variables were all found to be normally distributed.

In AQS assessment, as noted before, a child's score is expressed as a correlation coefficient and indicates how closely the secure base behaviors of this child are associated with the criterion sort. In the present study, the mean AQS score was 0.46 and the standard deviation was 0.21. When we examined the distribution of our sample and observed that almost all of the children were above 0 (96%, N = 73). Waters stated that .30 can be taken as the cutoff score for security-insecurity distinction (Waters, 2009). In the present study 80% (N = 61) of the children could be categorized as secure, yet 20% (N = 15) were insecure, when this cut point was used. That is to say, majority of the preschoolers in the current study had a secure profile.

Correlations among the demographic and study variables are presented in Table 3 in Appendix C. Mother's age was associated with many of the variables of the study. First of all, there was a significant and negative relationship between maternal age and maternal ratings of the CBCL-Internalizing (r = -.23, p < .05) and -Externalizing scale (r = -.28, p < .01). That is to say, older mothers rated their

children as having less behavioral problems. Secondly, preschool teachers rated children of older mothers as less anxious and withdrawn, which was evidenced by a significant and negative correlation between maternal age and the SCBE-AW scores, $r = -.37$, $p < .01$. Thirdly, there was a significant and positive association between maternal age and effortful control composite scores ($r = .19$, $p < .05$) such that children of older mothers had better inhibitory control skills. The maternal responsiveness composite score had a significant and positive association with child sex such that mothers of girls tended to be more responsive than mothers of boys, $r = .24$, $p < .01$. Maternal responsiveness was also significantly and positively related to maternal education, $r = .43$, $p < .01$, and income of the family, $r = .18$, $p < .05$. Effortful control correlated significantly and positively with child age, $r = .50$, $p < .01$, and number of hours spent at preschool, $r = .28$, $p < .01$. Finally, the AQS scores correlated significantly and positively with maternal education, $r = .27$, $p < .05$. There was also a significant relationship between the AQS scores and child sex such that girls displayed more secure base behaviors compared to boys, $r = .31$, $p < .01$.

Child age was associated with some of the adjustment ratings of the preschool teacher, such as SCBE-AW and SCBE-AA. There was a significant and negative correlation between child age and anxious-withdrawn behavior as reported by the teacher, $r = -.26$, $p < .01$. Furthermore, there was also a significant and negative relationship between child age and SCBE-AA, $r = -.47$, $p < .01$. That is to say, teachers indicated that older children had fewer adjustment problems. Similarly, pertaining to the manifestation of the temperamental self-regulation, observer assessments showed that older children had better inhibitory capacities, $r = .50$, $p < .01$.

The intercorrelations among the main variables of the study were statistically

significant (see Table 3). First, there was a significant and positive association between the AQS and the effortful control composite score, $r = .29$, $p < .01$. Secondly, the AQS scores were also significantly and positively correlated with the maternal responsiveness composite, $r = .47$, $p < .01$. Thirdly, there was a significant and positive relationship between the effortful control and the maternal responsiveness composite scores, $r = .37$, $p < .01$.

Finally, child socio-emotional adjustment variables were examined in relation to the effortful control and child's attachment security scores. As presented in Table 3, effortful control composite had a significant relationship with only one dimension of the social competence assessment. Specifically, SCBE-AA scores were significantly and negatively associated with the effortful control composite, $r = -.24$, $p < .05$. That is to say, children who were good at controlling their dominant responses were rated as less aggressive by their teachers compared to their peers with poor inhibitory control. As seen in Table 3, AQS scores were neither related to the CBCL-Internalizing and CBCL-Externalizing subscales, nor to the ERC-ER and ERC-L/N subscales. Furthermore, the AQS scores were unrelated to the SCBE-AW, the SCBE-AA, and the SCBE-SC subscales.

Test of the Main and Interactive Effects of Maternal Responsiveness and Effortful Control

A hierarchical regression analysis was used to test the main and interactive effects of the maternal responsiveness and the effortful control composites in the prediction of attachment security. The model included the maternal responsiveness composite score, the effortful control composite score, and the multiplicative interaction term of

these variables as the predictors of preschoolers' AQS scores. Maternal responsiveness and effortful control scores were converted into standardized scores before the entry into the regression analyses. To generate the interaction term, we multiplied the standardized scores of maternal responsiveness and effortful control.

As presented in Table 4 in Appendix D, the overall regression model was significant, explaining 27% of the variance in the AQS scores, F (5, 69) = 5.08, p < .01. To control for the effects of child sex and maternal education on the dependent variable, these two variables were entered in the first step. Child sex and maternal education level explained 14% of the variance in attachment security, F (2, 72) = 5.70, p < .01. Then, in the second step, the maternal responsiveness and the effortful control composites were entered. These two variables contributed an additional 13% of the variance in the attachment security, R^2 change = .13, F change (2, 70) = 6.29, p < .01. Children with more responsive mothers were rated as more secure at all degrees of effortful control (β = .40, p < .01). Nevertheless, effortful control did not make any significant unique contribution to the total variance over and above the main effect of maternal responsiveness. Finally, the interaction term in the last step was not significant, F change (1, 69) = .10, p = .76.

Supplemental Analyses

Given that we failed to detect any association between child social adjustment and AQS scores, as an exploratory attempt, we investigated whether the pattern of the relationship between attachment security and social adjustment would change as a function of the child's temperament. A total of seven hierarchical regression analyses were conducted to examine the interactive role of child temperament and attachment

security to predict teacher ratings of SCBE-AW, SCBE- AA, SCBE-SC, ERC-ER, and ERC- L/N, and mother ratings of CBCL-Internalizing and CBCL-Externalizing problems. In each analysis, the predictors were the effortful control composite, the AQS score and the multiplicative term of these two variables.

Criterion variable: Teacher ratings of child adjustment

Two sets of regression analyses predicting SCBE-AW and ERC-L/N yielded significant interaction effects. As shown in Table 5 in Appendix E, in the first regression analysis, SCBE-AW was entered as the dependent variable. The overall model was significant explaining 21% of the total variance, F (5, 70) = 3.82, $p < .01$. After controlling for child age and sex, there was a significant interaction in the last step over and above the main effects, $\beta = .29$, F change (1, 70) = 7.135, $p < .01$. Nevertheless, there was not significant main effect of the AQS and the effortful control composite, F change (2, 71) = .691, $p = .51$. The pattern of the interaction, as presented in Figure 1 in Appendix L, indicated that for children high in effortful control, attachment security was significantly and positively related to child's anxious and withdrawn behavior as reported by the preschool teacher, $t = 2.21$, $p < .05$. However for children low in effortful control, attachment security was not related to child's anxiety and withdrawal, $t = -1.88$, $p = .07$.

The second regression, as shown in Table 6 in Appendix F, included the ERC-L/N as the dependent variable. The overall model was significant, F (3, 72) = 3.48, $p < .05$, and explained 13% of the total variability. Step 1 containing the AQS and the effortful control composite did not account for the significant proportion of variance in children's lability/negativity scores. The results of this hierarchical

regression revealed that the multiplicative term made a significant unique contribution to the variance over and above the main effects, $\beta = .33$, F change (1, 72) = 8.631, $p < .01$. The interaction pattern, as presented in Figure 2 in Appendix M, indicated that for children with high levels of effortful control, there was a significant and positive relationship between attachment security and lability-negativity problems as reported by the preschool teacher, $t = 3.07$, $p < .01$. Nevertheless, there was not a significant relation between these variables for children with low effortful control, $t = -.99$, $p = .33$.

As shown in Table 7 in Appendix G, in the prediction of children's SCBE-AA scores, the overall regression model with all the predictors in the equation was statistically significant with $R^2 = .33$, F (4, 71) = 8.804, $p < .001$ (see Table 7). In the first step, child age was entered as the control variable and explained 30% of the total variance in the anger-aggression scores, $\beta = -.55$, F change (1, 74) = 31.316, $p < .001$. Step 3 containing the interaction term did not account for a significant proportion of variance in children's anger-aggression scores after controlling for the additive main effects of the AQS and the effortful control scores, R^2 change = .03, F change (1, 71) = 2.82, $p = .10$. To sum up, only the control variable significantly predicted the anger-aggression scores.

In the prediction of the SCBE-SC scores, the overall model was not significant, F (3, 72) = 0.875, $p = .46$. Step 1 containing the AQS and the effortful control composite did not account for the significant proportion of variance in children's social competence scores, F change (2, 73) = 1.329, $p = .27$. Furthermore, in step 2, there was not any interaction effect between the AQS and the effortful control composite, F change (1, 72) = .002, $p = .97$ (see Table 8 in Appendix H).

Finally, the last regression set consists of the ERC-ER as the dependent

variable. The overall model was not significant, F (3, 72) = 0.73, p = .54. In step 1, the AQS and the effortful control composite failed to predict children's emotion regulation scores, F change (2, 73) = .892, p = .41. Moreover, there was not any interaction effect between effortful control and attachment security, F change (1, 72) = .421, p = .52 (see Table 9 in Appendix I).

Criterion variable: Mother ratings of child adjustment

Two additional hierarchical regression analyses used the same set of predictors to test the additive and interactive effect of child temperament and attachment security on the prediction of mother ratings of CBCL- Internalizing and Externalizing scores. In the prediction of CBCL-Internalizing scores, as shown in Table 10 in Appendix J, the overall model was not significant, F (5, 61) = 1.239, p = .30. Maternal age and number of hours spent at preschool were entered in the first step of the regression set and they failed to predict children's internalizing scores, F change (2, 64) = 2.628, p = .08. Step 2 containing the AQS and the effortful control composite did not account for the significant proportion of variance in internalizing scores, F change (4, 62) = 1.456, p = .72. Furthermore, the interaction term in the final step did not yield any significant effect, F change (1, 61) = .425, p = .52.

The second hierarchical regression analysis used the CBCL-Externalizing scores as the criterion variable. The first step of this regression equation controlled for maternal age. As shown in Table 11 in Appendix K, the model with all the predictors was statistically significant, R^2 = .16, F (4, 70) = 3.235, p < .05. Maternal age explained 12% of the total variance in the externalizing scores, β = -.34, F change (1, 73) = 9.486. The interaction between the effortful control and AQS in Step 3 was not significant, F change (1, 70) = 1.214, p = .27.

CHAPTER 4

DISCUSSION

In the present study, we investigated the concurrent associations between maternal responsiveness, children's attachment security, socioemotional adjustment and effortful control. We used the AQS as a means of measuring attachment security. As far as we know, this instrument has not been used in laboratory settings as it was designed for home observations (Waters & Deane, 1985). We also had the opportunity to examine the utility and validity of the AQS in laboratory settings. Moreover, preschoolers' socioemotional competence and behavioral outcomes were studied in light of the main study variables. By using a Turkish preschooler sample, this study has also been an attempt to contribute to cross-cultural examination of the hypotheses of the attachment theory. Therefore, throughout our discussion, an evaluation of both the assumptions of the attachment theory and the hypotheses of the present study are provided concurrently in light of our findings.

Universality of the Attachment Relation

The universality hypothesis of the attachment theory suggests that an infant needs to establish an attachment bond with a wiser figure to get protection from threats that s/he is not yet equipped to deal with on his/her own (Bretherton, 1992; Bowlby, 1969/1982). In other words, attachment relation between mother and child is a universal phenomenon. Consistent with previous research (Posada et al., 1995; see van IJzendoorn & Sagi, 1999; Sumer et al., 2009), we observed that each child in the present study had an attachment bond with their mothers, whether secure or insecure.

This supports the universality hypothesis of the attachment theory documenting that all children form an affective bond with their caregivers, except in severe cases of abuse or neglect (Thompson et al., 2003).

Normativity of the Secure Type

We examined the normativity hypothesis, which claims that secure children are predominant in any population. In other words, secure type is the normative one. Previous studies generally supported this hypothesis (Posada et al. 1995; van IJzendoorn & Sagi, 1999). In the present study, secure children had a larger proportion in the sample compared to insecure ones. As mentioned before, the AQS gives quantitative information about the attachment of a child to the caregiver. However, Waters noted that .30 can be taken as the cutoff AQS score for making security-insecurity distinction (Waters, 2009). When this cutoff score was used, 80% of the present sample was characterized as securely attached to their mothers, compared to 20% insecurely attached counterparts.

Up to date, what we know about attachment quality of Turkish children comes primarily from a recent and comprehensive study of Sumer and colleagues (2009). Authors examined the links between attachment quality, caregiving patterns and family dynamics on child development with a Turkish sample of 110 preschoolers and 1931 school-age children. Consistent with the present findings, by using a Turkish preschool sample, Sumer et al. (2009) noted that secure children were predominant in their study. The distribution of their sample indicated that, 67% of the participants were secure (personal communication). Similarly, Sagi and colleagues reported that 80% of infants in their sample from Israeli home-based

kibbutz were secure and there were not any avoidant patterns observed in the Strange Situation (Sagi, van IJzendoorn, Aviezer, Donnell, Mayseless, 1994). In an earlier study, with a sample from urban areas, the researchers again had a proportion of 80% securely attached children (Sagi et al., 1985). Concerning the high levels of secure children, the findings of the present study are in line with the studies of Sagi and colleagues, although choice of instruments for measuring attachment security differs between the two. Especially for the kibbutz practice, it should be noted that those children are raised by more than one caregiver. In other words, they are surrounded by a network of attachment relationships (see Tavecchio & van IJzendoorn, 1987). Similarly, in the Turkish culture, although there is a primary attachment figure, grandparents and relatives are generally in the picture in regard to bringing up a child. Demands of contemporary life might impose nuclear family structure; however, emotional interdependence among extended family members is still highly valued in Turkey (Kagitcibasi, 1997) and more than one person might be responsible for taking care of the child, resulting in many attachment bonds with the child. High proportion of secure children in the present study might be explained by this relational network of Turkish family culture; nevertheless, more attachment research is needed to understand the input of culture on security-insecurity distribution.

It should be noted that the mean scores for AQS seem to vary among cultures. Posada et al. (1995) requested mothers to use the AQS to characterize their children and received attachment profiles from many countries. Mean attachment security scores for countries participating in the study were as following: Norway .58, Germany .42, Japan .37, Israel .34, United States .42, China .40, and Colombia .24. In a recent study, Posada et al. (2004) reported that the mean AQS score in their middle- to middle-low class Colombian sample was .46, which is exactly the same as

our finding.

In regard to security profiles, Sumer et al. (2009) reported that the mean AQS score in their study was .21. When the AQS scores were closely examined, they indicated that the mean AQS score for children of mothers who were primary school graduates were .15; while children of college graduate mothers had a mean AQS score of .27. Nevertheless, in the present study, the mean AQS score was .46, which is much higher than the findings of Sumer and colleagues. This discrepancy between the two studies might be explained by the two different contexts that the AQS assessments took place. Sumer and colleagues used the standard procedure and conducted home observations, however we used video recordings of laboratory activities of mother-child dyads for sorting the AQS. In a novel setting such as the laboratory, children's attachment system may be more pervasively activated compared to the home setting. Since they might show more secure base behaviors in this new context such as "returning to mother after playing", "keeping track of mother's location", "talking and calling when out of mother's sight", they would be characterized more by these secure base items of the AQS, yielding a relatively higher AQS score.

Attachment Security and Maternal Sensitivity-Responsiveness

With regard to our first hypothesis, based on theory and past empirical research (Ainsworth et al., 1978; Pederson & Moran, 1995; De Wolff & van IJzendoorn, 1997), we expected that there would be a significant and positive relationship between maternal responsiveness and attachment security. In the present study, the strength of the relationship was .47, which indicates a moderate effect size.

Significant links between some maternal and child characteristics were found in the present study. Results indicated that mothers of participant girls were relatively more responsive than mothers of participant boys. Although, it is a novel finding that we have not come across in previous studies, we lack the information whether the mother has another child and whether that other child is a boy or a girl. Therefore, we hesitate to overemphasize this sex difference. Future research should examine in detail whether there is a moderator role of child sex on maternal responsiveness.

Furthermore, there was a significant and positive association between maternal education and child's attachment security. Previous research showed that maternal education was associated with better caregiving (Richman, Miller, LeVine, 1992). In addition, as in the present study, maternal education is generally correlated with income (Smetana, 2000, as cited in Tamis-LeMonda, Briggs, McClowry, & Snow, 2009), which relates to the stability in a family. In other words, relatively difficult life circumstances, which could be characterized by lower levels of education and income, might negatively affect the quality of caregiving (Dix, 1991, as cited in Tamis-LeMonda et al., 2009), and in turn attachment security.

Moreover, there was a significant effect of child sex on attachment security. That is to say, girls were more securely attached to their mothers in the present study. This finding is consistent with previous research that examined the close relationship between mother and child in Turkish culture (Sumer et al, 2009; Halfon, 2006). On the other hand, previous studies done in Western context generally failed to find any sex difference in attachment security (MacDonald, 1992). Roland (1988) underscored that in Eastern cultures, throughout development of self, girls have a more intimate bond with their mothers via a process of internalizing cultural values (as cited in Halfon, 2006). Furthermore, girls avoid giving any harm to their

emotional bond with the family, especially with their mothers (Roland, 1988, as cited in Halfon, 2006). Studying the construction of self in Turkey with a sample of undergraduates, Seçkin's (1996) findings were in line with Roland's remarks that girls are deeply connected with their mothers compared to boys. In addition, in Turkish culture mothers view their daughters as confidants (Ataca & Sunar, 1999). Therefore, sex difference found in the present study regarding attachment security of children can be attributed to the socialization process of girls in Turkey.

As noted in the Introduction, there is a controversy about the strength of the link between the effects of caregiving and child's attachment quality (see Thompson, 1998; De Wolff & van IJzendoorn, 1997; Atkinson et al., 2000). In light of previous research and meta-analytic findings, we predicted that the strength of the relationship would be moderate at most. In the present study, the strength of the relationship was .40, after the effects of child sex and maternal education were controlled for. This indicates a moderate level of association and is consistent with meta-analytic findings.

Previous meta-analytic studies showed that when the choice of assessment instrument for attachment security was the AQS (r = .39) rather than the Strange Situation (r = .24), the association between maternal sensitivity and attachment security was higher. When both assessments were included in meta-analysis, the correlation was in between, r = .27 (Atkinson et al., 2000). In Turkish literature, Sumer et al. (2009) also investigated the association between attachment security measured by the AQS and maternal sensitivity measured by the Maternal Behavior Q-Set (Pederson & Moran, 1995). The findings indicated that there was a correlation of .32 between these two variables. Furthermore, the authors reported that when maternal education and child age was controlled, the correlation slightly increased (r

= .34). Small correlational differences between our study and Sumer et al.'s might be attributed to the discrepancy between the method (Ainsworth scale vs. the MBQS) and the context (laboratory vs. home) of maternal responsiveness assessments. To sum up, our correlational findings resemble previous studies conducted in Turkey and Western cultures. Therefore, we have evidence for the sensitivity hypothesis of the attachment theory.

Although a comprehensive discussion of the cross-cultural viewpoints over attachment theory is beyond the scope of this study, it is worthwhile to note some criticisms that have been presented on conceptualization of maternal sensitivity and instruments used to assess it. As aforementioned, Rothbaum and colleagues have questioned the universality of the sensitivity concept (Rothbaum, Weisz et al., 2000). The authors stated that the attachment theory focused more on evolutionary and biological predispositions of the attachment system; however, overlooked the fact that culture has an essential effect over the manifestation of these biological underpinnings. Rothbaum, Weisz et al., arguing that biology and culture cannot be separated, claimed that indigenous Western values and ideologies have been dominantly manifest in assessments of mother's responses to her child in previous research. Although sensitivity of the mother is viewed as a crucial factor for the development of children in both Western and Eastern cultures, expression of sensitivity might show wide variations (Rothbaum, Pott, Azuma, Miyake, & Weisz, 2000). In their review of cultural practices of Japan and the U.S. pertaining to the development of intimate relationships, Rothbaum and colleagues marked crucial differences between the two cultures (Rothbaum, Pott et al., 2000). Furthermore, Rothbaum, Weisz et al. stated that the classic observational scale that Ainsworth used expresses mainly the Western ideas about how a sensitive caregiver should

respond. They indicated that sensitivity, acceptance, and cooperation dimensions of the scale emphasize maternal behaviors that promote autonomy and self-expression of the infant, which are inconsistent with the ideologies of child rearing in more collectivistic cultures. For instance, concerning sensitivity, Ainsworth (1976) noted, "it is a good thing for a baby to gain some feeling of efficacy. She nearly always gives the baby what he indicates he wants" (p. 3-4, as cited in Rothbaum, Weisz et al., 2000); which is not compatible with the ideology of a culture that values an interdependent form of relatedness.

As researchers who used Ainsworth's observational sensitivity assessment in a non-Western culture, we can discuss its applicability for the present context. First of all, it should be noted that the instrument gave us a great opportunity to record and assess a range of maternal behaviors in detail, compared to a questionnaire, a Q-sort measure, or a maternal behavior count method. On the other hand, in all three responsiveness dimensions, there is an emphasis on some Western values such as autonomy, self-efficacy, and self-expression of the child (Rothbaum, Weisz et al., 2000; Rothbaum, Pott et al., 2000). In relation to that, there is empirical evidence that a hypothetically responsive mother in one culture can be viewed as unresponsive in another culture (see Rothbaum, Pott et al., 2000). Therefore, there is need for more "emic" approach in the study of attachment security and responsive caregiving. In other words, culture-specific social and developmental features should be incorporated into assessments to check the validity of the conventional measures. Posada et al. (2004) conducted an ethnographic study of maternal responsiveness based on naturalistic home observations and found that the emic approach actually correlated with a rather conventional system (i.e. the MBQS) in Colombian context. This suggests that the system captures common points. It should also be noted that

culture is a dynamic construct and changes in cultural elements influence child rearing practices and value of children in society. In relation to that, in a study including three generations from three socioeconomic groups, it has been shown that Turkish parents emphasized more on some Western values such as self-reliance and autonomy of children compared to research done thirty years ago (Kagitcibasi & Ataca, 2005). Especially for the high socioeconomic-urban group, autonomy was a characteristic underlined as a quality of an ideal cild. Investigating parental goals in various cultures, Tamis-LeMonda, Way, Hughes, Yoshikawa, Kalman, and Niwa (2008) were in line with this dynamic view of culture, suggesting that cultural values and developmental goals for child rearing might comprise both collectivistic and individualistic features at the same time. That is to say, these values and goals may change across circumstances, developmental stages, and political and economic contexts. To sum up, even though the Ainsworth system embraces some Western values, our urban, highly educated, upper-middle class parents seem to emphasize self-efficacy and autonomy as their child rearing goals. Moreover, it has been noted that Turkish culture portrays a synergy of autonomy and relatedness (see Kagitcibasi, 2005). Therefore, we believe that the scale captures important aspects of maternal sensitivity.

Attachment Security and Child's Socioemotional Adjustment

We expected that secure children would have better socioemotional adjustment compared to insecure children. Previous research showed that secure children have better capabilities in various domains such as social adjustment, cognitive skills, peer relations, academic adjustment, social and emotional understanding of themselves

and others (Park & Waters, 1989; Pipp, Easterbrooks, & Harmon, 1992; Belsky & Fearon, 2002; Youngblade & Belsky, 1992; Easterbrooks & Abeles, 2000; Granot & Mayseless, 2001; Wood, Emerson, & Cowan, 2004). In the present study we relied on teacher ratings of social competence and maternal as well as teacher ratings of children's externalizing and internalizing symptoms. We predicted that higher security scores would be significantly correlated with lower levels of internalizing and externalizing problems. However, contrary to our expectations, we failed to detect significant associations between child's attachment security and any of the socio-emotional adjustment measures we have used.

Although recent research revealed that insecure children have more internalizing and externalizing problems (Turner, 1991; Guttmann-Steinmetz & Crowell, 2006; Wood et al. 2004; De Mulder et al., 2000), it is worthwhile to note that most of the previous studies focused on the links between "types" of attachment (i.e. secure, avoidant, resistant, and disorganized) and socio-emotional outcomes concerning preschool period (e.g. Lyons-Ruth, Alpern, & Repacholi, 1993; Moss et al., 1998; Barnett, Kidwell, Leung, 1998). Furthermore, the clearest associations have been drawn between disorganized attachment and problem behavior (see van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999, for a meta-analysis).

There is relatively little research that examined the AQS scores as a measure of child's attachment security in relation to child behavior problems and social competence. In a meta-analysis, van IJzendoorn et al. (2004) included AQS studies that used CBCL ratings and assessments of peer relations as a measure of socioemotional competence. The authors found a combined effect size of .22. In a Turkish preschool sample, Sumer and colleagues indicated that there was a significant and negative association between attachment security and mother reported

internalizing problems, when the significance level was taken as .10 (r = -.19, p < .10). Nevertheless, there was not any significant association between attachment security and externalizing problems. Contrary to previous research, attachment security was not related to mother reported externalizing or internalizing behavior problems in the present study. Similarly, we failed to find any significant relationship between attachment security and teachers' socio-emotional adjustment ratings.

We examined our data to see whether there is any methodological shortcoming leading to non-significant correlations. Nevertheless, the range of restriction does not explain non-significant associations since ratings of mothers and teachers showed variability and followed normal distribution. Furthermore, all of the questionnaires showed high reliability as evidenced by internal consistency.

It should be noted that van IJzendoorn and Sagi (1999) were not able to find useful grounds to test the competence hypothesis in their cross-cultural meta-analysis. Since, most of the previous studies they have reviewed did not use standardized instruments to measure socioemotional competence of children, they stated that there is need for more research to examine this assumption of the theory.

Attachment Security and Temperament

Concerning the temperamental side of self-regulation and adjustment, the relationship of effortful control with attachment was also examined in the present study. We predicted that there would be a positive association between effortful control and attachment security such that children who were better at regulating themselves in effortful control tasks were expected to show more secure base behaviors in the AQS assessments. In line with our expectation, higher AQS scores

were linked with higher levels of performance in activities of effortful control battery.

Some authors argued that temperament might be linked to the insecure categories, but not directly to the security-insecurity distinction (Belsky & Rovine, 1987; Kochanska, 1998). Moreover, some recent studies provided evidence for this argument (Shamir-Essakow et al., 2005). Since we used the AQS system, we did not have the opportunity to classify insecure children. However, our findings indicate that temperamental effortful control was significantly related to the attachment quality of children. Nonetheless, effortful control failed to predict children's AQS scores when maternal education, child sex and maternal responsiveness were controlled for. This is contrary to Seifer et al. study (1996), in which temperamental variables such as mood and difficulty still had predictive power on AQS scores of infants, when the effects of maternal sensitivity were controlled for.

The Interactive Role of Child's Temperament and Maternal Responsiveness on Attachment Security

As an exploratory hypothesis, we examined whether maternal responsiveness moderated manifestations of temperamental effortful control on attachment security. Some authors emphasized the importance of examining complex models while studying developmental outcomes, rather than focusing only on main effects (Kobak et al., 2006; Thompson, 1998). In this light, we tested a moderation model. However, we did not find an interaction effect of maternal responsiveness and child temperament on attachment security. As noted before, there is little research that examined the interrelations among the attachment security, mother's sensitivity, and

temperamental factors at the same time (Seifer et al., 1996; Mangelsdorf, McHale, Diener, Goldstein, & Lehn, 2000; Susman-Stillman, Kalkoske, Egeland, & Waldman, 1996**)**. Furthermore, to our knowledge, this study is the first attempt to investigate specifically the interactive effects of effortful control and maternal responsiveness on children's AQS scores.

A Mediation Model

The failure of temperamental effortful control to predict AQS scores when maternal responsiveness was controlled for led us to reconsider the relationship among these three variables in a mediation framework, even though testing a mediation model was not one of our aims. In the present study, as Baron and Kenny (1986) noted, a previously significant link between the two variables (i.e. effortful control and attachment security) was no longer significant when the third variable (i.e. maternal responsiveness) was inserted into the equation, suggesting a mediator role for maternal responsiveness. That is to say, effortful control had an effect on attachment security, as long as it had a significant effect on maternal responsiveness. In other words, a child who has difficulty in suppressing a dominant response to perform a subdominant response reduces mother's responsiveness, which in turn leads to a lower level of attachment security. The present model is similar to findings of Susman-Stillman et al. (1996), which indicated that sensitivity ratings measured at six-month mediated the association between child's temperament (irritability in that case) and attachment security. These significant mediation effects support the view that there is a more complex link between attachment and temperament. However, more indirect effect models are definitely needed to better understand the

contribution of both parental and child characteristics to the dyadic relationship.

Supplementary Findings

The Interactive Role of Child's Temperament and Attachment Security on Child's Socioemotional Adjustment Outcomes

Since we failed to find an evidence for the competence assumption of the attachment theory, we explored the joint contribution of attachment security and effortful control on socio-emotional adaptation. We expected mothers and teachers to report less problem behavior for the children who have higher levels of security, yet lower levels of effortful control. That is to say, in light of previous research, we thought secure attachment might act as a protective factor for those children who have difficulty in regulating themselves. The results of the present study revealed that there were significant interaction effects between the AQS and the effortful control composite to predict child anxiety-withdrawal and emotional lability/negativity; however, the patterns of the interactions were inconsistent with our expectations.

The first interaction pattern revealed that preschool teachers rated those children with high effortful control and higher levels of attachment security as more anxious and withdrawn. On the other hand, for children with low effortful control, attachment security was unrelated to child's anxiety. The second interaction effect revealed that if children were rated as high on effortful control, teachers perceived these children as more labile and negative as child's attachment security increased. In the case of low effortful control, teacher ratings of emotional lability/negativity were unrelated to child's attachment security.

The interaction findings of the present study do not fit clearly in the literature, since there is little research dealing with joint contribution of attachment security and temperament on child's socioemotional outcomes. Moreover, studies to date have not specifically included AQS ratings of attachment assessment and child's effortful control as a temperamental study variable. There are, however, studies that have examined other temperamental characteristics pertaining to their links with parenting and attachment. Therefore, we sought literature to find studies that can help us interpret our findings best. As a temperamental variable, behavioral inhibition has recently been studied in regard to its associations with child and parent variables (e.g. caregiving, attachment) and their joint contributions to childhood anxiety problems. Although some have proposed a link between behavioral inhibition and insecure attachment (Cassidy & Berlin, 1994), only recently temperament and attachment have been examined in relation to anxiety symptoms (Shamir-Essakow et al., 2005).

It seems that among previous research, caregiving quality have been consistently and negatively associated with the development of anxiety problems. Moreover, many studies indicated that children who developed anxiety disorders have mothers who were anxious themselves (Rosenbaum et al., 1992; Manassis, Bradley, Goldberg, Hood, & Swinson, 1994). Therefore, this kind of interaction reflects that dyadic affect regulation between mother and child is flawed. In this light, insecure attachment has been found to predict anxiety problems in childhood (Manassis, Bradley, Goldberg, Hood, & Swinson, 1995, as cited in Manassis, 2001; Shamir-Essakow et al., 2005). However, recent studies underlined that behavioral inhibition and attachment security independently predict anxiety symptoms of preschoolers (Shamir-Essakow et al., 2005). In some other studies with adolescents, significant interactive effects have been found, however joint contribution of

insecure attachment and temperamental behavioral inhibition explained less than 1% of the total variance (van Brakel et al., 2006). Nonetheless, in the present study multiplicative term of temperamental effortful control and attachment security, explained 8% of the total variance in anxiety-withdrawal scores, and 11% of the total variance in emotional lability-negativity scores.

To further discuss these interaction findings that are contrary to our expectation and literature, first of all, it is worthwhile to underline the criticisms of Rothbaum and colleagues on the conceptualization of competence and secure base behavior (Rothbaum, Weisz et al., 2000). The questions raised by Rothbaum and colleagues about the universality of these constructs are essential, since perplexing interactions of the present study can be attributed to the probable shortcomings of the measurement instruments in capturing cross-cultural variance. Firstly, Rothbaum and colleagues stated that even though attachment security has been associated with competence in previous research, definition of competence among different cultures shows wide variation (Rothbaum, Weisz et al., 2000). Furthermore, the authors argued that many research included Western-oriented aspects such as emotional openness, self-efficacy, good relations with peers and unfamiliar adults, and independence in competence assessments. They underscored that for Japanese culture, in which accomplishment of "us" is more important than accomplishment of "me", Western definition of competence emphasizing individuation could be viewed as immature.

Secondly, discussing secure base behavior in a cross-cultural viewpoint, Rothbaum, Pott et al. (2000) stated that even though there are universal components of the attachment system such as seeking proximity, how these components will be expressed are shaped by the culture, which in turn results in different developmental

pathways. In their model, the authors argued that for Japan and for other cultures that value interdependence, this pathway can be defined as "symbiotic harmony," in which there is an emphasis on the compromise between the needs of the individual and others. On the other hand, for the U.S. and other cultures that primarily value autonomy, the developmental pathway can be labeled as "generative tension," which indicates a struggle between maintaining contact with the attachment figure and separating from her to explore the surrounding environment. Rothbaum and colleagues viewed the culture as a lens through which various meanings and values are embedded to relatedness. They argued that in Japan, attachment relation passes through the "lens of accommodation", whereas in the U.S. it passes through the "lens of individuation". In this light, these authors also questioned the applicability of the standard assessment tools, which comprises indigenous Western values and ideologies, for measuring attachment security of non-Western children. As a matter of fact, both in the Strange Situation and the AQS, child's autonomy opposed to dependency is regarded as a fundamental aspect of secure base behavior. Nonetheless, regarding the importance of interdependence in relatedness for Eastern cultures, it seems probable that the results of these assessments might cast children from those cultures as "unhealthy". In the present study, we obtained consistent results with previous literature concerning attachment security such as predominance of secure children, significant correlations with maternal sensitivity, and similar secure base behaviors. On the other hand, we failed to find a significant link between attachment security and competence. Nonetheless, when the interactive effect of attachment security and temperamental effortful control on competence was examined, the results were significant yet confusing. More culture-sensitive instruments and cross-cultural research are necessary to better understand the link

between attachment and child competence.

Another possible explanation for the interaction findings might be the fact that teachers' perception of children may be influenced more by their behaviors during group activities. Maybe the distinction between the focus of teacher and observer ratings should also be underscored here. In the AQS, the observer evaluated the child during interactions with the mother, with the experimenter, and by him/herself. Similarly, in the effortful control battery, the observer rated child's behaviors during play with the experimenter and during challenges when s/he was left alone. On the other hand, teacher might evaluate the child concerning his/her behaviors during group activities in general. As a matter of fact, especially the items of the SCBE-AW emphasize group context, such as "Remains apart, isolated from the group", "Doesn't talk or interact during group activities", "Goes unnoticed in group", "Inhibited or uneasy in group." These children might seem dysregulated to their teachers, even though they actually have the capacity to regulate themselves when alone, with their mothers or in one-to-one interactions.

Furthermore, children's play patterns with peers might also be influential on teacher's perception of child's adjustment. Park and Waters (1989) showed that secure-secure 4-year-old dyads played more smoothly compared to secure-insecure dyads. Moreover, recent studies focusing on play behaviors of the children indicated the need to differentiate kinds of social withdrawal as shyness, social disinterest, and social avoidance (Coplan & Armer, 2007). In a review of children's social withdrawal and anxiety, Rubin and Burgess (2001) pointed out that playing alone in a group context does not necessarily reflect fearfulness or avoidance. The authors underscored that some children are found to play in exploratory and constructive ways when they are alone. We should emphasize that teachers' answers to

questionnaires are not sufficient to capture the content of children's play patterns. Therefore, we do not know whether those children seen as withdrawn were just exploring alone. Future research might observe children's play patterns and have more idea about children's behavior in group/school settings in relation to teacher perception of child withdrawal.

Previous research drawing links between children's socioemotional competencies and frontal EEG activation have produced findings, which might provide a further interpretation for significant interactions of the present study. Fox and colleagues (Fox, Schmidt, Calkins, Rubin, & Coplan, 1996; Fox, Rubin, Calkins, Marshall, Coplan, Porges, Long, & Stewart, 1995) found significant associations between four-year-olds' social behavior in a play setting, their frontal EEG asymmetry, and parent reported behavior problems. Findings of the study revealed that highly withdrawn or reticent children with greater right frontal EEG activity were rated by their parents as having more internalizing symptoms, compared to shy children with greater left frontal EEG activity. On the other hand, highly sociable children with greater right frontal EEG activity were rated by their parents as having more externalizing problems, compared to highly sociable children with greater left frontal EEG activity. Children's shyness-sociability distinctions were drawn from observations of their behaviors during group activities in quartets. Since essential cognitive competencies reside in the left frontal lobe, if left frontal EEG activity is poor, children's dispositional shyness or sociability manifest itself as behavior problems (Rubin & Burgess, 2001). These findings reflect dispositional underpinnings of physiological regulation. A further speculation for the novel interactions of the present study would be that children who were reported as anxious-withdrawn and emotionally labile might be those who have greater relative

right frontal asymmetry. Since associations between these dispositions and attachment have not been established, future research concerning developmental psychopathology of behavior problems might consider including physiological instruments to unravel the effects of child's dispositions.

It should also be noted that children's attachment security with their preschool teacher might have influenced their behaviors in school setting. In De Schipper et al. study (2008), it was found that positive attitude of day-care teacher towards child was crucial in the professional caregiving context, significantly influencing the security of child's attachment. Authors reported that temperament did not have a main or interactive effect in their study. We propose that although a child has a secure relation with his/her mother as well as high self-regulatory competence, s/he might manifest anxiety or lability if his/her attachment security with preschool teacher is low. Therefore, future studies should include an attachment assessment for child-teacher relationship.

With regard to the emotional bonds with nonmaternal figures, van IJzendoorn, Sagi and Lambermon (1992) underlined the need to investigate attachment patterns other than what is established with the primary caregiver. They stated that sticking to the "monotropic" idea of caregiving would restrict our understanding of attachment and its social outcomes. Therefore, to get a more complete picture of children's network, social world surrounding them should be taken into account, including relatives, siblings and peers (Thompson et al., 2003; van IJzendoorn, 2005). Moreover, attachment to people other than mother deserves more examination, since some findings revealed that child's attachment with nonparental figures might give more valid information about the child's later socioemotional adjustment for contexts other than home (Oppenheim, Sagi, & Lamb,

1988; Lamb, 1999).

Examination of the Validity and Utility of the AQS

Aforementioned findings in the present study indicate that laboratory settings can also be a useful context for both stimulating and observing the attachment behavior. In the present study, universality, normativity and sensitivity hypotheses of the attachment theory have been confirmed by using a Turkish preschooler sample. Our findings are clearly in line with previous literature that applied the AQS for naturalistic observations. Therefore, we propose that the AQS is a useful and valid instrument for measuring attachment security in the laboratory.

Although we did not use natural settings for AQS assessments, it should be noted that using recorded videos was very helpful for sorting the AQS items. Videos allowed us to go back and detect small details pertaining to secure base behaviors that we might miss during concurrent observation. Video recordings were done behind a one-way mirror and we clearly observed that the mother-child couples quickly adapted to the setting. This design also helped us examine a range of behaviors of the child. In this light, we believe that video recording can help a lot to future studies that focus on secure base behavior.

Limitations and Future Directions

It is worthwhile to note that the present study had limitations. First of all, our sample was generally composed of middle to upper-middle class families. Therefore, generalizations from the sample should be made with caution. Furthermore, we

recommend future studies to comprise a larger sample. With a larger sample size, it would be easier to make comprehensive analyses within higher levels of statistical power to detect interactions with small effect sizes.

Although our findings highly resemble to those studies, which used the AQS for home observations, we suggest researchers who consider using the AQS in laboratory settings to conduct several varied and lengthy observations. In the present study, our observations allowed us to evaluate most of the AQS items; yet, we realized that some items were hard to sort with one observation and were generally piled in the middle subsequently. We know that sometimes researchers face similar problems in home observations. For instance, although a few home observations are made, it may not be possible to evaluate "*When he is upset or injured, child will accept comforting from adults other than mother*" item. For such situations, Waters (2009) advised researchers to rely on mother's report to make a better assessment, however not solely count on this report. In this light, future studies can support their observations with the reports of primary caregivers.

We measured attachment security, maternal responsiveness and effortful control by using the same videos. It might be questioned whether using the same episodes for various assessments might contaminate the findings. In other words, might the correlations among attachment and other related variables be inflated? First of all, we should note that there was only one common rater among the AQS and the maternal responsiveness assessments. All the other raters assessed only the area that they have been trained on. Furthermore, any kind of rater bias has been checked for each assessment. Secondly, our results do not indicate any kind of extreme or inflated associations among any variables.

It should be noted that the present study had a correlational design; therefore,

it is not possible to make any causal interpretation. Although there was a significant link between maternal responsiveness and attachment security, it cannot be inferred whether sensitive responsiveness of the caregiver leads to secure attachment. In future attempts, intervention studies designed to increase responsiveness of parents will clarify this assumed causal connection.

As aforementioned, most of the instruments we use have been developed in Western context. Although similar concepts are studied in different cultures, meanings associated with them might show huge variation. Therefore, there is the need to incorporate more culture-sensitive methods (Harwood, Miller, & Irizarry, as cited in Halfon, 2006; Posada et al., 2004). For instance, in terms of maternal responsiveness, future research might start from interviewing Turkish mothers about what they understand from responsive caregiving. From this point on, we would have a clearer picture whether Ainsworth's descriptions of sensitive mother converge with conceptualization of Turkish mothers.

In the present study, the only instrument that gave information about child's behavior at preschool was teacher's socioemotional ratings. Nonetheless, we need more data to understand child's behavioral patterns in preschool setting. In order to achieve this, child's attachment security to the teacher, play behaviors with peers and self-expression in class context should be taken into account. We propose future researchers to include school observations in these domains to their designs.

Manifestations of insecurity might vary among developmental stages (Shamir-Essakow et al., 2003). Therefore, longitudinal studies are needed to examine the concurrent associations of insecurity and risk factors in infancy, early childhood, middle childhood and adolescence.

Recent developments on physiological psychology provide us with

opportunities to detect early dispositional risk factors such as behavioral inhibition (Rubin & Burgess, 2001). Future studies should also include physiological measures to assess temperamental features of the child.

Implications for Preventive Interventions

Findings of the present study emphasize the significant link between maternal responsiveness and attachment security of the child. Moreover, sensitive responsiveness of the mother mediated the relationship between effortful control and attachment security. Although, there is need for more studies to find out the causal links between these variables, recent preventive programs aiming to raise the awareness of parents for more positive caregiving evidence a betterment of relationship between parent and child (Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2007). Therefore, we propose that intervention programs should be designed to increase the caregiving quality of the parents, taking into account the temperamental characteristics of the child and environmental risk conditions.

APPENDICES

APPENDIX A

Table 1 Child and Family Characteristics (N= 76)

	M	SD
Child age (months)	55.23	10.17
Maternal age (years)	35.81	3.73
Paternal age (years)	39.92	5.53
Hours at preschool	29.76	14.36
	Percent	
Child gender (Male)	59.2	
Intact family	86.8	
Maternal education		
Less than high school	0	
High school	10.5	
University/2-year college	56.6	
Graduate school	31.6	
Paternal education		
Less than high school	3.9	
High school	3.9	

University/2-year college	60.5
Graduate school	30.3
Maternal employment	
Unemployed	32.9
Part-time employed	14.5
Full-time employed	52.6
Paternal employment	
Unemployed	1.3
Part-time employed	5.3
Full-time employed	93.4
Monthly income (TL)	
1000-3000	9.2
2000-5000	9.2
5000-7000	10.5
7000-10000	26.3
> 10000	43.4

APPENDIX B

Table 2 Descriptive Statistics of the Study Variables (N=76)

Variable	Mean	SD	Min.	Max.
AQS	0.46	0.21	-0.29	0.75
Maternal responsiveness	0.01	0.70	-2.68	0.9
Effortful control	-0.03	0.53	-1.64	1.05
CBCL-Internalizing	11.21	6.26	0	25
CBCL-Externalizing	11.53	6.15	3	36
ERC-Emotion Regulation	3.42	0.41	2.43	4
ERC- Lability/Negativity	1.61	0.39	1	2.53
SCBE- Anxiety-Withdrawal	1.68	0.62	1	4.20
SCBE- Anger-Aggression	1.59	0.57	1	3.40
SCBE- Social Competency	4.90	0.83	2.10	6

AQS = Attachment Q-Sort. CBCL = Child Behavior Checklist. ERC = Emotion Regulation Checklist. SCBE = Social Competence and Behavior Evaluation Scale.

APPENDIX C

Table 3 Correlations of Child and Family Characteristics to Effortful Control, Maternal Responsiveness, the AQS, the SCBE, the ERC, and the CBCL

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Child sex	-	.09	-.05	-.03	.09	.06	.05	-.16	.09	-.07	.23*	-.03	-.05	-.01	-.01	.04	-.07
2. # hrs prsc		-	.02	.17	.13	-.08	.32**	.28	.10	.18	.01	-.16	.11	.12	-.03	-.25**	-.14
3. Mother's work status			-	.01	-.21*	-.07	-.05	-.05	-.16	-.01	-.08	.07	-.07	.00	.05	.12	.02
4. Father's work status				-	-.04	-.08	.09	.13	.03	.07	-.05	-.20*	.03	-.15	-.05	.06	-.10
5. Mother's education status					-	.51**	.42**	-.09	.21*	-.10	-.02	-.14	.03	-.05	-.04	-.05	.04
6. Father's education status						-	.27**	.09	.18	-.12	.06	.05	-.03	-.10	.03	.08	.01
7. Monthly income							-	.09	.32**	.20*	-.04	-.10	.02	.00	-.02	-.12	-.00
8. Child age								-	.18	.18	-.26**	-.47**	.13	.11	-.15	-.10	-.16
9. Mother age									-	.33**	-.37**	-.12	.02	.10	.02	-.23*	-.28**
10. Father age										-	-.24**	-.08	.08	.19	-.04	-.13	-.07
11.SCBE-AW											-	.08	-.32**	-.40**	.08	.08	-.06
12. SCBE-AA												-	-.44**	-.10	.67**	.06	.20*
13. SCBE-SC													-	.59**	-.55**	-.18	-.17
14. ERC-ER														-	-.30**	-.17	-.13
15. ERC-L/N															-	-.10	.05
16. CBCL-Int																-	.48**
17. CBCL-Ext																	-
18. EC																	
19. MR																	
20. AQS																	

hrs prsc = Number of hours spent at preschool.

Table 3 Continued

	18	19	20
1. Child sex	.10	.24**	.31**
2. # hrs prsc	.28**	.17	.00
3. Mother's work status	.08	-.07	.10
4. Father's work status	.02	-.05	.09
5. Mother's education status	.16	.43**	.27**
6. Father's education status	.10	.23*	.01
7. Monthly income	.06	.18*	.02
8. Child age	.50**	.10	-.14
9. Mother age	.19*	.15	.05
10. Father age	-.05	-.12	-.16
11.SCBE-AW	-.11	-.02	-.02
12. SCBE-AA	-.24*	-.06	-.01
13. SCBE-SC	.03	-.10	-.11
14. ERC-ER	-.09	-.15	-.15
15. ERC-L/N	-.01	-.05	.12
16. CBCL-Int	-.08	-.06	-.15
17. CBCL-Ext	-.14	-.08	-.12
18. EC	-	.37**	.29**
19. MR		-	.47**
20. AQS			-

hrs prsc = Number of hours spent at preschool.

APPENDIX D

Table 4 Summary of Hierarchical Regression Analysis Testing the Main and Interactive Effects of Maternal Responsiveness and Effortful Control

Dependent Variable: Attachment Q-Sort (AQS), Overall F (5, 69) = 5.08, $p < .001$

Step Predictors	R^2	ΔR^2	ΔF	B	SEB	β
Step1	.137	.137	5.70			
Child sex				0.11	0.05	.26*
Maternal education				0.26	0.13	.22
Step 2	.268	.131	6.29			
MR				0.08	0.03	.40**
EC				0.003	0.03	.01
Step 3	.269	.001	.10			
MR x EC				0.005	0.02	.04

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

MR = Maternal responsiveness. EC = Effortful control.

APPENDIX E

Table 5 Summary of Hierarchical Regression Analysis Testing the Main and Interactive Effects of the AQS and Effortful Control

Dependent Variable: SCBE- Anxiety-Withdrawal, Overall F (5, 70) = 3.82, $p < .01$

Step Predictors	R^2	ΔR^2	ΔF	B	SEB	β
Step1	.118	.118	4.863			
Child sex				0.21	0.14	.165
Child age				-0.21	0.80	-.288*
Step 2	.134	.017	.691			
AQS				-0.09	0.08	-.143
EC				0.05	0.09	.080
Step 3	.214	.080	7.135			
AQS x EC				0.19	0.07	.293**

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

EC = Effortful control.

APPENDIX F

Table 6 Summary of Hierarchical Regression Analysis Testing the Main and Interactive Effects of the AQS and Effortful Control

Dependent Variable: ERC- Lability/Negativity, Overall F (3, 72) = 3.48, $p < .05$

Step Predictors	R^2	ΔR^2	ΔF	B	SEB	β
Step1	.022	.022	0.816			
AQS				0.06	0.05	.146
EC				-0.03	0.05	-.089
Step 2	.127	.105	8.631			
AQS x EC				0.14	0.05	.332**

** $p < .01$.

EC = Effortful control.

APPENDIX G

Table 7 Summary of Hierarchical Regression Analysis Testing the Main and Interactive Effects of the AQS and the Effortful Control

Dependent Variable: SCBE- Anger-Aggression, Overall F (4, 71) = 8.804, p = .10

Step Predictors	R^2	ΔR^2	ΔF	B	SEB	β
Step1	.297	.297	31.316			
Child age				-0.37	0.07	-.545**
Step 2	.305	.008	.394			
AQS				-0.05	0.06	-.093
EC				-0.01	0.07	.015
Step 3	.332	.027	2.823			
AQS x EC				0.10	0.06	.169

** $p < .01$.

EC = Effortful control.

APPENDIX H

Table 8 Summary of Hierarchical Regression Analysis Testing the Main and Interactive Effects of the AQS and the Effortful Control

Dependent Variable: SCBE- Social Competence, Overall F (3, 72) = 0.875, p = .46

Step Predictors	R^2	ΔR^2	ΔF	B	SEB	β
Step 1	.035	.035	1.329			
AQS				-0.13	0.10	-.156
EC				0.13	0.10	.158
Step 2	.035	.000	0.002			
AQS x EC				-0.01	0.11	-.005

EC = Effortful control.

APPENDIX I

Table 9 Summary of Hierarchical Regression Analysis Testing the Main and Interactive Effects of the AQS and the Effortful Control

Dependent Variable: ERC- Emotion Regulation. Overall F (3, 72) = 0.730, p = .54

Step Predictors	R^2	ΔR^2	ΔF	B	SEB	β
Step 1	.024	.024	.892			
AQS				-0.07	0.05	-.160
EC				0.01	0.05	.027
Step 2	.030	.006	.421			
AQS x EC				-0.03	0.05	-.077

EC = Effortful control.

APPENDIX J

Table 10 Summary of Hierarchical Regression Analysis Testing the Main and Interactive Effects of the AQS and the Effortful Control

Dependent Variable: CBCL-Internalizing, Overall F (5, 61) = 1.239, p = .30

Step	Predictors	R^2	ΔR^2	ΔF	B	SEB	β
Step1		.076	.076	2.628			
	Maternal age				-0.20	0.20	-.122
	Hours spent at preschool				-0.10	0.05	-.239
Step 2		.086	.010	.338			
	AQS				-0.08	0.80	-.012
	EC				-0.62	0.81	-.102
Step 3		.092	.006	.425			
	AQS x EC				-0.80	1.23	-.092

EC = Effortful control.

APPENDIX K

Table 11 Summary of Hierarchical Regression Analysis Testing the Main and Interactive Effects of the AQS and the Effortful Control

Dependent Variable: CBCL-Externalizing, Overall F (4, 70) = 3.235 $p < .05$

Step Predictors	R^2	ΔR^2	ΔF	B	SEB	β
Step1	.115	.115	9.486			
Maternal age				-0.55	0.18	-.339**
Step 2	.141	.026	1.091			
AQS				-0.38	0.69	-.063
EC				-0.79	0.68	-.135
Step 3	.156	.015	1.214			
AQS x EC				-0.87	0.79	-.136

** $p < .01$

EC = Effortful control.

APPENDIX L

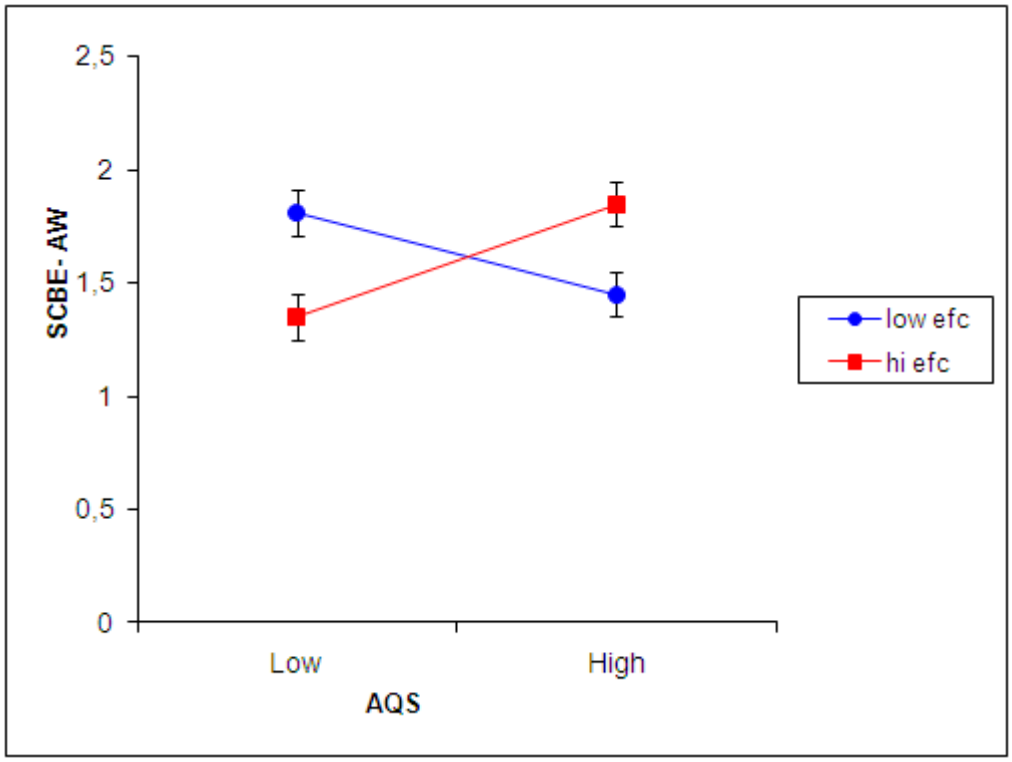

Figure 1 Interactive effect of attachment and effortful control on anxiety-withdrawal

APPENDIX M

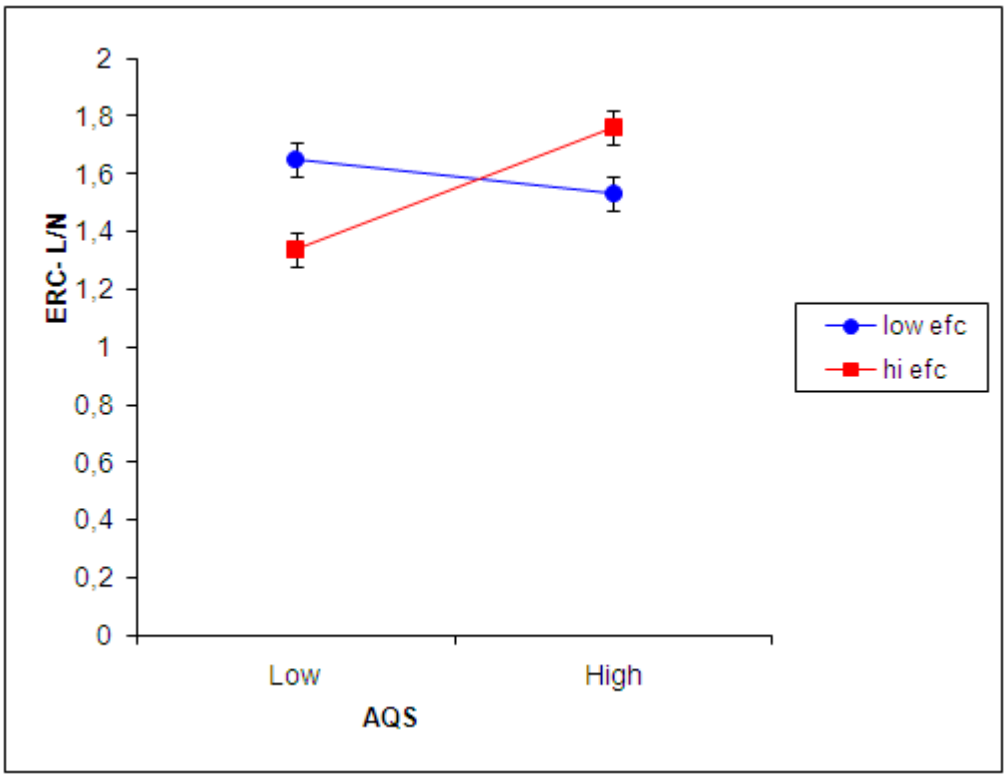

Figure 2 Interactive effect of attachment and effortful control on lability/negativity

Appendix N

Demographic Form and Turkish Form of the CBCL

Genel Bilgi Formu

Çalışmaya Katılan Çocuğunuz ile İlgili Sorular

1. Çocuğunuzun doğum tarihi: Gün____ Ay_____ Yıl_____

2a. Çocuk Bakımının Cinsi ve Her Hafta Orada Geçirdiği Saat Sayısı: (lütfen her seçeneği "evet" veya "hayır" şeklinde cevaplayınız ve "evet" diye yanıtladıklarınız için saat sayısını yazınız):

Çocuk Bakımının Cinsi		**Yanıtınız Evetse: Her Hafta Orada Geçirdiği Saat Sayısı**
Anaokulu – kreş	**Evet / Hayır**	
Akraba/ arkadaş/ bakıcı	**Evet / Hayır**	

2b. Çocuğunuz ne zaman anaokuluna/ kreşe başladı? Ay_____ Yıl_____

Çocuğun Annesi ve Babası ile İlgili Sorular

	Anne	**Baba**
Doğum Tarihi	gün ay yıl	gün ay yıl
Mesleği		
Milliyeti		

	Anne	**Baba**
Medeni Hali	1. Evli 2. Bekar, ayrılmış veya boşanmış 3. Yeniden evlenmiş 4. Dul	1. Evli 2. Bekar, ayrılmış veya boşanmış 3. Yeniden evlenmiş 4. Dul
Çalışma durumu	1. Yarım zamanlı (haftada 45 saatten az) 2. Tam zamanlı (haftada 45 saat) 3. Hayır	1. Yarım zamanlı (haftada 45 saatten az) 2. Tam zamanlı (haftada 45 saat) 3. Hayır
Tamamladığı en yüksek eğitim düzeyi	1. İlkokuldan terk 2. İlkokul mezunu 3. Ortaokuldan terk 4. Ortaokul mezunu 5. Liseden terk 6. Lise mezunu 7. Yüksek okul mezunu (2 yıllık) 8. Üniversiteden terk 9. Üniversite mezunu (4 yıllık) 10. Uzmanlik derecesi var (master, vs.)	1. İlkokuldan terk 2. İlkokul mezunu 3. Ortaokuldan terk 4. Ortaokul mezunu 5. Liseden terk 6. Lise mezunu 7. Yüksek okul mezunu (2 yıllık) 8. Üniversiteden terk 9. Üniversite mezunu (4 yıllık) 10. Uzmanlik derecesi var (master, vs.)

Hane halkının toplam geliri

Ayda 1000 YTL'nin altında	1	
Ayda 1000 – 3000 YTL	2	
Ayda 3001- 5000 YTL	3	
Ayda 5001-7000 YTL	4	
Ayda 7001-10,000YTL	5	
Ayda 10,000YTL'nin üzerinde	6	

DAVRANIŞ DEĞERLENDİRME ÖLÇEĞİ

Aşağıda çocukların özelliklerini tanımlayan bir dizi madde bulunmaktadır. Her bir madde **çocuğunuzun şu andaki ya da son 6 ay** içindeki durumunu belirtmektedir. Bir madde çocuğunuz için **çok ya da sıklıkla doğru ise 2, bazen ya da biraz doğru ise 1, hiç doğru değilse 0** sayılarını yuvarlak içine alınız. Lütfen tüm maddeleri işaretlemeye çalışınız.
LÜTFEN TÜM MADDELERİ YANITLAYINIZ. SİZİ KAYGILANDIRAN MADDELERİN ALTINI ÇİZİNİZ.
0: Doğru Değil (Bildiğiniz kadarıyla) 1: Bazen ya da Biraz Doğru 2: Çok ya da Sıklıkla Doğru

0 1 2 1. Ağrı ve sızıları vardır (tıbbi nedeni olmayan).
0 1 2 2. Yaşından daha küçük gibi davranır.
0 1 2 3. Yeni şeyleri denemekten korkar.
0 1 2 4. Başkalarıyla gözgöze gelmekten kaçınır.
0 1 2 5. Dikkatini uzun süre toplamakta ya da sürdürmekte güçlük çeker.
0 1 2 6. Yerinde rahat oturamaz, huzursuz ve çok hareketlidir.
0 1 2 7. Eşyalarının yerinin değiştirilmesine katlanamaz.
0 1 2 8. Beklemeye tahammülü yoktur, herşeyin anında olmasını ister.
0 1 2 9. Yenmeyecek şeyleri ağzına alıp çiğner.
0 1 2 10. Yetişkinlerin dizinin dibinden ayrılmaz, onlara çok bağımlıdır.
0 1 2 11. Sürekli yardım ister.
0 1 2 12. Kabızdır, kakasını kolay yapamaz (hasta değilken bile).
0 1 2 13. Çok ağlar.
0 1 2 14. Hayvanlara eziyet eder .
0 1 2 15. Karşı gelir.
0 1 2 16. İstekleri anında karşılanmalıdır.
0 1 2 17. Eşyalarına zarar verir.
0 1 2 18. Ailesine ait eşyalara zarar verir.
0 1 2 19. Hasta değilken bile ishal olur, kakası yumuşaktır.
0 1 2 20. Söz dinlemez, kurallara uymaz.
0 1 2 21. Yaşam düzenindeki en ufak bir değişiklikten rahatsız olur.
0 1 2 22. Tek başına uyumak istemez.
0 1 2 23. Kendisiyle konuşulduğunda yanıt vermez.
0 1 2 24. İştahsızdır (açıklayınız).....
.....
0 1 2 25. Diğer çocuklarla anlaşamaz
0 1 2 26. Nasıl eğleneceğini bilmez, büyümüş de küçülmüş gibi davranır.
0 1 2 27. Hatalı davranışından dolayı suçluluk duymaz.
0 1 2 28. Evden dışarı çıkmak istemez
0 1 2 29. Güçlükle karşılaştığında çabuk vazgeçer.
0 1 2 30. Kolay kıskanır.
0 1 2 31. Yenilip içilmeyecek şeyleri yer ya da içer-(kum, kil, kalem, silgi gibi)-(açıklayınız).....
.....
0 1 2 32. Bazı hayvanlardan, ortamlardan ya da yerlerden korkar (açıklayınız).....
.....
0 1 2 33. Duyguları kolayca incinir.
0 1 2 34. Çok sık bir yerlerini incitir, başı kazadan kurtulmaz.
0 1 2 35. Çok kavga dövüş eder.

Lütfen arka sayfaya geçiniz....

0: Doğru Değil (Bildiğiniz kadarıyla) 1: Bazen ya da Biraz Doğru 2: Çok ya da Sıklıkla Doğru

0 1 2 36. Her şeye burnunu sokar.

0 1 2 37. Anne-babasından ayrıldığında çok tedirgin olur.

0 1 2 38. Uykuya dalmada güçlük çeker.

0 1 2 39. Baş ağrıları vardır (tıbbi nedeni olmayan).

0 1 2 40. Başkalarına vurur.

0 1 2 41. Nefesini tutar.

0 1 2 42. Düşünmeden, insanlara ya da hayvanlara zarar verir.

0 1 2 43. Hiç bir neden yokken mutsuz görünür.

0 1 2 44. Öfkelidir.

0 1 2 45. Midesi bulanır, kendini hasta hisseder (tıbbi nedeni olmayan).

0 1 2 46. Bir yerleri seyirir, tikleri vardır (açıklayınız).....

.....

0 1 2 47. Sinirli ve gergindir.

0 1 2 48. Gece kabusları vardır, korkulu rüyalar görür.

0 1 2 49. Aşırı yemek yer.

0 1 2 50. Aşırı yorgundur

0 1 2 51. Hiç bir neden yokken panik yaşar.

0 1 2 52. Kakasını yaparken ağrısı acısı olur.

0 1 2 53. Fiziksel olarak insanlara saldırır, onlara vurur.

0 1 2 54. Burnunu karıştırır, cildini ya da vücudunun diğer taraflarını yolar (açıklayınız)...

.....

.....

0 1 2 55. Cinsel organlarıyla çok fazla oynar.

0 1 2 56. Hareketlerinde tam kontrollü değildir, sakardır.

0 1 2 57. Tıbbi nedeni olmayan, görme bozukluğu dışında göz ile ilgili sorunları vardır (açıklayınız).....

.....

0 1 2 58. Cezadan anlamaz, ceza, davranışını değiştirmez.

0 1 2 59. Bir uğraş ya da faaliyeti bitirmeden diğerine çabuk geçer.

0 1 2 60. Döküntüleri ya da başka cilt sorunları vardır (tıbbi nedeni olmayan).

0 1 2 61. Yemek yemeyi reddeder.

0 1 2 62. Hareketli, canlı oyunlar oynamayı reddeder.

0 1 2 63. Başını ve bedenini tekrar tekrar sallar.

0 1 2 64. Gece yatağına gitmemek için direnir.

0 1 2 65. Tuvalet eğitimine karşı direnir (açıklayınız).....

.....

0 1 2 66. Çok bağırır, çağırır, çığlık atar.

0 1 2 67.Sevgiye, şefkate tepkisiz görünür.

0 1 2 68. Sıkılgan ve utangaçtır.

0 1 2 69. Bencildir, paylaşmaz.

0 1 2 70. İnsanlara karşı çok az sevgi, şefkat gösterir.

0 1 2 71. Çevresindeki şeylere çok az ilgi gösterir.

0 1 2 72. Canının yanmasından, incinmekten pek az korkar.

0 1 2 73. Çekingen ve ürkektir.

0: Doğru Değil (Bildiğiniz kadarıyla) 1: Bazen ya da Biraz Doğru 2: Çok ya da Sıklıkla Doğru

0 1 2 74. Gece ve gündüz çocukların çoğundan daha az uyur.

0 1 2 75. Kakasıyla oynar ve onu etrafa bulaştırır (açıklayınız).....

0 1 2 76. Konuşma sorunu vardır (açıklayınız)

.....

.....

0 1 2 77. Bir yere boş gözlerle uzun süre bakar ve dalgın görünür.

0 1 2 78. Mide-karın ağrısı ve krampları vardır(tıbbi nedeni olmayan).

0 1 2 79. Üzgünken birden neşeli, neşeli iken birden üzgün olabilir.

0 1 2 80. Yadırganan, tuhaf davranışları vardır (açıklayınız).....

.....

0 1 2 81. İnatçı, somurtkan ve rahatsız edicidir.

0 1 2 82. Duyguları değişkendir, bir anı bir anını tutmaz.

0 1 2 83. Çok sık küser, surat asar, somurtur.

0 1 2 84. Uykusunda konuşur, ağlar, bağırır.

0 1 2 85. Öfke nöbetleri vardır, çok çabuk öfkelenir korkar (açıklayınız).....

.....

0 1 2 86. Temiz, titiz ve düzenlidir.

0 1 2 87. Çok korkak ve kaygılıdır.

0 1 2 88. İşbirliği yapmaz.

0 1 2 89. Hareketsiz ve yavaştır, enerjik değildir.

0 1 2 90. Mutsuz, üzgün, çökkün ve keyifsizdir (açıklayınız).....

.....

0 1 2 91. Çok gürültücüdür.

0 1 2 92. Yeni tanıdığı insanlardan ve durumlardan çok tedirgin olur.

0 1 2 93. Kusmaları vardır (tıbbi nedeni 0 1 2

0 1 2 94. Geceleri sık sık uyanır.

0 1 2 95. Alıp başını gider.

0 1 2 96. Çok ilgi ve dikkat ister.

0 1 2 97. Sızlanır, mızırdanır.

0 1 2 98. İçe kapanıktır, başkalarıyla birlikte olmak istemez.

0 1 2 99. Evhamlıdır.

0 1 2 100. Çocuğunuzun burada değinilmeyen başka sorunu varsa lütfen yazınız)

.....

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.....

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Lütfen arka sayfaya geçiniz...

Appendix O

Turkish Form of the ERC and the SCBE-30

DUYGU DÜZENLEME ÖLÇEĞİ

Aşağıdaki listede bir çocuğun duygusal durumu ile ilgili ifadeler yer almaktadır. Verilen numaralandırma sistemini göz önünde bulundurarak aşağıdaki davranışları öğrencinizde ne kadar sıklıkla gözlemlediğinizi işaretleyiniz:

Bu davranışı:
(1) HİÇBİR ZAMAN/NADİREN
(2) BAZEN
(3) SIK SIK
(4) NERDEYSE HER ZAMAN gözlemliyorum.

	HİÇBİR ZAMAN /NADİREN	**BAZEN**	**SIK SIK**	**NERDEYSE HER ZAMAN**
1. Neşeli bir çocuktur.	1	2	3	4
2. Duygu hali cok değişkendir (Çocuğun duygu durumunu tahmin etmek zordur çünkü neşeli ve mutluyken kolayca üzgünleşebilir).	1	2	3	4
3. Yetişkinlerin arkadaşça ya da sıradan (nötr) yaklaşımlarına olumlu karşılık verir.	1	2	3	4
4. Bir faaliyetten diğerine kolayca geçer; kızıp sinirlenmez, endişelenmez (kaygılanmaz), sıkıntı duymaz veya aşırı derecede heyecanlanmaz.	1	2	3	4
5. Üzüntüsünü veya sıkıntısını kolayca atlatabilir (örneğin, canını sıkan bir olay sonrasında uzun süre surat asmaz, endişeli veya üzgün durmaz).	1	2	3	4
6. Kolaylıkla hayal kırıklığına uğrayıp sinirlenir (huysuzlaşır, öfkelenir).	1	2	3	4
7. Yaşıtlarının arkadaşça ya da sıradan (nötr) yaklaşımlarına olumlu karşılık verir.	1	2	3	4
8. Öfke patlamalarına, huysuzluk nöbetlerine eğilimlidir.	1	2	3	4
9. Hoşuna giden bir şeye ulaşmak için bekleyebilir. (örneğin, şeker almak için sırasını beklemesi gerektiğinde keyfi kaçmaz veya heyecanını kontrol edebilir).	1	2	3	4

	HİÇBİR ZAMAN /NADİREN	BAZEN	SIK SIK	NERDEYSE HER ZAMAN
10. Başkalarının sıkıntı hissetmesinden keyif duyar (örneğin, biri incindiğinde veya ceza aldığında güler; başkalarıyla alay etmekten zevk alır).	1	2	3	4
11. Heyecanını kontrol edebilir (örneğin, cok hareketli oyunlarda kontrolunu kaybetmez veya uygun olmayan ortamlarda aşırı derecede heyecanlanmaz).	1	2	3	4
12. Mızmızdır ve yetişkinlerin eteğinin dibinden ayrılmaz.	1	2	3	4
13. Ortalığı karıştırarak çevresine zarar verebilecek enerji patlamaları ve taşkınlıklara eğilimlidir.	1	2	3	4
14. Yetişkinlerin sınır koymalarına sinirlenir.	1	2	3	4
15. Üzüldüğünü, kızıp öfkelendiğini, veya korkutuğunu söyleyebilir.	1	2	3	4
16. Üzgün veya halsız görünür.	1	2	3	4
17. Oyuna başkalarını katmaya çalışırken aşırı enerjik ve hareketlidir.	1	2	3	4
18. Yüzü ifadesizdir; yüz ifadesinden duyguları anlaşılmaz.	1	2	3	4
19. Yaşıtlarının arkadaşça ya da sıradan (nötr) yaklaşımlarına olumsuz karşılık verir (örneğin kızgın bir ses tonuyla konuşabilir ya da ürkek davranabilir).	1	2	3	4
20. Düşünmeden, ani tepkiler verir.	1	2	3	4
21. Kendini başkalarının yerine koyarak onların duygularını anlar; başkaları üzgün ya da sıkıntılı oldugunda onlara ilgi gösterir.	1	2	3	4
22. Başkalarını rahatsız edecek veya etrafa zarar verebilecek kadar aşırı enerjik, hareketli davranır.	1	2	3	4
23. Yaşıtları ona saldırgan davranır ya da zorla işine karışırsa yerinde olumsuz duygular gösterir (örneğin kızgınlık, korku, öfke, sıkıntı).	1	2	3	4
24. Oyuna başkalarını katmaya çalışırken olumsuz duygular gösterir (örneğin, aşırı heyecan, kızgınlık,üzüntü).	1	2	3	4

SOSYAL YETKİNLİK VE DAVRANIŞ DEĞERLENDİRMESİ

Aşağıdaki listede bir çocuğun duygusal durumu ve davranışları ile ilgili ifadeler yer almaktadır. Verilen numaralandırma sistemini göz önünde bulundurarak ifadelerdeki davranışları öğrencinizde ne kadar sıklıkla gözlemlediğinizi işaretleyiniz: Bu davranışı
HİÇBİR ZAMAN (1) BAZEN (2 veya 3) SIK SIK (4 veya 5) HER ZAMAN (6) gözlemliyorum.

	HİÇBİR ZAMAN	**BAZEN**		**SIKSIK**		**HER ZAMAN**
	1	**2 veya 3**		**4 veya 5**		**6**
1. Yüz ifadesi duygularını belli etmez.	1	2	3	4	5	6
2. Zorda olan bir çocuğu teselli eder ya da ona yardımcı olur.	1	2	3	4	5	6
3. Kolaylıkla hayal kırıklığına uğrayıp sinirlenir.	1	2	3	4	5	6
4. Faaliyeti kesintiye uğradığında kızar.	1	2	3	4	5	6
5. Huysuzdur, çabuk kızıp öfkelenir.	1	2	3	4	5	6
6. Gündelik işlerde yardım eder (örneğin sınıf toplanırken ya da beslenme dagıtılırken yardımcı olur).	1	2	3	4	5	6
7. Çekingen, ürkektir; yeni ortamlardan ve durumlardan kaçınır.	1	2	3	4	5	6
8. Üzgün, mutsuz ya da depresiftir.	1	2	3	4	5	6
9. Grup içinde içe dönük ya da grupta olmaktan huzursuz görünür.	1	2	3	4	5	6
10. En ufak bir şeyde bağırır ya da çığlık atar.	1	2	3	4	5	6
11. Grup içinde kolaylıkla çalışır.	1	2	3	4	5	6
12. Hareketsizdir, oynayan çocukları uzaktan seyreder.	1	2	3	4	5	6
13. Anlaşmazlıklara çözüm yolları arar.	1	2	3	4	5	6
14. Gruptan ayrı, kendi başına kalır.	1	2	3	4	5	6

	Hiçbir zaman 1	Bazen 2 veya 3		Sıksık 4 veya 5		Her zaman 6
15. Diğer çocukların görüşlerini dikkate alır.	1	2	3	4	5	6
16. Diğer çocuklara vurur, onları ısırır ya da tekmeler.	1	2	3	4	5	6
17. Grup faaliyetlerinde diğer çocuklarla birlikte çalışır, onlarla iş birliği yapar.	1	2	3	4	5	6
18. Diğer çocuklarla anlaşmazlığa düşer.	1	2	3	4	5	6
19. Yorgundur.	1	2	3	4	5	6
20. Oyuncaklara iyi bakar, oyuncakların kıymetini bilir.	1	2	3	4	5	6
21. Grup faaliyetleri sırasında konuşmaz ya da faaliyetlere katılmaz.	1	2	3	4	5	6
22. Kendinden küçük çocuklara karşı dikkatlidir.	1	2	3	4	5	6
23. Grup içinde farkedilmez.	1	2	3	4	5	6
24. Diğer çocukları istemedikleri şeyleri yapmaya zorlar.	1	2	3	4	5	6
25. Öğretmene kızdığı zaman ona vurur ya da çevresindeki eşyalara zarar verir.	1	2	3	4	5	6
26. Endişeye kapılır.	1	2	3	4	5	6
27. Akla yatan açıklamalar yapıldığında uzlaşmaya varır.	1	2	3	4	5	6
28. Öğretmenin önerilerine karşı çıkar.	1	2	3	4	5	6
29. Cezalandırıldığında (örneğin herhangi bir şeyden yoksun bırakıldığında) başkaldırır, karşı koyar.	1	2	3	4	5	6
30. Kendi başarılarından memnuniyet duyar.	1	2	3	4	5	6

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