Emotional and Behavioral Problems Associated with Attachment Security and Parenting Style in Adopted and Non-Adopted Children

İlkiz ALTINOĞLU DİKMEER[1], Neşe EROL[2], Tülin GENÇÖZ[3]

SUMMARY

Objective: This study aimed to investigate and compare emotional and behavioral problems in Turkish adoptees and non-adopted peers raised by their biological parents.

Materials and Methods: The study included 61 adopted children (34 female and 27 male) aged 6-18 years and 62 age- and gender-matched non-adopted children (35 female and 27 male). Parents rated their children's problem behaviors using the Child Behavior Checklist/6-18, temperament characteristics using the School Age Temperament Inventory, their own personality traits using the Basic Personality Traits Inventory, and their parenting styles using the Measure of Child Rearing Styles. Children rated their parents' availability and reliability as attachment figures using the Kerns Security Scale and parenting styles using the Measure of Child Rearing Styles. Adolescents aged 11-18 years self-rated their problem behaviors using the Youth Self Report. Group differences and correlations were analyzed.

Results: There were non-significant differences in all scale scores between the adopted and non-adopted groups. In contrast to the literature, age of the children at the time of adoption was not associated with problem behaviors or attachment relationships. On the other hand, the findings indicate that as the age at which the children learned that they had been adopted increased emotional and behavioral problems increased.

Conclusion: Adoption alone could not explain the problem behaviors observed in the adopted children; the observed problem behaviors should be considered within the context of the developmental process.

Keywords: Adoption, adopted children, internalizing/externalizing problems, problem behaviors, attachment, parenting style, temperament

INTRODUCTION

According to the United Nations Convention on the Rights of the Child, Article 18, parents have the primary responsibility for the upbringing and development of their children. Article 20 states that if a child is temporarily or permanently deprived of his or her family environment, or in whose own best interests cannot be allowed to remain in that environment shall be entitled to special protection and assistance provided by the State. Such care could include, inter alia, foster placement, adoption, or if necessary placement in suitable institutions for the care of children (UNICEF Turkey, 2013). It has been proven that if a child has no relatives to provide care, foster care or adoption is a better option than institutional care (Browne 2008). According to Turkish Civil Law, adoption is the establishment of legal and permanent bonds between an adult that is eligible to adopt and a child whose biological parents are not able or willing to provide care (Directorate of Child Services 2013a).

Many studies on adopted children reported that due to peri- and post-natal malnutrition, unhealthy living conditions, unhealthy family bonding, separation from or abandonment

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[1]Ph.D., Clinical Psychologist, Atılım University, Department of Psychology 06836, İncek, [2]Professor, Clinical Psychologist, Ankara University, School of Medicine, Department of Child and Adolescent Psychiatry, 06500, Dikimevi, Ankara, [3]Professor, Clinical Psychologist, Middle East Technical University, Department of Psychology, 06531, Ankara, Turkey.

e-mail: *ilkiz@superonline.com*

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by the biological family, and/or institutionalization, adopted children are at risk of problematic psychosocial adjustment. When compared to their peers raised by biological families, many adopted children exhibit poorer psychological adjustment (Van den Dries et al. 2009; Rosnati et al. 2008; Van IJzendoorn & Juffer 2006; Xing Tan 2006; Simmel et al. 2001). On the other hand, some studies (Browne 2008; Hodges 2005; Johnson 2002) showed that adopted children had better psychological adjustment, higher academic achievement, fewer problem behaviors, used drugs less frequently, and were referred for mental health services less frequently than their peers living in institutions and their biological siblings that remained with the biological family; however, they also had slightly more emotional and behavioral problems than their peers that were raised by their biological families.

Many researchers agree that adopted children and adolescents are over represented among those that present for mental health services (Hodges 2005; Juffer & Van IJzendoorn 2005; Nickman et al. 2005; Wilson 2004; Groza & Ryan 2002; Howe 1997). These data might initially indicate that adopted children are more problematic than their non-adopted peers, but it was also reported that adoptive parents are more anxious and amenable to receiving help than biological parents and, therefore, are more likely to seek professional support (Hodges 2005; Juffer & Van IJzendoorn 2005; Wilson 2004).

The age at which a child is adopted plays an important role in his/her adjustment. Academic achievement and interfamily accommodation in children adopted before age 1 year were better than in children that were adopted at age ≥1 years. Additionally, it was reported that children that are adopted at age <6 months have a lower risk of developing psychopathology than children that are adopted at age ≥6 months (Hodges 2005; Fensbo 2004). Similarly, it was reported that children that are adopted in infancy develop more secure attachment relationships than those adopted at a later age (Van den Dries et al. 2009), and later adopted children had carried their previously developed attachment styles to their new homes and attached to their new caregivers accordingly (Stovall & Dozer 1998).

In Turkey the Ministry of Family and Social Policies, Directorate of Child Services is the only institution that provides legal adoption services. Additionally, Turkish civil law permits adoption of a child directly from her/his biological parents and/or legal guardian. Due to such direct adoptions, the precise number of adopted children in Turkey cannot be estimated. The Turkish Directorate of Child Services (2013b) reported mediating about 500 adoptions per year, which is a much smaller number than in other countries; the mean annual number of adoptions in the US is approximately 1 million (Wilson 2004; Simmel et al. 2001), and is 1000-2000 in France (Dumaret & Rosset 2005), 5000 in Spain (Palacios & Amoros 2006), and 4000 in Korea (Lee 2007). Along with the small number of children adopted in Turkey, there is a small number of studies on the social and legal aspects of adoption in Turkey, but it is found that adoption is a neglected subject within mental health studies. A collection book (Erol 2008) of the papers presented in the Symposium for Foster Care, Adoption Services and Mental Health has been a pioneer in the field. Nonetheless, to date, an empirical study on the mental health status of adoptees and their families in Turkey has not been performed. As such, the present study aimed to investigate and compare emotional and behavioral problems in Turkish adoptees and non-adopted peers raised by their biological parents, as well as attachment styles and parenting styles.

MATERIALS and METHODS

Participants

The study included 61 adoptees aged 6-18 years (34 female and 27 male), 62 non-adopted children (35 female and 27 male) matched in terms of age and gender, and their parents. The adoptive families were from 12 Turkish cities (66% from Ankara) and the non-adoptive families were from 4 Turkish cities (80% from Ankara).

Mean age of the children and their parents in both groups are shown in Table 1. The adoptive parents were older than the biological parents and the difference was significant [mothers: $t(118) = 9.48$; $P < 0.001$; fathers: $t(112) = 8.32$; $P < 0.001$]. Mean age of the adoptees at the time of adoption was 16 months (range: 0-96 months) and 40% (n = 24) were adopted within the first month after birth.

Table 1. Mean age in the adoptive and non-adoptive families

	Adoptive				Non-adoptive			
	n	**Mean**	**Range**	**SD**	**n**	**Mean**	**Range**	**SD**
Children	61	125.30 months (10.8 years)	76-223	42.22	62	131.81 months (11.5 years)	71-211	37.03
Mothers	59	47.88 years	37-61	5.58	62	38.73 years	27-53	5.00
Fathers	54	51.17 years	36-75	6.39	61	41.92 years	34-58	5.48

In all, 36% of the adoptive mothers and 46% of the adoptive fathers had a university or higher level of education, versus 26% of the mothers and 41% of the fathers in the non-adoptive group. Among the mothers in both groups, 40% were housewives. The majority of the adoptive fathers were retired, whereas the majority of the non-adoptive fathers were currently employed. Among the adopted children, 80% (n = 49) were living with both parents, versus 89% (n = 55) of the non-adopted children; the other children lived with 1 parent because of divorce or the death of a parent. In the adoptive group there were 4 single mothers that had never been married.

According to parental reports, 75% (n = 45) of the adopted children knew that they had been adopted. The earliest time at which a child learned of their adoption was 2 years and the latest was 13 years (mean: 5.95 ± 2.44 years). Among the adoptive parents, 20% had planned to inform their child of their adoption, but waited for the right time, whereas 5% reported that they would never tell their child that they were adopted. No information related to the biological families of the adopted children was obtained. Among the adoptees, 70% were adopted through the Turkish Directorate of Child Services and could not obtain any information about their biological families. Parents that adopted their children directly from biological families through an intermediary did have information about the biological family history, but had no contact with them. Only 2 of the adopted children knew that they were adopted into their extended family (kinship adoption) and maintained a relationship with their biological parents and siblings.

In all, 65% (n = 40) of the adoptees and 60% (n = 37) of the non-adopted children were previously or currently treated at a child and adolescent psychiatry unit, all of which were referred to the first author by a child psychiatrist or clinical child psychologist; therefore, all of them were already been diagnosed and treated by the same professionals. In both groups, attention deficit-hyperactivity disorder (ADHD) was the most common diagnosis (69% in the adopted group, versus 60% in the non-adopted group). Some of those diagnosed as ADHD had a comorbid learning disorder or conduct disorder. In total, 38% of the adoptees and 34% of the non-adopted children that received a diagnosis were taking psychiatric medication.

MEASURES

Adoption Information Questionnaire

This questionnaire was designed by the researchers for collecting data related to family demographics, the health and academic status of the children, adoption history, and representations of the parents about their children and also about adoption. Parents completed the questionnaire and were interviewed.

Child Behavior Checklist/6-18 (CBCL/6-18)

CBCL/6-18 was revised by Achenbach & Rescorla (2001), and is used to assess problem behaviors in children and adolescents aged 6-18 years. Parents or primary caregivers are asked to rate 113 Likert-type items. Problem behaviors are rated as 0-2 in accordance with the frequency of symptoms during the previous 6 months. The items are grouped into 8 syndrome subscales and 6 DSM-oriented problem subscales, as well as internalizing, externalizing, and total problem behavior subscales. CBCL also includes a competency section used to assess the levels of activity and socializing, and academic performance.

Research on the validity and reliability of the Turkish version reported a test-retest reliability of 0.84 and internal consistency of 0.83 for the total problems subscale (Erol et al. 1995). The other syndrome and DSM-oriented subscales had test-retest reliability values varying between 0.67 and 0.80, and internal consistency of 0.63-0.91 (Erol & Şimşek 2010, 1998; Dümenci et al. 2004). In the present study all the parents used the scale to rate their children's emotional and behavioral problems.

Youth Self Report /11-18 (YSR/11-18)

YSR is a self-report measure for adolescents aged 11-18 years (Achenbach & Rescorla 2001). YSR is similar to CBCL/6-18 in terms of subscales and scoring. The total problems subscale, based on a Turkish population, had an internal consistency coefficient of 0.88 and test-retest reliability of 0.82 (Erol & Şimşek 2010, 1998). In the present study all the adolescents used the scale to self rate their emotional and behavioral problems.

School-Age Temperament Inventory (SATI)

The inventory is a parent report used to assess temperament in children and adolescents (McClowry et al. 2003; McClowry 1995). The scale's 4 temperament dimensions (negative reactivity, task persistence, approach/withdrawal, and activity) are measured using 38 items. The data for the Turkish standardization of the scale is obtained by Eremsoy (2007). The internal consistency coefficients for the 4 dimensions ranged between 0.85 and 0.90, and test-retest correlations were between 0.80 and 0.89. All the parents completed the scale to rate their children.

Measure of Child Rearing Styles (MCRS)

MCRS was developed by Sümer and Güngör (1999) to assess parenting styles. The scale's 2 main parenting dimensions

(acceptance/involvement and strict control/supervision) are assessed via 22 items. In the scale's original study the internal consistency coefficient for perceived parental acceptance by both mother and father was 0.94, whereas for perceived strict control/supervision for mother and father was 0.80 and 0.70, respectively. In the present study both parents rated their parenting styles, and the children and adolescents rated the perceived parenting styles of both parents.

Basic Personality Traits Inventory (BPTI)

BPTI is 45-item inventory developed for use in Turkey to assess 6 dimensions of personality (openness to experience, conscientiousness, extraversion, agreeableness, neuroticism, and negative valence) (Gençöz and Öncül 2012). The scale's internal consistency coefficients range between 0.71 and 0.89. All the parents in the present study used the scale to self rate their personality dimensions.

Kerns Security Scale (KSS)

KSS is 15-item scale used to measure a child's perceptions of reliance on their attachment figure and their perceptions of the availability of their attachment figure (Kerns et al. 1996). The Turkish standardization study was conducted by Sümer and Anafarta (2009) and included 5th and 6th grade students (n = 194). The internal consistency coefficients were 0.84 and 0.88 for mother and father, respectively. In the present study the children used the scale to rate their mother and father separately.

PROCEDURE

The study protocol was approved by the Middle East Technical University Ethics Committee. All parents were informed about the nature of the study, and families that volunteered to participate and provided written informed consent were included. Prior to data collection, a request to the Turkish Directorate Child Services for help contacting adoptive parents was rejected; therefore, all volunteer adoptive families were recruited from contacts provided by the Turkish Association for Foster Care and Adoption. In addition, adopted children referred to child psychiatry clinics in 12 cities (primarily Ankara University Medical School, Department of Child Psychiatry) for various complaints whose parents volunteered were included in the study. Additional adoptive parents that were the acquaintances of other volunteer adoptive families were also contacted. Only 61 (74%) of the 82 adoptive parents contacted agreed to participate in the study. The parents that declined to participate did so because their child did not know that they were adopted, or because the questionnaires were too long. The non-adopted group included children and adolescents living with their biological parents that were matched to the adoptees in terms of age, gender, and diagnoses.

All the children in the study were divided into 2 groups (adopted and non-adopted [adoption status]), and 2 subgroups (followed-up and not followed-up at a child psychiatry unit [clinical status]). Parents rated their child's emotional and behavioral problems, and temperaments, and self rated their personality traits and parenting styles. Children rated their parents' parenting styles and self rated their perceived attachment security. Additionally, adolescents aged >11 years self rated their emotional and behavioral problems.

Statistical Analysis

All analyses were performed using SPSS v.16.0 for Windows. Group differences were analyzed via multivariate analysis of variance, and the strength of the relationship between adoption characteristics and measures of the study was analyzed using Pearson's product-moment correlation. Among the 123 children that participated in the study, only 67 had both a mother and father that participated. Among all the children, only 1 parent of 56 children completed the questionnaires; therefore, initial analysis was performed with 67 pairs of parents to compare parent ratings, regardless of adoption or clinical status. Multivariate analysis of variance indicated that there wasn't a significant difference between mothers and fathers in any of the measures; as such, mothers and fathers were rated independently in the analyses in order to avoid losing data.

RESULTS

Emotional and behavioral problems, and temperament in the children, and personality traits and parenting styles of the parents were analyzed via 2 (adopted and non-adopted groups) × 2 (clinical and non-clinical subgroups) MANOVA. Parent ratings for all measures are shown in Tables 2 and 3.

There wasn't a significant adoption status main effect or adoption × clinical status interaction effect, according to any of the measures. In contrast, mother CBCL/6-18 scores [multivariate $F(15,89) = 4.28$, $P < 0.001$, Wilks' $\Lambda = 0.58$, eta2 = 0.42] and mother SATI scores [multivariate $F(4,106) = 8.74$, $P < 0.001$, Wilks' $\Lambda = 0.75$, eta2 = 0.25] indicated there was clinical status main effect. The children in the clinical subgroup had higher internalizing, externalizing, and total problem behavior scores than those in the non-clinical subgroup. Following Bonferroni correction, the findings showed that children that were followed-up at a child psychiatry unit had higher CBCL/6-18 problem scores than children that were not similarly followed-up, according to 6 of the 8 syndrome subscales (withdrawal/depression, social problems, thought problems, attention problems, rule breaking behavior, and

Table 2. Mean parent-rated CBCL/6-18 scores

	Adoptive								Non-adoptive							
	Clinical				Non-clinical				Clinical				Non-clinical			
	Mothers n = 34		Fathers n = 22		Mothers n = 17		Fathers n = 9		Mothers n = 35		Fathers n = 20		Mothers n = 23		Fathers n = 19	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Internalizing Problems	13.79	7.95	11.45	7.14	10.59	7.28	7.78	5.59	14.37	8.37	13.05	9.16	7.87	5.36	7.26	4.89
Externalizing Problems	15.15	10.61	13.50	11.03	8.24	6.90	7.00	6.84	11.54	7.15	8.95	6.97	4.48	3.75	4.32	4.03
Total Problems	55.71	26.78	49.23	29.60	33.94	21.24	28.56	21.33	49.71	24.15	42.30	26.97	20.78	13.35	19.53	11.93
Syndrome Subscales																
Anxiety/Depression	7.09	4.85	6.18	4.20	6.24	3.95	3.56	2.19	7.26	4.10	6.00	4.05	3.83	2.84	3.42	2.50
Withdrawal/Depression	3.47	2.51	2.64	2.66	2.41	2.53	3.00	2.83	4.71	3.28	4.95	3.87	2.22	1.78	2.47	2.12
Somatic Complaints	3.24	3.51	2.64	2.66	1.94	2.28	1.22	2.64	2.40	2.66	2.10	3.18	1.83	2.19	1.37	2.43
Social Problems	5.94	3.50	5.77	4.12	3.59	2.72	3.22	3.46	6.03	3.58	4.65	3.27	1.83	1.77	1.89	1.85
Thought Problems	4.53	3.37	4.50	3.64	2.65	2.09	2.11	1.36	3.69	3.27	4.00	4.32	1.09	1.35	1.05	1.68
Attention Problems	9.62	4.79	7.55	4.53	4.71	3.90	4.78	4.66	8.57	4.10	6.95	3.93	2.30	2.57	2.53	2.29
Rule-Breaking Behavior	4.38	3.63	3.73	3.43	1.59	1.94	1.44	2.07	2.43	2.38	2.15	2.43	1.17	1.40	0.68	1.20
Aggressive Behavior	10.76	7.65	9.77	8.09	6.65	5.24	5.56	5.15	9.11	5.28	6.80	5.05	3.30	2.75	3.63	3.39
DSM-Oriented Subscales																
Affective Problems	4.35	2.90	3.91	3.18	3.12	2.64	2.67	1.73	4.46	3.19	4.75	3.89	1.96	1.69	1.79	1.69
Anxiety Problems	3.00	2.13	3.05	1.94	2.24	2.51	1.44	1.67	3.20	2.35	2.50	2.12	1.26	1.25	1.11	0.94
Somatic Problems	1.74	2.69	1.45	2.04	0.76	1.25	0.67	1.66	1.31	1.86	1.00	2.29	1.13	1.77	0.74	1.56
ADHD Problems	5.44	2.86	4.77	3.01	2.94	2.16	3.00	2.35	4.31	2.83	3.30	2.64	1.65	1.58	1.89	1.63
Oppositional Defiant P	3.85	2.63	3.32	2.82	2.18	1.91	1.89	1.69	3.54	1.92	2.60	2.19	1.39	1.37	1.42	1.46
Conduct Problems	4.74	4.31	4.36	4.78	1.29	1.76	1.22	1.72	2.80	3.08	2.15	2.46	0.74	1.14	0.47	1.02

Table 3. Mean parent-rated SATI, MCRS, and BPTI subscale scores

	Adoptive								Non-adoptive							
	Clinical				Non-clinical				Clinical				Non-clinical			
	Mothers n = 36		Fathers n = 26		Mothers n = 20		Fathers n = 12		Mothers n = 35		Fathers n = 20		Mothers n = 24		Fathers n = 20	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
SATI																
Negative Reactivity	3.50	0.71	3.43	0.64	3.34	0.54	3.29	0.46	3.36	0.76	3.23	0.65	2.91	0.91	2.77	0.70
Task Persistence	2.60	0.75	2.80	0.71	3.16	0.81	2.94	0.77	2.71	0.65	2.75	0.59	3.69	0.68	3.61	0.61
Approach/Withdrawal	2.61	0.66	2.51	0.60	2.76	0.46	2.97	0.71	3.03	0.69	3.11	0.49	2.69	0.64	2.62	0.57
Activity	3.27	0.83	3.14	0.88	2.68	0.85	3.33	0.77	3.03	0.82	2.90	0.75	2.60	0.82	2.59	0.75
MCRS																
Acceptance/ Involvement	3.38	0.40	3.18	0.32	3.42	0.40	3.40	0.34	3.24	0.37	3.12	0.45	3.46	0.29	3.24	0.37
Strict Control/ Supervision	2.51	0.42	2.50	0.29	2.60	0.38	2.46	0.34	2.56	0.38	2.59	0.38	2.47	0.35	2.42	0.37
BPTI																
Openness	3.75	0.46	3.90	0.55	3.77	0.60	4.03	0.44	3.64	0.74	3.79	0.46	3.82	0.56	4.05	0.63
Conscientiousness	4.16	0.63	4.03	0.56	4.15	0.54	3.99	0.50	3.83	0.77	3.88	0.55	4.08	0.48	4.08	0.58
Extraversion/ Introversion	4.06	0.64	3.67	0.79	3.95	0.83	4.11	0.70	3.81	0.95	3.56	0.62	4.03	0.62	4.14	0.65
Agreeableness	4.55	0.39	4.67	0.33	4.50	0.44	4.58	0.36	4.42	0.46	4.23	0.33	4.47	0.45	4.23	0.53
Neuroticism	2.66	0.70	2.59	0.86	2.67	0.77	2.88	0.86	2.75	0.82	2.72	0.86	2.44	0.75	2.52	0.75
Negative Valence	1.47	0.46	1.62	0.64	1.34	0.27	1.46	0.62	1.55	0.49	1.53	0.47	1.55	0.66	1.56	0.40

aggressive behavior) and 5 of the 6 DSM-oriented subscales (affective, anxiety, ADHD, oppositional defiant, and conduct problems). When examined in terms of temperament based on maternal ratings, children in the clinical subgroup had lower task persistence and higher activity level scores than those in the non-clinical subgroup.

Differences in child-rated parenting styles and child self-rated emotional and behavioral problems were analyzed via 2 (adopted and non-adopted groups) × 2 (clinical and non-clinical subgroups) MANOVA. Children's self-reported perceived reliance on their attachment figures was analyzed via ANOVA for mothers and fathers individually. Children's self-rated scores are shown in Tables 4 and 5.

There wasn't a significant adoption or clinical status main effect, nor was there a significant adoption × clinical status interaction effect, according to the children's ratings of their parents. On the other hand, adolescents in the clinical subgroup had higher self-reported YSR attention and conduct problem scores than those in the non-clinical subgroup [multivariate $F(15,35) = 2.80$, $P < 0.01$, Wilks' $\Lambda = 0.45$, eta2 = 0.55].

The effects of gender and age on the dependent variables were also examined, independent of adoption and clinical status. More mothers of girls reported somatic complaints than the mothers of boys [univariate $F(1,105) = 9.60$, eta2 = 0.08]. According to maternal ratings, girls had higher task persistence scores than boys [univariate $F(1,111) = 7.82$, $P < 0.01$, eta2 = 0.07]. On the other hand, children aged <123 months had higher self-reported perceived maternal [univariate $F(1,102) = 10.18$, $P < 0.005$] and paternal [univariate $F(1,94) = 3.95$, $P < 0.005$] reliance and security scores, and had higher self-reported maternal [univariate $F(1,103) = 10.61$, $P < 0.005$, eta2 = 0.09] and paternal [univariate $F(1,95) = 8.04$, $P < 0.01$, eta2 = 0.08] acceptance and involvement scores than those aged ≥123 months. There wasn't a significant age or gender main effect, nor was there a significant interaction effect based on adolescent self-rated emotional and behavioral problem scores.

Additionally, there wasn't a significant effect of age at the time of adoption on behavior problems, temperament, perceived parenting styles, or attachment security, based on child self-rated scores. Moreover, child self-rated scores showed that there wasn't a significant difference in problems behaviors or attachment security between the children adopted before and after age 12 months.

The strength of the relationship between demographic data related to the adoption and the measures was analyzed. A noteworthy relationship was observed between age of the child at the time they learned of their adoption and CBCL/6-18 maternal-rated scores (r = 0.35-0.66); the number of problem behaviors increased as age at the time the child learned of their adoption increased.

Table 4. Mean adolescent self-report YSR scores

	Adopted				Non-Adopted			
	Clinical n = 21		Non-Clinical n = 8		Clinical n = 15		Non-Clinical n = 12	
	M	SD	M	SD	M	SD	M	SD
Internalizing Problems	15.81	7.39	11.00	5.58	18.53	10.48	11.67	6.92
Externalizing Problems	15.76	8.46	9.00	3.02	14.00	9.55	9.17	5.36
Total Problems	65.38	19.22	46.13	15.24	64.47	28.98	46.92	17.05
Syndrome Subscales								
Anxiety/Depression	8.19	4.34	5.75	3.92	8.47	4.55	4.92	3.63
Withdrawal/Depression	4.67	2.11	3.13	1.89	5.80	2.43	3.83	2.29
Somatic Complaints	2.95	2.82	2.13	1.36	4.27	4.80	2.92	2.71
Social Problems	5.33	3.86	4.63	2.56	5.73	3.67	2.92	2.27
Thought Problems	6.00	2.96	3.62	2.26	5.00	4.61	4.33	3.03
Attention Problems	8.48	3.04	4.75	4.13	8.40	3.14	5.33	2.15
Rule-breaking Behavior	4.71	3.77	1.00	1.07	3.47	3.68	2.17	1.85
Aggressive Behavior	11.05	5.41	8.00	2.67	10.53	6.55	7.00	4.73
DSM-Oriented Subscales								
Affective Problems	6.14	3.71	3.50	2.39	6.53	4.52	3.25	2.38
Anxiety Problems	3.57	2.31	2.50	2.14	4.13	2.47	2.08	1.78
Somatic Problems	1.29	1.95	1.25	1.04	2.40	3.31	1.50	1.38
ADHD Problems	5.00	2.53	3.25	2.25	3.93	2.19	3.00	1.41
Oppositional Defiant P.	5.19	2.64	4.50	1.51	4.73	2.69	3.08	1.73
Conduct Problems	4.95	3.56	0.88	1.46	3.67	3.52	1.67	1.37

Table 5. Mean child-rated KSS and MCRS subscale scores

	Adopted								Non-Adopted							
	Clinical				Non-Clinical				Clinical				Non-Clinical			
	Mothers n = 36		Fathers n = 26		Mothers n = 20		Fathers n = 12		Mothers n = 35		Fathers n = 20		Mothers n = 24		Fathers n = 20	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
KSS	50.65	9.62	49.83	9.68	53.00	4.99	46.00	10.57	46.88	9.75	45.29	10.15	51.14	7.19	48.60	9.10
MCRS																
Acc/Inv	3.51	0.58	3.28	0.67	3.58	0.34	3.16	0.66	3.28	0.59	3.01	0.77	3.47	0.35	3.17	0.67
St Ctrl/Sp	2.76	0.51	2.66	0.67	2.47	0.44	2.26	0.53	2.63	0.53	2.40	0.47	2.53	0.57	2.33	0.61

Acc/Inv: Parental acceptance/involvement; St Ctrl/Sp: strict control/supervision.

DISCUSSION

The present study aimed to investigate and compare emotional and behavioral problems in adopted and non-adopted children and adolescents, the relationship between those problems and their attachment relationships and parents' parenting styles, and the possible risk and protective factors associated with adoption. The findings show that the adopted and non-adopted groups did not differ in emotional and behavioral problems, attachment security, or temperament characteristics. Additionally, the adoptive and non-adoptive parents had similar personality traits and parenting styles.

The present study's finding that the adopted and non-adopted children did not differ in terms of problem behaviors is in contrast to the literature, which reports more problem behaviors and lower level adjustment in adoptees than non-adopted peers (Rosnati et al. 2008; Vorria et al. 2006; Xing Tan 2006; Hodges 2005; van IJzendoorn et al. 2005). This contradiction might have been related to the small number of participants in present study. In addition, it is also possible

that the adopted children in the present study adjusted well to life with their adoptive parents and their problem behaviors might not have been directly associated with adoption.

As compared to Turkish children and adolescents in institutional care and foster care (Üstüner et al. 2005), the present study's adopted children and adolescents had lower CBCL/6-18 externalizing and total problems scores, and higher internalizing problems scores than the institutionalized group but the CBCL scores of the adoptees were similar to their peers in foster care. On the other hand, self-report ratings showed that the present study's adoptees had lower YSR internalizing and externalizing problems scores than those in institutions and in foster care in the Üstüner et al. study (2005). These findings indicate that these problems might not be directly associated with adoption, but might be associated with the process of development. Moreover, the present findings show that the adoptive and non-adoptive parents had similar personality traits and parenting styles, which indicates that adopted children were being raised in similar environments as the non-adopted children, and that their problems were not necessarily directly associated with adoption.

Some studies reported that the incidence of attachment problems in adopted children decreases as the age at which adoption occurs decreases (Van den Dries et al. 2009; Juffer et al. 2005; Stams et al. 2002; Stovall & Dozier 1998), whereas in the present study there wasn't a significant difference between the children that were adopted before and after age 12 months. Verrissimo & Salvatera (2006) reported that the length of time spent with adoptive parents is closely linked with the quality of attachment. Children can develop a secure attachment relationship to replace a previous insecure attachment relationship when they receive appropriate care (Van den Dries et al. 2009; Stams et al. 2002,). Attachment security in children after adoption was reported to improve (O'Connor et al. 1999). Adopted children whose attachment relationships were once assessed as poor or disordered did not have attachment problems or had similar attachment security as non-adopted controls after the age of 4 years. The researchers concluded that with good quality care even severely deprived children can form healthy attachment relationships. In the present study time living with adoptive parents ranged from 2 years 6 months to 9 years 10 months; even the minimum time (2 years 6 months) was sufficient to establish healthy attachment and adjustment, even in those children that previously had adjustment and attachment problems (Pace & Zavattini 2011; Van den Dries et al. 2009). In contrast, the pre-adoption history of the children adopted after age 12 months showed that they lived with their biological parents for 2-48 months. Even if they had lived under inappropriate conditions as an infant, it is more likely possible that they have established any kind of attachment. Previous attachment problems might have resolved as a result of living with caring and loving new parents.

A striking finding of the present study is the relationship between the number of problem behaviors and the age at which children learned that they had been adopted. As the age at which the children's adoption status was revealed increased, the number of those with problem behaviors increased, which might have been associated with the acceptance and assimilation of this information. The sooner this important information is internalized, the easier it is to cope with the related anxiety. In addition, the age at which an adopted child is informed of their adoption might also be indicative of parental attitudes toward their acceptance of the adoption. A delay in sharing adoption information might make the parents tense, anxious, and fear that their child will learn the truth from others. This parental tension and anxiety could negatively affect the well being of their adopted children.

This study is assumed to be a pioneer in the field in our country with the fact that adoption is examined through mental health. We think the findings of the present are uniquely important as data were obtained from mothers, fathers, and children. Nonetheless, the present study has some limitations—the most important of which is the small number of participants. Another limitation is the lack inclusion of children aged <72 months, which would have made it possible to examine attachment relationships and adjustment problems in that age group. The lack of longitudinal follow-up is another limitation. The adoptees that participated in the study were not assessed at the time of adoption, but after a significant amount of time living with their adopted families and after they had received professional help for their problems. Another limitation is the lack of pre-adoption data. Sufficient data about the biological parents and about why the adoptive parents chose adoption were unavailable. All the parents in the study were volunteers and data were collected via self-report questionnaires. It is obvious that these parents were highly motivated and comfortable about sharing their adoption stories. They were either members of an adoption association and/or were willing to persuade other adoptive parents to participate in the study. Being open about adoption leads to be in peace with the problems of adoption and having less stress due to having no secrets. This might be a bias for the study. More positive answers in the self-report scales by those parents must be considered as another limitation.

The majority of the children in both of the present study's groups had been referred to child psychiatry units. With the fact that the researchers are working in the mental health field, meeting adopted children was easier than meeting non-clinical adoptive population. This is the reason why there were more children in the clinical group than in the non-clinical group. Children in the non-adoption group were matched with the adopted children in age, gender, and diagnoses, so as to control and minimize group differences; however, in this case, a special concern is necessary in accepting the representativeness of both groups for the society.

It is thought that adoption might protect against the development of emotional and behavior problems, and facilitate secure attachment relationships. Studies have shown that family-based care is a better option than institutional care for children in need of protection. It is also thought that increasing awareness and sensitivity among the general population about adoption, and educating families and mental health professionals could increase the number of parents willing to adopt children in need.

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