Attachment Characteristics and Behavioral Problems in Children and Adolescents with Congenital Blindness

Doğuştan Görme Engeli Olan Çocuk ve Ergenlerde Bağlanma Özellikleri ve Davranışsal Sorunlar

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ABSTRACT

Introduction: This study aimed to assess the behavioral problems and the attachment characteristics of children and adolescents with congenital blindness (CB).

Method: Forty children and adolescents aged 11-14 years with CB were included as the case group. Forty healthy children and adolescents who were matched for age, gender, and socioeconomic status with the case group served as the comparison group. Behavioral problems were assessed by the Child Behavior Checklist for ages 4-18 (CBCL 4/18). Attachment characteristics were assessed via the Short Form of Inventory of Parent and Peer Attachment (s-IPPA).

Results: The case group had lower CBCL total problems scores as well as anxiety/depression, withdrawal/depression, and attention problems subscales scores with respect to the comparison group. There were no significant differences between the two groups in s-IPPA scores.

Conclusion: Children and adolescents with CB did not differ from the comparison group in terms of attachment, whereas, they had lower scores on behavioral problems than the comparison group. Although previous studies indicate that children and adolescents with CB may be at the risk of insecure attachment, our study suggested that adaptive mechanisms of their families together with professional help from specialized teachers and services provided by schools for children and adolescents with CB may play compensatory roles. (Archives of Neuropsychiatry 2014; 51: 116-121)

Key words: Blindness, behavior, attachment, child, adolescent

Conflict of interest: The authors reported no conflict of interest related to this article.

ÖZET

Giriş: Bu çalışmanın amacı doğuştan görme engeli olan çocuk ve ergenlerde bağlanma özelliklerinin ve davranışsal sorunların incelenmesidir.

Yöntem: Doğuştan görme engeli olan 11-14 yaşları arasındaki 40 çocuk ve ergen olgu grubu olarak çalışmaya alınmıştır. Karşılaştırma grubunu görme engelli grupla yaş, cinsiyet ve sosyoekonomik düzey bakımından eşleştirilmiş 40 sağlıklı çocuk ve ergen oluşturmuştur. Davranışsal sorunlar, 4-18 Yaş Grubu Çocuklar için Davranış Değerlendirme Ölçeği (ÇDDÖ 4/18) ile değerlendirilmiştir. Bağlanma özellikleri ise Ebeveyn ve Arkadaşlara Bağlanma Envanteri-Kısa Formu (EABE) ile incelenmiştir.

Bulgular: Karşılaştırma grubuyla kıyaslandığında, doğuştan görme engelli grubun ÇDDÖ'nün anksiyete/depresyon, çekicilik/depresyon ve dikkat problemleri alt ölçeklerindeki puanlarıyla toplam puanlarının daha düşük olduğu bulunmuştur. İki grubun EABE puanlarında ise anlamlı bir fark saptanmamıştır.

Sonuç: Doğuştan görme engeli olan çocuk ve ergenler, davranışsal sorunlar açısından karşılaştırma grubuna göre daha düşük puanlar alırken, iki grup bağlanma özellikleri açısından farklı bulunmamıştır. Daha önceden yapılan çalışmalarda doğuştan görme engeli olan çocuk ve ergenlerin bağlanma problemleri açısından risk altında oldukları bildirilmelerine karşın, çalışmamızın sonuçları doğuştan görme engeli olan çocuk ve ergenlerin ailelerinin uyuma yönelik tutumlarıyla özel öğretmenlerin ve servislerin yardımlarının telafi edici bir rol oynayabileceğini göstermektedir. (Nöropsikiyatri Arşivi 2014; 51: 116-121)

Anahtar kelimeler: Körlük, davranış, bağlanma, çocuk, ergen

Çıkar çatışması: Yazarlar bu makale ile ilgili olarak herhangi bir çıkar çatışması bildirmemişlerdir.

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Phone: +90 212 414 30 00/22739 E-mail: demirturkay@gmail.com Received/Geliş tarihi: 05.06.2012 Accepted/Kabul tarihi: 31.08.2012
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Introduction

Visual impairment (VI) in childhood is defined as impairments in the structure and function of the eye that despite optimal correction, interfere with the process of learning through vision (1). VI includes both low vision and blindness. In the 10th revision of the World Health Organization International Statistical Classification of Diseases, Injuries and Causes of Death (ICD-10), 'low vision' is defined as visual acuity of less than 6/18 but equal to or better than 3/60, or a corresponding visual field loss to less than 20°, in the better eye with the best possible correction. 'Blindness' is defined as visual acuity of less than 3/60, or a corresponding visual field loss to less than 10°, in the better eye with the best possible correction (2). The International Classification of Impairments, Disabilities, and Handicaps classifies the levels of VI as follows: moderate VI, severe VI, and blindness. Blindness is defined as "the inability to see or the loss or absence of perception of visual stimuli" (3). Among children with VI, approximately 25% are completely non-sighted; most have some vision that can be used for facilitating movement, exploration of the environment, and possibly learning at a later stage (1).

Childhood VI can be classified according to the age of onset, etiology, site of lesion, or functional impact (4). VI may be congenital or adventitious, according to the age of onset. Congenital VI results from prenatal and perinatal causes, such as genetic factors, alterations in embryonic development, central nervous system damage, and perinatal complications. Vision loss after birth is defined as adventitious VI, and it commonly results from trauma, progressive disorders, and infectious diseases of the eye (1,4,5).

A congenital lack of sight can place affected children at risk of suffering from psychological disorders, in a number of ways. Vision is an important sensory channel that facilitates interactions between a child and the outer world (6). Eye-to-eye contact, for example, provides a unifying mechanism through which children share their opinions (7), develop joint attention (8), and gain the ability to impute mental states to themselves and others (9). Moreover, eye-to-eye contact is crucial for children to express and convey their emotions to their mothers, so that she can understand the clues given by the child; in this way, the attachment system is activated (10). According to the attachment theory developed by Bowlby (11), human beings have an innate tendency to seek the proximity of a reference figure that can provide protection and care whenever they require. It has been suggested that the quality of interaction between an infant and his/her mother plays an important role in the activation of the attachment system (12). Although a lack of systematic research hinders researchers in drawing conclusions regarding the attachment characteristics of children with VI, there is some evidence that attachment formation may be affected in those children with VI (13).

The aforementioned risk factors and the psychosocial impact of VI on children have long been the subject of many research efforts. Studies on non-sighted infants have shown that they exhibit a more limited repertoire of facial expressions, less responsiveness, and fewer self-initiated interactions with their mothers than those exhibited by non-disabled infants. Separation

anxiety, which is seen in sighted babies between the ages of six and nine months, is delayed in non-sighted babies and usually not exhibited until the age of 12 months (14). Comparisons of non-sighted infants and infants with severe VI revealed that even very low vision improves the infant's opportunities to participate in interpersonal communication and share meanings (7). Theory of mind, which is defined as the ability to impute mental states to self and others (15), develops in a different way in children with VI (16), and some of these children may display social and language deficits to a degree requiring an autistic spectrum disorder diagnosis (17). Non-sighted children have delays and difficulty in completing theory-of-mind tasks (18) and those that relate to emotional expressiveness and recognition (19).

Typically, children born without sight experience a lifelong non-sightedness. For them, adolescence represents an especially vulnerable period that can be a source of anxiety for any individual with VI; they face not only the usual developmental challenges of adolescence but also the additional challenge of impairment. Adolescents with VI have been reported to experience emotional and behavioral problems in a number of studies: lower scores in psychosocial and school functioning (20); higher mean scores in the parent, teacher, and self-reported versions of the Child Behaviour Check List (CBCL) (21); and higher scores in terms of various psychopathological symptoms, such as obsession-compulsion, hostility, and paranoid ideation (22) than adolescents with normal vision. Some studies have shown that adolescents with VI tend to have a higher incidence of depression (23) and lower self-concept (24) than adolescents who do not have VI. On the other hand, some studies have found no significant difference between adolescents with VI and normal vision, in terms of self-concept (22) and prevalence of depression (25).

Effective strategies for the prevention and detection of behavioral problems in children and adolescents with VI depend on an initial understanding of the characteristics of those issues. In addition, attachment characteristics, which influence mental health (26), need to be investigated (13). A limited number of studies in the literature assess attachment characteristics (11,27,28,29) and behavioral problems among children and adolescents with congenital blindness (CB) (20,21,22,25,30,31,32); this dearth of research prevents researchers from drawing conclusions regarding the characteristics of these children. In light of the current state of the literature, this study aimed to assess the behavioral problems and attachment characteristics of children and adolescents with CB, and then compare these results with those of a comparison group. Two hypotheses were tested: (1) Children and adolescents with CB have significantly more behavioral problems than the individuals within a comparison group that comprises sighted individuals, and (2) CB may affect attachment characteristics in an adverse manner.

Methods

Participants

Children and adolescents aged 11-14 years, with CB, and attending one of the two major schools in Istanbul for children with VI (i. e., Veyisel Vardal Primary School (n=11) and Üsküdar Türkan Sabancı Primary School for Visually Impaired Children

($n=29$) were considered eligible as participants in the study. These schools had both residential and day students, in this study, day students were included. Other inclusion criteria were as follows: aged between 11 and 14 years, having CB, and knowing the Braille alphabet. Exclusion criteria were (a) the presence of a second handicap other than CB (e. g., autism, mental retardation, or physical disability), (b) the presence of any chronic disease or hearing impairment that would interfere with the assessment procedure and (c) VI that was not congenital or total. Forty children and adolescents with CB who fulfilled the inclusion criteria and their mothers participated in the study as the case group. Individuals comprising a comparison group were recruited from one of the primary schools in the same neighborhood area as the schools of the case group. Exclusion criteria for the comparison group were (a) presence of a handicap (e. g., autism, mental retardation, or physical disability), and (b) the presence of any chronic disease or hearing impairment that would interfere with the assessment procedure. There were 3 children in grade 5, 15 children in grade 6, 8 children in grade 7, and 14 children in grade 8 who met criteria for inclusion for the case group and these children constituted the case group. Forty healthy children and adolescents, who were matched with the case group based on age, gender, and socioeconomic status (SES), together with their mothers, were taken as the comparison group. SES was determined based on the monthly income of the family to which the child or adolescent belonged (33).

Procedure

This study was conducted according to the principles of the Declaration of Helsinki; its protocols were approved by the Ethics Committee of the Cerrahpaşa Medical Faculty, İstanbul Regional Education Directorate, and managements of the schools involved in the study. Informed-consent forms were completed and signed by all participants and their parents.

Measures

Child Behavior Check List (CBCL 4/18): The CBCL 4/18 is a parent-reported behavior rating scale for children and adolescents aged between 4 and 18 years. Parents responded to 113 items by rating their children on a three-point scale. The CBCL yielded an overall symptom index (total problems), two broadband dimensions (internalizing and externalizing), and eight narrowband syndrome scales (withdrawal/depression, somatic complaints, anxiety/depression, social problems, thought problems, attention problems, delinquent behavior, and aggressive behavior). CBCL scores consisted of raw scores and T-scores that were calculated according to age and gender. The higher scores on CBCL correlate with more behavioral problems (34). The reliability and validity of the CBCL for the Turkish population was verified (35). In this study, the CBCL was completed by the mothers of the children and adolescents.

Short Form of Inventory of Parent and Peer Attachment (s-IPPA): The original scale was developed by Armsden and Greenberg (36) and designed to assess both the affective and cognitive dimensions of attachment security and trust in the accessibility and responsiveness of attachment figures. In the present study, adolescents completed a shortened version of the scale (s-IPPA), which was developed by Raja et al (37).

The instrument has three subscales: trust, communication, and alienation. The s-IPPA rating form comprised 12 items that were scored on a seven-point scale anchored by 1 ("never") and 7 ("always"). The higher scores on s-IPPA correlate with more secure attachment. The Turkish validity and reliability of the s-IPPA has been confirmed by Günaydin et al. (38). This scale was transliterated into the Braille alphabet, which is the globally accepted reading and writing method for people with VI (39). The children and adolescents with CB received the testing instrument in the Braille alphabet. The teachers at the specialized schools for children with VI transliterated the scales into the Braille alphabet and the answers into the Latin alphabet.

Statistical Analysis

Data were analyzed using the statistical software SPSS (Statistical Package for Social Sciences) for Windows. Score variables were compared using the Mann-Whitney U test. Frequencies and means were calculated, and the statistical significance level of $p<.05$ was set for all analyses.

Results

The children in the case and the comparison groups were matched for age, gender, and SES. The mean age of the whole sample was 12.82 years. There were 23 boys (57.5%) and 17 girls (42.5%) in both groups.

Table 1 summarizes the information on the CBCL scores. With respect to the comparison group, children and adolescents with CB had significantly lower anxiety/depression, withdrawal/depression, and attention problems subscales scores, as well as total CBCL problems scores.

Table 2 summarizes the attachment characteristics of the children and adolescents with CB and the comparison group. There were no significant differences between the children and adolescents with CB and the comparison group in terms of attachment characteristics.

Discussion

The purpose of this study was to investigate whether children and adolescents with CB differ from their sighted peers with respect to attachment characteristics and behavioral problems. The findings of our study did not support both the hypothesis that CB may affect the attachment characteristics and behavioral problems in an adverse manner.

In terms of attachment characteristics, we did not find any significant difference between children and adolescents with CB and the comparison group. This finding was inconsistent with those of studies that report the negative impact of CB on attachment. Werth suggested that a lack of sight poses a communication barrier between the mother and infant (40). Similarly, Howe suggested that the absence of reciprocal smiling and facial and postural behaviors can affect the mother-child interaction in a negative way, and that this in turn can result in maternal distress and an increased risk of insecure attachment (27). In addition, the limited repertoire of facial expressions and lower responsiveness in children with CB may make it difficult for

Table 1. Child Behavior Checklist T-scores of the case and control group

CBCL subscales	Case group	Comparison group	z	p
Internalizing problems	56.20±5.39	58.53±6.37	1.723	.085
Anxiety/depression/ withdrawal/depression	57.03±6.75	60.80±8.27	2.303	.021
somatic complaints	56.30±6.79	59.85±8.82	1.969	.049
Externalizing problems	53.98±6.27	55.45±6.98	1.028	.304
Aggressive behavior	52.70±3.76	55.48±7.87	1.724	.085
Delinquent behavior	52.28±3.95	55.48±9.04	1.132	.258
Social problems	52.78±4.10	54.90±6.93	1.724	.085
Thought problems	55.50±5.89	58.73±8.43	1.460	.144
Attention problems	55.08 ± 4.70	59.43±8.96	1.826	.068
Total CBCL Scores	54.15±3.75	59.20±10.06	2.020	.043
	55.18±3.24	59.00±7.00	2.402	.016
CBCL: Child Behavior Check List				

Table 2. Attachment characteristics of the case and the comparison group

s-IPPA subscales	Case group	Comparison group	z	p
Mother trust	25.05±4.03	23.28±4.94	1.740	.082
Mother communication	20.20±3.50	18.80±5.13	.811	.417
Mother alienation	23.25±4.71	21.03±5.81	1.717	.086
Father trust	24.60±4.14	23.38±4.40	1.360	.174
Father communication	19.75±5.29	17.25±5.42	1.742	.081
Father alienation	22.43±5.52	20.73±5.23	1.564	.118
s-IPPA: Short Form of Inventory of Parent and Peer Attachment				

the mother to understand clues given by the child and provide the child with appropriate answers (14). The discrepancy between the current findings and those of previous reports could be attributed to the time of diagnosis of VI. It has been reported that the age of a child significantly and positively correlates with perceived parental stress; the older the child at the time of diagnosis, the higher stress the parents perceive (41). In our study, exclusion of adventitious VI might be one of the factors that contribute to secure attachment between parents and children by lowering parental distress. Sullivan and Knutson reported that children with VI were at risk of neglect and abuse, especially if they also suffered from mental retardation (MR) or autism (42). An exclusion of these comorbidities could be a contributing factor to the low rate of child maltreatment and abuse in our study, which would in turn lower the risk of insecure attachment. Moreover, in the course of time, neonatal screening procedures and provision of eye-care services improved in many countries, which resulted in diagnosis of congenital blindness soon after birth (43). Early diagnosis and counseling provided to families may be a contributing factor to the secure attachment by lowering maternal distress. In addition, attending schools that specialize in children with VI could help and educate mothers on their

interactions with visually impaired children. Finally, this study was the first to assess attachment characteristics by way of a scale; this factor may have contributed to the differences between the results of this study and those of previous studies.

On the other hand, consistent with the findings of the current study, Fraiberg reported that non-sighted infants were no different from their sighted peers in terms of attachment (28,29). With respect to the mothers in the comparison group, mothers of children with VI were found to be more verbally and physically involved with their children, spoke more often, and demonstrated more control over activities (44). The two aspects of these mothers; maternal control and being directive are positive correlates of the development of children's language; which is one of the contributors of secure attachment (45). Finally, Bowlby suggested that non-sighted infants develop an attachment to a particular figure more slowly than sighted ones, but once an attachment has developed, it is more intense in non-sighted infants and persists for a longer period than that for sighted children (11).

In terms of behavioral problems in our sample, we found that children and adolescents with CB had significantly lower CBCL scores on subscales of anxiety/depression, withdrawal/depression, and attention problems, and had lower CBCL total

problems scores than the comparison group. There were no statistically significant differences between the two groups in terms of aggressive behavior, thought problems, somatic complaints, social problems, delinquent behavior subscales, or externalizing/internalizing problems subscales. These findings are inconsistent with those of van Hasselt et al., who found that adolescents with VI had higher scores with respect to externalizing problems than adolescents without VI (30). Another study whose findings conflicted with those of this study was that of Jan et al., which found that 57% of children and adolescents with VI had psychiatric or cognitive disorders, behavioral disorders, adjustment reactions, personality disorders, mental retardation, or developmental disorders (31). Unlike the participants of the current study, the children with VI in that study were not classified according to the time of onset of VI (i. e., congenital vs. adventitious). Adventitious VI can precipitate a bereavement reaction in children and adolescents (32), and it may serve as a factor that contributed to discrepancies between findings of this study and those of previous studies.

In addition, the findings of this study were inconsistent with those of the studies that reported lower psychosocial and school functioning scores (20); higher mean scores on the parent, teacher, and self-reported versions of the CBCL (21); and higher scores on various psychopathological symptoms like obsession-compulsion, hostility, and paranoid ideation (22) in children and adolescents with VI than those without VI. One of the factors contributing to the low rate of behavioral problems in the current study's sample may be the protective role of secure attachment. Secure attachment has been shown to associate with higher self-concept and better social adjustment (46,47). In addition, the participants with CB were attending schools that specialize in children with VI. This is an indicator of their relatively high level of functioning as compared to the general population with VI, as they had no mental retardation or autism, and had been participating in the rehabilitation programs offered by these schools. Rehabilitation programs have been shown to have a positive effect on the interpersonal relationships in individuals with VI (48). The professionals in these schools can provide appropriate counseling and referrals for psychiatric consultation, so that mental-health issues among these children and adolescents can be diagnosed and interventions can be provided in a timely fashion.

In conclusion, the results of the current study suggested that children and adolescents with CB were indifferent from their peers with no VI in terms of attachment characteristics, whereas they had lower behavioral problems than their peers with no VI. Previous studies have suggested that children and adolescents with VI were at risk of insecure attachment. The present findings indicate that although these children and adolescents may be at risk of insecure attachments, the adaptive mechanisms of their families and specialized teachers, together with the services provided in schools for children with VI, may play compensatory roles. Secure attachment characteristics may also have a protective role and contribute to the lower rate of behavioral problems among these children and adolescents.

Despite these insights, however, the current study has several limitations. First, only congenitally and completely non-sighted children and adolescents were included in the study in order to allow for the study of a homogeneous and specific group; this high level of selectivity contributed to a somewhat small sample size. Second, the current study featured a cross-sectional design. In the future, longitudinal studies with follow-up evaluations can provide additional information regarding the mental health of children and adolescents with CB. Thirdly, assessments were performed by way of the scales in which the informants were mothers for behavioral problems and the children and adolescents for attachment characteristics; which limited our ability to take information for internalizing behavioral problems from adolescents themselves. Future studies, which include psychiatric clinical interviews that gather information from different sources, may expand our knowledge about the mental disorders in children and adolescents with CB.

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