

Depression and anxiety levels and self-concept characteristics of adolescents with congenital complete visual impairment



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SUMMARY

Objective: Previous studies have reported that visual impairment can affect the mental health of children and adolescents. The aim of this study is to investigate the depression and anxiety levels and the self-concept characteristics of adolescents with congenital complete visual impairment.

Method: This is a cross-sectional study. 40 adolescents with congenital complete visual impairment studying in a specialized primary school for visual impairment, and 40 sighted adolescents were included in the study. Both groups were matched in terms of age, gender and socio-economic status. The mean age of the adolescents in both groups was 12.82±1.17. The Children's Depression Inventory, Piers-Harris Children's Self-Concept Scale, Spielberger Trait Anxiety Inventory for Children and sociodemographic form were used in the study. The mean scores of the scales obtained from both groups were compared using the Mann-Whitney U test.

Results: The difference between the two groups was not statistically significant either in terms of depression scores or in terms of total scores; the happiness, physical appearance, popularity, behavior and adjustment subscales scores of the Piers-Harris Children's Self-Concept Scale. The intellectual and school-status subscale scores of the adolescents with visual impairment were significantly higher than those of the controls. Anxiety levels of the adolescents with visual impairment were significantly higher when compared with sighted adolescents.

Conclusion: These results indicate that the depression levels and self-concept characteristics of adolescents with visual impairment are similar to those of sighted adolescents, whereas the anxiety levels of the adolescents with visual impairment are significantly higher than those of the sighted ones.

Key Words: blindness, depression, adolescent, self concept, anxiety, comorbidity

INTRODUCTION

Blindness is defined as "absence or loss of visual ability or perception of visual stimulus" (Andrews & Shirley 2005, World Health Organization 2004). Today, there is substantial data on the causes, prevalence and distribution of blindness and visual impairment (Gilbert et al. 1998). The prevalence of visual impairment among children under 16 was found to be 10-22/10000 in developed countries while the rate is 30-40/10000 in developing countries (Gilbert et al. 1998, Nyong'o & Del Monte 2008).

Relationships with peers gain importance in adolescence. Group friendships become important, the level of contact with the opposite sex increases and the development of sexual identity is completed. Cognitive capacity develops, concrete thinking is replaced by abstract thinking and the value system of the self is established. Furthermore, bodily changes occur during this period. Increases in height, weight-gain and the development of secondary sexual characteristics, together with the formation of adult sexual characteristics, occur in this period (Archibald et al. 2006). Adolescents are in the situation of learning to use newly acquired cognitive abili-

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ties in order to make the transition from the dependency of childhood to the autonomy of adulthood. An adolescent develops new relationship patterns with his/her family and the surrounding culture in this period (Hendren 1990).

Difficulties experienced in this critical period have a significant impact on the psychology of the adolescent. The prevalence of depressive disorder increases significantly compared to that occurring during previous developmental phases. Point prevalence rates of depressive disorder are reported to be 1-2% in children; 3-8% in adolescents and 20% in follow-up studies conducted throughout adolescence. The prevalence of depressive disorder is reported to be three times higher in adolescent girls than adolescent boys (Costello et al. 2003, Lewinsohn et al. 1998, Reinherz et al. 1993).

An adolescent with visual impairment has to deal with the difficulties of his/her physical impairment as well as the specific difficulties of adolescence. Many studies report that individuals with visual impairment experience severe psychological and behavioral problems specifically during adolescence. Wong et al. (2009) investigated the impact of visual impairment on quality of life in a study of 1249 adolescents aged between 11 and 18 and showed that levels of psychosocial and school functionality are significantly lower in adolescents with visual impairment than those without visual impairment, whereas the level of general quality of life is similar in both groups. In a study conducted on 86 children and adolescents with complete or partial visual impairment, Jan et al. (1977) reported that 57% of children and adolescents with visual impairment have psychiatric disorders including diagnoses of adjustment disorder, conduct disorder and personality disorder. The study indicated that one third of the participants with visual impairment also suffered from mental retardation and pervasive developmental disorder.

In this developmental period it was reported that children with visual impairment have limited facial expression and lower response levels to stimuli in comparison to their peers (Dorn 1993). Dorn reported that social smiling is delayed in children with visual impairment. Researchers have stressed that social smiling and eye contact are very important for an individual's psychosocial development (Ahrens 1954, Rheingold 1961, Spitz 1946, Wolf 1963).

Huurre and Aro (1998) compared 54 visually-impaired adolescents with sighted individuals and reported that there was no significant difference between the two groups in terms of frequency of depression. The researchers reported that the people with visual impairment had fewer friends, attended fewer social activities and they suggested that the restricted social activity of visually-impaired individuals might be related to the negative attitudes of other people toward physical disabilities or that the disabled may experience isolation as a result of feeling different due to their impairment. In

addition, they suggested that functional difficulties such as orientation and problems of mobility may also contribute to limitations in social life.

In the literature, there is a scarcity of studies on the psychological characteristics of children and adolescents with visual impairment. To our knowledge, there have also been very limited studies on this topic in Turkey. There are studies reporting that the prevalence of psychopathology among people with visual impairment is higher than in the general population as well as studies reporting no difference between those with visual impairment and the general population. The present study aims to study the depression and anxiety levels, and the self-concept characteristics of adolescents with congenital visual impairment.

METHOD

Participants and Design

This is a cross-sectional study conducted as a situation-assessment. Forty adolescents aged between 11 and 14 with congenital complete visual impairment, studying in a school for visually impaired children, were included in the study. As a control group, 40 adolescents matched with the visually impaired group in terms of age, gender and socioeconomic status were also included in the study. Prior to commencing the study, consent was obtained from the Cerrahpasa Faculty of Medicine Board of Ethics, the Istanbul Regional Education Directorate and the management of the schools to be involved in the study. Informed consent forms were signed by all participants and their parents.

Adolescents with visual impairment received the scales in Braille alphabet. Students answered the questions using the Braille alphabet and their answers were transliterated into the Latin alphabet. Transliterations were conducted by teachers of the specialized school for visually impaired children.

Adolescents whose visual impairment was not complete or congenital, or who had a second handicap (mental or physical) other than visual impairment or any chronic illness, or did not know the Braille alphabet were not included in the study. Exclusion criteria for the control group were the presence of a physical or mental handicap and the presence of a chronic medical disorder.

Instruments

Sociodemographic Data Form: A form prepared by the researchers was used in order to assess sociodemographic data such as the age, gender, income level of parents, and medical history of adolescents. Inquiries concerning income levels were given according to the following income brackets: below 500 TL, between 500-1000 TL, between 1000-1800 TL and above 1800 TL.

Children's Depression Inventory (CDI): The Children's Depression Inventory, developed by Kovacs in 1980, is one of the scales most frequently used to examine childhood depression. The scale is applied to individuals aged 6-17 years. It is composed of 27 questions and each question has three options. Answers are scored as 0, 1 or 2 on the basis of presence and severity of symptoms. Participants can receive scores between 0 and 54. The recommended cut-off score is 19. The validity and reliability study of the scale in Turkish was conducted by Oy (1991).

Piers-Harris Children's Self-Concept Scale: This scale, composed of 80 items, was developed by Piers-Harris (1964). The validity and reliability study of the scale was conducted among students in Turkey spanning a wide age range from primary school to university (Oner 1994). The scale is composed of 80 descriptive items with sub-scales of happiness, physical appearance, anxiety, popularity, behavior and adjustment, and intellectual and educational situation. Participants select a yes or no response. Scale scores can be between 0 and 80. A high score implies positive self-concept whereas a low score implies negative self-concept.

State-Trait Anxiety Inventory for Children: An anxiety scale developed by Spielberger for children, is composed of two 20-item scales measuring state and trait anxiety. In the present study only the trait anxiety scale was used. Each of the 20 questions is replied to by choosing one of the options given, scored as 1, 2 or 3 on the basis of the presence and severity of the anxiety symptom. Scale scores can be between 20 and 60. The validity and reliability study of the scale in Turkish was conducted by Ozusta (1995). Although the validity and reliability study was conducted on children aged 9-12 years, the scale can be applied to children up to the age of 17 (Karakaya et al. 2007).

Braille Alphabet: Charles Barbier de la Serre (1767-1841) developed a language employing touch for the use the army

and secret purposes. Louis Braille adapted that alphabet to create the Braille alphabet that is currently used. In 1950, UNESCO universalized the Braille alphabet and gradually it was accepted globally as the reading and writing method for visually impaired people (Jimenes at al. 2009). Transliteration of the scales into the Braille alphabet and that of the answers into the Latin alphabet was conducted by teachers from the specialized school for visually impaired people.

Statistical Analyses

The data obtained was analyzed using the SPSS (Statistical Package for Social Sciences) 11.5 package program. Frequencies and means were calculated. The mean scores of scales obtained from both groups were compared using the Mann-Whitney U test. The statistical significance level was $p < 0.05$ for all analyses.

RESULTS

In the study, there were a total of 80 adolescents with ($n=40$) and without ($n=40$) congenital visual impairment. The mean age and ratio of boys to girls in both groups was equal. In both groups, 57.5% of participants were boys ($n=23$) and 42.5% were girls ($n=17$). In both groups the age range of adolescents was 11-14 and the mean age was 12.82 ± 1.17 in both groups. The number of children in the families of the group with visual impairment was 2.70 ± 0.29 and 2.55 ± 0.31 in the families of the control group.

The two groups were matched in terms of socioeconomic level. In the group with visual impairment, 2 participants had a monthly income below 500 TL, 18 had between 500 and 1000 TL, 18 had between 1000-1800 and 2 had above 1800, whereas, in the control group 3 had a monthly income below 500 TL, 19 had between 500 and 1000 TL, 15 had between 1000-1800 and 3 had above 1800.

TABLE 1. Comparison of depression, trait anxiety and self-concept scores of visually impaired adolescents and controls*

	Visually Impaired Group ($n=40$)	Control group ($n=40$)	z score*	p value
CDI				
Total	10.88 $\pm$ 5.52	10.33 $\pm$ 5.76	-0.550	0.582
Trait Anxiety Inventory for Children				
Total	36.18 $\pm$ 6.11	33.33 $\pm$ 6.65	-2.237	0.025
Piers-Harris Children's Self-Concept Scale				
Total	59.73 $\pm$ 8.72	57.85 $\pm$ 12.29	-0.376	0.707
Happiness	9.85 $\pm$ 2.73	9.28 $\pm$ 3.65	-0.078	0.938
Physical Appearance	6.60 $\pm$ 2.33	7.10 $\pm$ 1.96	-0.834	0.404
Anxiety	7.85 $\pm$ 2.30	6.90 $\pm$ 2.84	-1.324	0.186
Popularity	8.83 $\pm$ 1.97	8.88 $\pm$ 2.17	-0.344	0.731
Behavior and Adjustment	12.45 $\pm$ 2.32	12.00 $\pm$ 2.51	-0.811	0.418
Intellectual and Educational Situation	5.60 $\pm$ 1.26	4.53 $\pm$ 1.65	-3.132	0.002

* Mann-Whitney U test , ** Children's Depression Inventory

For CDI, scores equal to or higher than 19 are accepted as significant. It was found that 12.5% ($n=5$) of adolescents with visual impairment and 15% ($n=6$) of sighted adolescents had CDI scores equal to or higher than 19. The mean score of CDI for adolescents with visual impairment was 10.88 ± 5.52 , and for sighted adolescents, the mean was 10.33 ± 5.76 . There was no statistically significant difference between the two groups in terms of CDI scores ($z=-0.550$, $p=0.582$) (Table 1).

On the Trait Anxiety Inventory for Children, the mean trait anxiety of adolescents with visual impairment was found to be 36.18 ± 6.11 and that of sighted adolescents was 33.33 ± 6.65 . Anxiety scores of adolescents with visual impairment was significantly higher than those of the sighted adolescents ($z=-2.237$, $p=0.025$) (Table 1).

In the total scores of the Piers-Harris Children's Self-Concept Scale, the mean scores of visually impaired adolescents and sighted adolescents were 59.73 ± 8.72 and 57.85 ± 12.29 , respectively. The mean scores of visually impaired adolescents and sighted adolescents were 9.85 ± 2.73 and 9.28 ± 3.65 on the happiness subscale, 6.60 ± 2.33 and 7.10 ± 1.96 on the physical appearance subscale, 7.85 ± 2.30 , and 6.90 ± 2.84 on the anxiety subscale, 8.83 ± 1.97 and 8.88 ± 2.17 on the popularity subscale, 12.45 ± 2.32 and 12.00 ± 2.51 on the behavior and adjustment subscale, and 5.60 ± 1.26 and 4.53 ± 1.65 on the intellectual and educational situation subscale, respectively. There was no statistically significant difference between the two groups in the total scores of the Piers-Harris children's self-concept scale ($z=-0.376$, $p=0.707$), happiness ($z=-0.078$, $p=0.938$), physical appearance ($z=-0.834$, $p=0.404$), anxiety ($z=-1.324$, $p=0.186$), popularity ($z=-0.344$, $p=0.731$), and behavior and adjustment ($z=-0.811$, $p=0.418$) subscale scores. The intellectual and educational situation subscale score was significantly higher in the visually impaired group than the control group ($z=-3.132$, $p=0.002$) (Table 1).

DISCUSSION

There are studies reporting levels of depression (Huurre & Aro 1998) and quality of life (Wong et al. 2009) among visually impaired children and adolescents similar to their sighted peers as well as studies reporting increase in psychopathology among visually impaired children and adolescents (Jan et al. 1977).

Huurre and Aro (1998) conducted a study with 54 visually impaired adolescents and reported that visually impaired adolescents have more problems in social life when compared with their sighted peers but that there was no difference between the two groups in terms of depression levels. In the present study there was also no significant difference between visually impaired adolescents and sighted adolescents in terms of depression scores. Our results are in line with those of Huurre and Aro.

Adolescence is also a difficult period for healthy individuals. In this period, an individual has to face significant physical, psychological and social changes. These changes have a significant impact on the psychological state of the adolescent. It can be stated that the difficulties experienced by the adolescent in this period are necessary for the formation of autonomy and development of problem solving abilities required for dealing with future problems. Follow-up studies conducted during adolescence found that the prevalence of depressive disorder among adolescents is 20% (Costello et al. 2003, Lewinsohn et al. 1998, Reinherz et al. 1993). Depressive characteristics are observed during the normal development of many adolescents. The adolescent period of visually impaired people contains significant differences from that of sighted individuals. It was reported that adolescents with visual impairment have fewer friends and were less likely to participate in social activities than their sighted peers (Huurre & Aro 1998). Adolescents might go through a depressive period as a result of problems experienced in social life with friends, and in emotional and sexual relationships with the opposite sex.

Additionally, adolescence might lead to problems between a healthy adolescent and his/her family. Adolescents usually argue with their families concerning their autonomy and this may affect their emotional state or lead to externalization problems. McAnarney (1985) stated that adolescents with visual impairment generally have difficulty in being away from their families. The author suggests that this may result from physical inadequacy and the dependency of the visually impaired person on his/her family, together with the family's disapproval of the disabled individual's separation. In summary, because of their social limitations and dependency on their families, visually-impaired adolescents might not experience the psychological instabilities of adolescence that may be regarded as normal. These differences may create a situation in which the psychosocial disadvantages created by visual impairment may not to have a negative impact on their depression levels.

When the visually impaired and sighted adolescents were compared on the Piers-Harris Children's Self-Concept Scale, there was no significant difference in terms of total scores. While there was no significant difference between two groups on the subscales of happiness, anxiety, behavior and adjustment, popularity and physical appearance, intellectual and educational situation, the subscale of adolescents with visual impairment was found to be significantly higher than that of sighted adolescents. There have been two studies conducted in Turkey on the self-concept characteristics of adolescents with visual impairment. Bacakoglu (1996) conducted a study with 30 visually impaired and 30 sighted adolescents aged 14-18 and found no significant difference between the groups in terms of self-concept characteristics. Biyikli (1989) assessed 38 visually impaired, 33 hearing impaired, 34 ortho-

pedically handicapped and 37 healthy adolescents using the Piers Harris Children's Self-Concept Scale and reported that adolescents with visual impairment have similar self-concept characteristics as the other groups except for the hearing-impaired. The self-concept scores of adolescents with hearing impairment were significantly lower. The results of these two studies conducted on visually impaired adolescents are consistent with the results of the present study conducted on adolescents with congenital visual impairment.

Participants with congenital visual impairment might adapt to their disability without significant impacts on their self-concept. In addition, adolescence is a period during which physical appearance gains importance the adolescent focuses on his/her body (Parman 2000) and the physical characteristics of the individual might have an effect on the value given to him/her in social life. It was reported that bodily changes occurring during adolescence lead to feelings such as discomfort, sadness and anxiety in sighted adolescents, whereas visually impaired adolescents do not have such feelings (Cakmak 2006). There may be differences in self-assessment between adolescents who are concerned about their physical appearance and spend a long time in front of the mirror and those with visual impairments, who are not aware of their physical appearance from birth onwards, and who cannot see the changes brought about by adolescence.

Moreover, adolescents with congenital complete visual impairment attend schools specializing in educating visually impaired students. Teachers and counselors specializing in working with visually impaired people can detect the potential problems of visually-impaired individuals and intervene early. This may contribute to the improvement of the depression levels and self-concept characteristics of visually impaired adolescents.

Furthermore, previous studies on visually impaired people included participants both with congenital and acquired visual impairment. Different from previous studies, the present study included adolescents only with congenital visual impairment. It is an important fact that the adolescents with congenital complete visual impairment who were included in the present study did not have an experience of vision-loss, as opposed to individuals with acquired visual impairment. Our visually impaired participants did not have an experience of vision loss that might have serious traumatic effects. This may explain the finding that there was no significant difference between the visually impaired and sighted adolescents in terms of depression and self-concept.

In the present study, the anxiety levels of visually impaired adolescents were found to be significantly higher than in sighted adolescents. It was reported that visually impaired children have delayed motor and social skills as a result of inadequate early experiences and this may contribute to inadequate independence and socialization (Kirk et al. 2000). Apart from physical impairment, visually impaired adolescents have more orientation problems due to their developmental characteristics and their probability of having accidents is higher than that of the general population. Therefore, visually impaired adolescents might have higher anxiety levels than their peers. Early interventions for the development of motor and social skills in visually impaired children might lead to improvements in this issue.

Studies on visual impairment in the psychiatric literature do not study specific samples. An advantage of the present study is the specific sample composed of adolescents with congenital complete visual impairment. For this reason, the sample size is relatively low.

The cross-sectional quality of the present study is a limitation. It might be useful to study longitudinally with visually impaired children and adolescents, and comparatively with different groups such as congenital and acquired visual impairment.

CONCLUSION

These findings indicate that, when compared with their sighted peers, visually impaired adolescents have similar depression levels and self-concept characteristics, while they have higher anxiety levels.

The difference of the present study from previous ones is the sample, composed of adolescents with congenital complete visual impairment. Because these adolescents had not experienced any loss of vision and learnt to deal with difficulties of visual impairment from birth onwards, contrary to expectations, visual impairment may not have a negative effect on depression level and self-concept characteristics. Additionally, teachers and counseling services specializing in the field of visual impairment may detect the potential problems of individuals with visual impairment early and contribute to the mental well-being of adolescents through required interventions.

The findings of the present study may provide some light for further investigations into a topic that, to our knowledge, had never been previously studied in Turkey.

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