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Self-concept, Self-esteem, Personality Traits and Psychopathological Symptoms in Adolescents with and without Visual Impairment

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The purpose of this study was to analyze self-concept, self-esteem, and other personality traits and psychopathological symptoms in subjects with and without visual impairment. The sample was made up of 90 participants aged 12 to 17: 61 with no impairment and 29 with visual impairment. The ANOVA showed that there were no significant differences in self-concept and self-esteem in the samples, but the visually impaired adolescents scored significantly higher in various psychopathological symptoms as well as in their capacity for kind behavior. The ANOVA revealed no gender differences in any variables in adolescents without visual impairment. However, women with visual impairment scored lower in self-esteem and higher in various psychopathological symptoms. Pearson coefficients revealed negative relations between self-concept/self-esteem and all the psychopathological symptoms, and neuroticism, as well as a positive relation with extraversion. Low psychoticism, high extraversion, and low hostility were identified as predictors of high self-concept.
Keywords: visual impairment, self-concept, self-esteem, psychopathology, personality, gender differences

La finalidad del estudio fue analizar el autoconcepto, la autoestima, otros rasgos de personalidad y diversos síntomas psicopatológicos en personas con y sin discapacidad visual. La muestra estaba configurada con 90 participantes de 12 a 17 años, 61 sin discapacidad y 29 con discapacidad visual. El ANOVA no evidenció diferencias ni en el autoconcepto ni en la autoestima, sin embargo, los adolescentes con discapacidad visual tenían puntuaciones superiores en varios síntomas psicopatológicos así como en conductas de amabilidad. El ANOVA no reveló diferencias de género en ninguna variable en los adolescentes sin discapacidad, sin embargo, las chicas con discapacidad visual tenían puntuaciones significativamente inferiores en autoestima y superiores en varios síntomas psicopatológicos. Los coeficientes de Pearson mostraron relaciones negativas del autoconcepto y la autoestima con todos los síntomas psicopatológicos, y con neuroticismo, así como una relación positiva con extraversión. Bajo psicoticismo, alta extraversión, y baja hostilidad fueron identificados como predictores de alto autoconcepto.
Palabras clave: discapacidad visual, autoconcepto, autoestima, psicopatología, personalidad, diferencias de género

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Visual capacity depends on several variables and includes aspects such as visual acuity and visual field, among others. In most cases, the most frequent pathologies usually affect one or more of these variables. Thus, the classification of visual impairment emerged, which is generally a function of the percentage of a person's lack of acuity or visual field. There are many definitions of blindness, although it is commonly defined as "absence of vision" or "lack of vision." But these definitions are not sufficiently clarifying. A person can be blind and perceive shadows, light spots, bulks and contours, which would differentiate him or her, for example, from a person with *amaurosis* or lack of perception of light. In practice, people who present functional visual vestiges within certain limits that are quantified in normative tables are considered blind and thus, the relevance of the concept of "legal blindness." For a person to be considered legally blind in Spain, he or she must have a visual acuity of 0.1% or a visual field equal to or less than 10º of the 180º of a person with normal vision. This concept of legal blindness is relevant when determining who can join the "Organización Nacional de Ciegos de España" (the "National Organization of Blind People in Spain"- ONCE) or who can benefit from pensions or certain aids. The CIE-10 (World Health Organization, 1992) considers blindness as *visual acuity* lower than 3/60 (0.05) or an equivalent loss of visual field in the best eye with the best correction possible (categories of visual deficiency 3, 4, and 5 of the CIE-10), which means a loss of vision of the person's environment. Low vision is considered visual acuity lower than 6/18 (0.3), but equal to or better than 3/60 (0.05) in the best eye with the best correction possible (categories of visual deficiency 1 and 2 of the CIE-10).

The potential relation between visual impairment and difficulties in the formation of the self-concept has been the subject of much controversy for several years. Most of the studies coincide in the need to continue investigating in this area because discrepant results have been found. Pioneer works in this field (Jervis, 1959) observed two extremes in the appraisals of self-concept in visually impaired youths: either they had a very poor self-concept, or they overvalued their personal attributes compared to sighted people.

Some studies (Beaty, 1991, 1992; Meighan, 1971) have found that visual impairment could be the cause of the feeling of incapacity and inferiority, which may be reflected in a lack of social acceptance, low academic results, physical incapacity, and poor social adjustment. Thus, circumstances such as the presence of visual impairment have been noted to affect the formation and development of the self-concept negatively. Meighan (1971) analyzed a sample of 203 adolescents with visual discapacity (102 women and 101 men), 120 were completely blind and 83 had partial vision. The results showed significant differences between the self-concept of the blind and that of the people who were not blind. However, no significant differences were observed between the subgroups of adolescents with visual impairment. Recently, Lifshitz, Hen, and Weisse (2007) compared the self-concept of 40 adolescents with visual impairments and 41 sighted adolescents, and the results revealed a similar self-concept profile.

In contrast, other studies have suggested that visually impaired children are not at more risk of developing low self-esteem than their sighted counterparts (Alexander, 1996; Griffin-Shirley & Nes, 2005; Pierce & Wardle, 1996). Comparative studies of blind and sighted adolescents found no differences in self-esteem and established that the relations with friends contribute significantly to the improvement of visually impaired young people's self-esteem (Huurre, Komulainen, & Aro, 1999). In another study (Kumar & Meena, 1997) carried out in India with a sample of 100 adolescents aged between 13 and 14 years (25 females and 25 males, blind and sighted, respectively), the results revealed no differences in the self-concept of both groups. In the same direction, a study from the University of Hong Kong (Fok & Fung, 2004) in which 115 subjects (52 blind and 63 sighted) participated, showed that, in general, both visually impaired and sighted people present similar levels of self-esteem and self-concept. Griffin-Shirley and Nes (2005) did not find significant differences between 71 students with visual impairments and 88 sighted in their levels of self-esteem. In Spain, some studies (López-Justicia, Fernández de Haro, Amezcua, & Pichardo, 2000; López-Justicia, Pichardo, Amezcua, & Fernández de Haro, 2001) reported that visually impaired young people present lower levels of physical self-concept and are less self-critical than are sighted people, but no differences were observed in the other dimensions (social, moral, family, and personal). In subsequent studies (López-Justicia, Pichardo, & Chacón, 2005) carried out with 34 subjects, ages between 8 and 11 years, 17 of whom were congenitally blind and 17 were sighted, found no differences in the global self-concept of both groups.

Some investigations have attempted to determine whether there are gender differences in the self-concept of visually impaired men and women. In Portugal (Paulinelli & Tamayo, 1986), the results of 52 adolescents, mean age of 16 years (23 female and 29 male, 25 blind and 27 sighted), were analyzed, revealing that the sighted males scored higher in self-confidence than the females, but there were no differences in the blind subjects as a function of gender in any of the self-concept factors. However, in another investigation carried out with visually impaired adolescents, ages between 12 and 17 years (López-Justicia & Pichardo 2003), the results showed that the females scored lower in the social self-concept dimensions and higher than the males in physical self-concept. A previous study of Rasonabe (1995), which compared gender differences in blind men and women, concluded that the women obtained higher scores in self-identity, physical, family, and social self-concept, and the men scored higher in self-satisfaction and moral-ethical self-concept.

With regard to other personality traits, Burlingan (1979) stated that visually impaired youths manifest some difficulties in their social behavior, such as more dependence on others, lack of initiative, less aggressiveness, or more anxiety. Some studies have shown a relation between neurotic symptomatology and people with some impairment, concluding that behavior problems in blind children and adolescents are mostly the product of external factors such as family environment, institutionalization, sighted peoples' reaction to the blind, etc. (Freedman, 1967; Norris, Spaulding, & Brodie, 1957).

In another work carried out in Greece (Dimitriou, 1973) with a sample of 100 students in a school for the blind (59 males and 41 females, males' mean age 17.3 years, and women's 19 years), some of them displayed neurotic characteristics. Specifically, 27 students (11 males and 16 females) had developed a complete neurotic clinical syndrome. The youngest student was 9 years old, and the oldest 30. The symptoms presented were: excessive anxiety, palpitations, sweating palms, trembling, insomnia, headaches, etc. The women had twice the percentage of neuroticism as the men (39% vs. 18.6%). Recently, the study of the Institute of Technology of India (Satapathy & Singhal, 2001), in a sample of 79 visually impaired adolescents from 13 to 21 years of age, analyzed the relations between socio-emotional adjustment and several personality variables. The results revealed that socio-emotional adjustment correlated significantly and negatively with stress, behavior problems, withdrawal behaviors, and lack of attention, and positively with self-esteem.

In the present work, four goals were proposed: 1) To compare self-concept, self-esteem, other personality traits (neuroticism, extraversion, openness, agreeableness, responsibility) and various psychopathological symptoms (somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism) in adolescents with and without visual impairment; 2) to explore the existence of gender differences in these variables in both samples; 3) to analyze the relations between self-concept-self-esteem with other personality traits and with psychopathological symptoms in visually impaired adolescents; and 4) to identify predictor variables of high self-concept-self-esteem in visually impaired adolescents. We propose eight hypotheses for the investigation: 1) adolescents with and without visual impairment will have similar scores in self-concept-self-esteem; 2) visually impaired adolescents will have significantly higher scores in psychopathological symptoms than adolescents with no impairment; 3) visually impaired adolescents will have significantly higher scores in neuroticism than adolescents with no impairment; 4) the self-concept-self-esteem of males and females with and without visual impairment will be similar; 5) visually impaired females will score higher in psychopathological symptoms; 6) visually impaired females will score higher in neuroticism; 7) in the visually impaired participants, negative correlations will be found between self-concept-self-esteem and psychopathological symptoms and neuroticism, and positive correlations with extraversion, agreeableness, openness, and responsibility; and 8) high sociability and low level of psychopathological symptoms will predict high self-concept and self-esteem in visually impaired adolescents.

Method

Participants

The sample was made up of 90 participants between 12 and 17 years of age (M = 14.99, SD = 2.02), from three provinces of the Autonomous Community of the Basque Country (ACBC), 61 without visual impairment and 29 with severe visual impairment.

The *visually impaired sample* was selected from the census of adolescents registered in secondary, and high-school educational centers (n = 60). The sample was identified through the Centers of Resources for the Educational Inclusion (CRI) of visually impaired students, situated in the three capitals of the ACBC. The teachers of these centers collaborated in the exchange of documents with the families and they facilitated access to the students. Firstly, the 60 visually impaired adolescents registered in the ACBC, ages between 12 and 20 years, were identified. The adolescents who presented other associated impairments were eliminated (n = 13), and a letter was sent to the rest (n = 47), informing them of the goal of the investigation and requesting their participation. Of these potential subjects, 29 gave their informed consent to participate in the study. All the participants were students and were enrolled in educational centers, public, private, and concerted centers. Regarding sex, 16 (55.2%) were male and 13 (44.8%) were female. At the time of the investigation, 23 of the participants were studying Secondary Education (79.3%), and 6 were in High School (20.6%). Among the characteristics of the visually impaired sample, regarding the degree of vision as a function of the loss of acuity, 24.1% had a vision level between 0.4 and 0.3%, 27.6% had a level between 0.25 and 0.12, and 34.5% had a level of 0.1 or less. Regarding the loss of visual field, 10.3% did not exceed the 40º of vision of the usual 180º and 10.3% did not exceed 20º. The following pathologies were identified: 6.9% had amblyopia (lazy eye), 34.5% had myopia, 3.4% astigmatism, 6.9% myopia and astigmatism, 10.3% had strabismus, 37.9% nystagmus, 13.8% ocular malformations, 10.3% congenital ocular alterations, 3.4% glaucoma, 6.9% cataracts, and 34.4% retinal injuries. Of the participants, 82.8% suffered from loss of vision from birth, and the remaining 17.2% had experienced loss of vision between the first and seventh year of life. Concerning the evolution of the visual pathology,

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17.2% reported having experienced deterioration, whereas 6.9% stated their vision had improved. Of the sample, 55.2% had received early attention for their impairment, 82.8% used optical aids, 79.3% could read and write texts in ink, 10.3% read and wrote in Braille, and 10.3% used both systems of reading and writing. Of the participants, 31% had received visual training, the senses of touch and hearing had been trained in 10.3%, and 31% had received training for all the senses. Of the sample, 89.7% used low vision, 79.3% employed new learning technologies, and 44.8% had participated in orientation and mobility programs. Of them, 48.3% were members of the ONCE. Although currently, only one of the participants (3.4%) was consulting a psychologist for a slight depression, in the past, 34.5% had requested psychological assistance.

Selection of the *participants without visual impairment* was carried out with a mirror technique. To select the 61 subjects for the comparative study, they had to have some level of homogeneity with the characteristics of the visually impaired sample (age, socio-cultural level, etc.). The sample without impairment was selected from a sample recruited for a previous epidemiological study that was carried out with a representative sample of the ACBC (Garaigordobil, Pérez, & Mozaz, 2008). In this study, a sample of 1579 participants, aged from 12 to 65 years, was selected from the three provinces of the ACBC. Selection was random, using the census of the three capitals as reference. Considering diverse levels—population rate in each city, sex, educational level, professional occupation, etc.—simple random sampling was employed, eliminating the individuals who were receiving psychological treatment at that time because of some mental disorder. Of the participants without visual impairment, 33 (54.1%) were male, 28 (45.9%) were female, 75.4% were in Secondary Education and 24.6% in High School. In the entire sample (with and without visual impairment), there was nobody with a diagnosis of a mental disorder.

Assessment Instruments

In order to measure the dependent variables, four assessment instruments, with satisfactory values of reliability and validity, were administered: The "Listado de adjetivos para la evaluación del autoconcepto en adolescentes y adultos" (LAEA [Adult and Adolescent Self-Concept Adjective Checklist]; Garaigordobil, 2008), the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965), the Revised Symptom Checklist (SCL-90-R; Derogatis, 1983), and the NEO Five-Factor Inventory (NEO-FFI; Costa & MacCrae, 1992). The internal consistency analysis (Cronbach alpha coefficients) carried out with the results of the tests administered to the sample with visual impairment in this study (n = 29) confirm that internal consistency is high in all the tests: SCL-90-R (.93), RSE (.82), LAEA (.83), and NEO-FFI (.79).

The Adult and Adolescent Self-Concept Adjective Checklist (LAEA; Garaigordobil, 2008). This list is made up of 57 adjectives, and respondents are requested to rate on a 5-point Likert-type scale (ranging from 0 = *not at all* to 4 = *very much*) the degree to which these adjectives define or describe their personality. In a study carried out with a sample of 1423 subjects, it obtained a Cronbach's alpha coefficient of .92 and a Spearman-Brown coefficient of .84. Test-retest reliability with a sample of 142 university students and a 40-day interval was high (r = .83, p < .001), showing that the test has temporal stability. To analyze the validity of the LAEA, we calculated its correlations with other instruments that measure self-concept ("Autoconcepto, Forma-5," [Self-concept, Form-5], AF-5; García & Musitu, 1999) and self-esteem (RSE; Rosenberg, 1965), obtaining significant correlations both with the AF-5 (r = .71, p < .001) and the RSE (r = .63, p < .001), which shows construct validity.

The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965). This scale evaluates general self-esteem with 10 statements that refer to global feelings of self-evaluation ("In general, I am satisfied with myself"), 5 of which are worded positively and 5 negatively. Respondents are requested to read the statements and rate the degree to which each one can be self-applied on a 4-point Likert-type scale (ranging from *totally agree* to *totally disagree*). The reliability of this scale has been extensively reported in the literature. McCarthy and Hoge (1982) reported internal consistency coefficients (Cronbach's alpha) of between .74 and .77, and test-retest reliability of .63 (with a 7-month interval) and of .85 (2-week interval). The validity of the scale as a unidimensional measure of self-esteem has also been verified in various studies (Rosenberg, 1965; Silber & Tippett, 1965). Various studies have been carried out with Spanish university samples (Martín-Albo, Núñez, Navarro, & Grijalvo, 2007) and with 14 to 20 year-old students (Pastor, Navarro, Tomás, & Oliver, 1997) that confirm the unidimensionalality of the scale, as well as its validity and reliability.

The Revised Symptom Checklist (SCL-90-R; Derogatis, 1983). This self-report is made up of 90 items distributed in 10 psychopathological scales: *Somatization* (experiences of body dysfunction, with neurovegetative alterations of the cardiovascular, respiratory, gastrointestinal, and muscular systems); *Obsession-Compulsion* (behavior, thoughts, and impulses that the person considers absurd and undesired, and which generate intense anxiety and are difficult to resist, avoid, or eliminate); *Interpersonal Sensitivity* (feelings of shyness, shame, tendency to feel inferior to others, hypersensitivity to the opinions and attitudes of others and, in general, discomfort and inhibition in interpersonal relations); *Depression* (dysphoric experiences, anhedonia, hopelessness, impotence and lack of energy, self-destructive ideas and other cognitive and somatic characteristics of depressive states); *Anxiety* (clinical manifestations of anxiety, both generalized and acute or "panic," including general

signs of emotional tension and its psychosomatic manifestations); *Hostility* (thoughts, feelings, and behaviors characteristic of states of aggressiveness, anger, irritability, rage, and resentment); *Phobic Anxiety* (persistent, irrational and exaggerated fear of an animal or person, place, object, or situation, generally complicated by avoidance or escape behaviors, with higher loadings on the agoraphobic and social phobia scales than simple phobia); *Paranoid Ideation* (paranoid behavior, which includes suspiciousness, self-referential focus, and delusional ideation, hostility, grandiosity, fear of losing one's autonomy, and need for control); *Psychoticism* (psychotic spectrum that goes from mild schizoid to full-fledged psychosis, and which in the general population is related more to feelings of social alienation than to clinically manifest psychosis), and an *Additional Scale* (miscellaneous symptoms that clearly refer to melancholic depression). A Total Symptom Score in the SCL-90-R is obtained by adding the scores in the 10 scales. Moreover, the test provides a Global Severity Index (GSI), a generalized and indiscriminate measure of the intensity of psychological and global psychosomatic suffering; a Positive Symptom Total (PST), the number of symptoms present; and a Positive Symptom Distress Index (PSDI), which relates the suffering or global distress to the number of symptoms. Subjects report the frequency with which they have these 90 symptoms (ranging from 0 = *not at all* to 4 = *very much*). Results from studies conducted with a Spanish sample (González de Rivera, De las Cuevas, Rodríguez, & Rodríguez, 2002) obtained satisfactory reliability and were consistent with those carried out by Derogatis (1983). The values of the alpha coefficients ranged between .81 and .90. Internal consistency coefficients indicate that item homogeneity of each dimension is very high. Temporal stability (between .78 and .90) with a 1-week test-retest interval showed score stability over that period. Other studies by De las Cuevas and González de Rivera (1991) also revealed the relation between the profile of symptomatic dimensions and the diagnostic group of the clinical sample (obtaining significantly higher scores in psychiatric samples than in nonclinical samples), thus reinforcing the validity of the instrument. The authors' original studies with American samples showed construct validity (Derogatis & Cleary, 1977) and convergent validity, in view of the high correlations of the symptomatic dimensions with the MMPI in psychiatric patients (Derogatis, Rickels, & Rock, 1976), as well as criterion or empirical validity (Derogatis, 1983).

The NEO Five-Factor Inventory (NEO-FFI, Costa & MacCrae, 1992). The questionnaire comprises five 12-item scales, each one measures five big personality factors (The Big 5): 1) *Neuroticism* (high score: maladjustment, emotional instability, general tendency to experience negative emotions such as fear, melancholy, shame, anger, guilt, and disgust; low score: adjustment, emotional stability, calm, peaceful, relaxed, and able to cope with stressing situations without becoming annoyed or confused); 2) *Extraversion* (high score: extrovert, sociable, assertive, active, talkative, enjoys excitement and stimulation, happy, animated, energetic and optimistic; low score: introvert, reserved, independent, constant, prefers being alone, does not feel unhappy or pessimistic, does not necessarily suffer from social anxiety); 3) *Openness* (high score: open, unconventional, given to challenging authority, liable to accept new ethical, social, and political ideas; low score: tends to be conventional in behavior and conservative in appearance, prefers familiar things to novel things, emotional responses are somewhat subdued); 4) *Agreeableness* (high score: agreeable, altruistic, empathizes with others, ready to help them and believes that they are just as pleased to do the same; low score: disagreeable or nasty person, egocentric, suspicious of others' intentions and oppositional rather than collaborative; and 5) *Responsibility* (high score: responsible person, willing, decided, having the will to achieve goals, usually has a good academic-professional performance, scrupulous, punctual, and reliable; low score: not particularly rigorous in applying moral principles because these people are careless about fighting for their goals). The test is made up of 60 statements and participants must rate their degree of agreement with the statements (ranging from *totally disagree* to *totally agree*). The NEO-FFI was developed as a short form of the NEO-PI. Element selection of the NEO-FFI was carried out using *validimex* factors (McCrae & Costa, 1989) and the NEO-PI as a criterion. The authors used an initial sample of 983 men and women to whom the NEO-PI was administered in 1985 (McCrae & Costa, 1988), the 188 items were factorized and five principal components were extracted. *Validimex* factor rotation was used to maximize the convergent and discriminant validity with the *validimex* factors of NEO-PI.

Design and Procedure

The study used a descriptive cross-sectional methodology. To assess the variables of interest, four assessment instruments were administered that measured self-esteem, self-concept, personality traits, and psychopathological symptoms. The visually impaired adolescents participated voluntarily in the investigation and signed a protocol of informed consent that had previously been authorized by the Territorial Directors of Education. The Directing Board of the CRIs facilitated the names of the students who met the characteristics of the sample that had been selected a priori (with no other associated pathologies, etc.). The consent protocols were sent to each CRI, which, in turn, sent them to the families to be signed. Of the 47 students who received the protocol, only 29 responded and they comprised the final sample. The greatest difficulty was the dispersion of the sample around the three provinces of the ACBC, which meant that we needed practically a whole day (academic schedule) to perform one or two assessments. The assessment battery was administered individually in one session. The data were gathered by a psychologist specialized in intervention and

investigation with the blind, with the collaboration of two research scholarship students who were trained in seminars for this purpose. The assessment instruments were administered orally by the assessor who read the items to the adolescents, they provided their response orally, and the assessor recorded the information on the response sheets of the tests. This oral administration procedure and the link of trust with the previous assessor were proposed to avoid administration biases associated with the visual impairment. Selection of the adolescents with no visual impairment was done by randomly selecting three educational centers from each of the provinces of the ACBC with the mirror technique in order to choose subjects with socio-demographic parameters that were homogeneous to those of the visually impaired sample of adolescents.

Results

Firstly, the assumption of normality for the dependent variables was verified and the values of the Kolmogorov-Smirnov statistic test of normality were nonsignificant ($p > .05$) in all the variables (LAEA, Z = .88, RSE, Z = .95; SCL-90-GSI, Z = 1.16, SCL-90-PST, Z = .87, SCL-90-PSDI, Z = 1.27; NEO-N, Z = .70, NEO-E, Z = .90, NEO-0, Z = .73, NEO-A, Z = .82, NEO-C, Z = .615), which confirms that the distribution of the variables fits the normal curve.

Self-Concept, Self-Esteem, and Psychopathological Symptoms in Subjects with and without Visual Impairment

In order to compare self-concept, self-esteem, other personality traits, and various psychopathological symptoms in people with and without visual impairment (without any mental disorders in either group), after performing Levene's test to verify the assumption of homocedastity, finding equal variances, the means and standard deviations were calculated and an analysis of variance (ANOVA) was performed, the results of which are presented in Table 1.

As can be seen in Table 1, no statistically significant results were found between the adolescents with and without visual impairment either in self-concept or in self-esteem. However, in psychopathological symptoms, statistically significant differences were found, with the

Table 1
Differences in Self-Concept, Self-Esteem, Other Personality Traits and Psychopathological Symptoms between Adolescents with and without Visual Impairment

	Without Visual Impairment (n = 61)		With Visual Impairment (n = 29)		ANOVA F (1, 88)	d
	M	SD	M	SD		
Self-concept	145.32	25.47	152.15	22.57	1.34	.28
Self-esteem	31.34	5.50	29.79	5.50	1.81	.28
Somatization	7.62	6.73	9.21	7.13	1.04	.22
Obsession-compulsion	8.47	5.85	12.00	8.33	5.35 *	.49
Interpersonal sensitivity	7.13	6.01	8.45	6.52	0.88	.21
Depression	8.40	8.86	11.76	9.48	2.68	.36
Anxiety	4.98	5.75	7.28	6.94	2.70	.36
Hostility	3.27	3.21	4.97	4.31	4.34 *	.45
Phobic anxiety	1.62	3.43	2.52	2.92	1.47	.28
Paranoid ideation	3.93	3.09	6.28	4.47	8.30 **	.62
Psychoticism	3.07	3.93	5.10	6.14	3.58 +	.40
Additional (melancholy depression)	4.20	4.24	7.07	5.06	7.85 **	.61
Total Psychopathological Symptoms	52.68	42.21	74.62	50.60	4.62 *	.47
Global Severity Index (GSI)	0.58	0.46	0.82	0.56	4.62 *	.47
Positive Symptom Total (PST)	34.90	20.45	41.41	18.19	2.12	.33
Positive Symptom Distress Index (PSDI)	1.41	0.39	1.71	0.53	8.74 **	.65
Neuroticism	21.67	6.99	21.41	6.41	0.02	.03
Extraversion	31.13	7.08	31.00	5.94	0.00	.01
Openness	24.13	6.27	24.76	5.39	0.22	.10
Agreeableness	26.83	5.27	30.86	6.14	10.83 ***	.70
Responsibility	28.86	7.46	26.93	6.71	1.43	.27

$^{+}p < .09$. $*p < .05$. $**p < .01$. $***p < .001$.

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visually impaired participants scoring higher in the following symptoms: obsession-compulsion, hostility, paranoid ideation, additional symptoms (melancholy depression), in the total psychopathological symptom score, the GSI, as well as in the PSDI. With regard to the personality traits assessed, we only found significantly higher scores in the visually impaired adolescents in agreeableness. The results obtained when calculating the effect size or mean standardized difference (*d* index) confirmed that, in the variables in which significant differences between the adolescents with and without visual impairment were found, the magnitude of the effect was medium (*d* = from .45 to .70).

Self-Concept, Self-Esteem, and Psychopathological Symptoms: Gender Differences in Subjects with and without Visual Impairment

An ANOVA was conducted in order to explore the existence of gender differences in self-concept, self-esteem, other personality traits and psychopathological symptoms in participants with and without visual impairment. The results obtained for the visually impaired participants are presented in Table 2, and those of the unimpaired participants are displayed in Table 3.

As can be seen in Table 2, in visually impaired adolescents, statistically significant differences were found between males and females in self-esteem, with females scoring lower than males. However, statistically higher scores were found in females in a large range of psychopathological symptoms: obsession-compulsion, depression, anxiety, hostility, in the additional scale, in the total psychopathological symptom score, the GSI, as well as in the PST. With regard to the personality traits assessed, no gender differences were found in any of the five personality factors. Although in the sample of visually impaired adolescents, statistically significant gender differences were found in many variables, with worse scores for the females, in the sample of adolescents without visual impairment (see Table 3), no differences were found in any of the variables of interest. The results obtained when calculating the effect size or mean standardized difference (*d* index) confirmed that in the variables in which significant differences between men and women with and without visual impairment were found, the magnitude of the effect was large (*d* = from .76 to 1).

Table 2
Gender Differences in Self-Concept, Self-Esteem, Other Personality Traits and Psychopathological Symptoms in Adolescents with Visual Impairment

	Males + Females (*n* = 29)		Males (*n* = 16)		Females (*n* = 13)		ANOVA	*d*
	M	*SD*	*M*	*SD*	*M*	*SD*	*F* (1, 27)	
Self-concept	152.15	22.57	156.36	18.00	147.25	26.94	1.05	.40
Self-esteem	29.79	4.10	31.13	3.18	28.15	4.63	4.17 *	.76
Somatization	9.21	7.13	7.13	6.40	11.77	7.39	3.28 +	.67
Obsession-compulsion	12.00	8.33	8.81	6.73	15.92	8.66	6.19 *	.92
Interpersonal sensitivity	8.45	6.52	6.63	5.66	10.69	7.02	2.98 +	.64
Depression	11.76	9.48	8.19	6.13	16.15	11.17	5.96 *	.92
Anxiety	7.28	6.94	5.00	5.15	10.08	7.99	4.28 *	.77
Hostility	4.97	4.31	3.44	3.30	6.85	4.77	5.14 *	.84
Phobic anxiety	2.52	2.92	2.56	2.68	2.46	3.30	0.00	.03
Paranoid ideation	6.28	4.47	6.00	3.91	6.62	5.22	0.13	.13
Psychoticism	5.10	6.14	3.94	4.37	6.54	7.76	1.29	.42
Additional (melancholy depression)	7.07	5.06	4.94	4.09	9.69	5.04	7.87 **	1.00
Total Psychopathological Symptoms	74.62	50.60	56.63	34.73	96.77	59.19	5.18 *	.85
Global Severity Index (GSI)	0.82	0.56	0.62	0.38	1.07	0.65	5.18 *	.88
Positive Symptom Total (PST)	41.41	18.19	34.31	17.55	50.15	15.39	6.50 *	.96
Positive Symptom Distress Index (PSDI)	1.71	0.53	1.62	0.45	1.83	0.62	1.16	.39
Neuroticism	21.41	6.41	19.50	6.18	23.77	6.11	3.45 +	.69
Extraversion	31.00	5.94	30.75	5.88	31.31	6.25	0.06	.09
Openness	24.76	5.39	25.56	5.87	23.77	4.76	0.78	.33
Agreeableness	30.86	6.14	32.19	5.87	29.23	6.28	1.70	.48
Responsibility	26.93	6.71	26.69	8.08	27.23	4.81	0.02	.08

$^{+}p < .09$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

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Table 3
Gender Differences in Self-Concept, Self-Esteem, Other Personality Traits and Psychopathological Symptoms in Adolescents without Visual Impairment

	Males + Females (n = 61)		Males (n = 33)		Females (n = 28)		ANOVA F (1, 59)	d
	M	SD	M	SD	M	SD		
Self-concept	145.32	25.47	141.48	25.14	149.96	25.62	1.46	.33
Self-esteem	31.34	5.50	31.45	5.38	31.21	5.73	0.02	.04
Somatization	7.62	6.73	7.66	5.70	7.57	7.86	0.00	.01
Obsession-compulsion	8.47	5.85	8.38	5.79	8.57	6.03	0.01	.05
Interpersonal sensitivity	7.13	6.01	6.25	5.67	8.14	6.32	1.49	.31
Depression	8.40	8.86	8.06	7.48	8.79	10.34	0.09	.08
Anxiety	4.98	5.75	4.25	4.54	5.82	6.86	1.11	.27
Hostility	3.27	3.21	3.06	2.78	3.50	3.68	0.27	.13
Phobic anxiety	1.62	3.43	1.16	2.99	2.14	3.86	1.23	.28
Paranoid ideation	3.93	3.09	4.22	3.69	3.61	2.23	0.58	.20
Psychoticism	3.07	3.93	3.38	4.52	2.71	3.16	0.41	.17
Additional (melancholy depression)	4.20	4.24	3.88	3.14	4.57	5.26	0.39	.16
Total Psychopathological Symptoms	52.68	42.21	50.28	36.03	55.43	48.87	0.21	.12
Global Severity Index (GSI)	0.58	0.46	0.55	0.40	0.61	0.54	0.21	.12
Positive Symptom Total (PST)	34.90	20.45	33.47	20.38	36.54	20.79	0.33	.14
Positive Symptom Distress Index (PSDI)	1.41	0.39	1.45	0.39	1.37	0.40	0.57	.20
Neuroticism	21.67	6.99	20.11	7.30	23.26	6.37	3.63 $^{+}$	.46
Extraversion	31.13	7.08	30.11	6.88	32.18	7.23	1.47	.29
Openness	24.13	6.27	23.63	6.45	24.65	6.13	0.45	.16
Agreeableness	26.83	5.27	26.34	5.22	27.32	5.35	0.59	.18
Responsibility	28.86	7.46	27.97	7.51	29.76	7.41	0.99	.23

$^{+}p < .09$. $*p < .05$. $**p < .01$. $***p < .001$.

Relations of Self-Concept and Self-Esteem with Psychopathological Symptoms and Personality Traits in Visually Impaired People

Pearson correlation coefficients were calculated to analyze the relations of self-concept and self-esteem with other personality traits and with various psychopathological symptoms in visually impaired people. The results are displayed in Table 4.

The correlation coefficients obtained (see Table 4) reveal the existence of significant negative correlations of self-concept and self-esteem with all the psychopathological symptoms assessed, except between self-concept and hostility. Significant negative correlations were also confirmed between self-concept and self-esteem and neuroticism, and positive correlations with extraversion. These results suggest that visually impaired adolescents who have low self-concept and self-esteem are also more likely to have many psychopathological symptoms, a tendency to neuroticism as a personality trait, and low extraversion.

Predictor Variables of High Self-Concept and Self-Esteem in Visually Impaired Adolescents

Stepwise multiple linear regression analysis was carried out to identify predictor variables of high self-concept-self-esteem in visually impaired adolescents (see Table 5).

Of the set of predictors of adolescents' self-concept (see Table 5), three were statistically significant: psychoticism ($\beta = -.683$), extraversion ($\beta = .441$), and hostility ($\beta = -.350$). The standardized Beta regression coefficients indicate that the three variables load considerably on the variable "self-concept." According to this, the percentages of variance accounted for (adjusted determination coefficients) for each of these predictor variables were of medium magnitude (39.4%, 51.9%, and 59.2%, for psychoticism, extraversion, and hostility, respectively). Three variables predicted the criterion variable "self-concept" in visually impaired adolescents: 1) low level of psychoticism; 2) high level of extraversion, and 3) low hostility. These three variables account for 59.2% of the variance of self-concept.

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Table 4
Correlations of Self-concept and Self-esteem with Psychopathological Symptoms and Other Personality Traits in Adolescents with Visual Impairment

	LAEA Self-concept (n = 29)	EA Self-esteem (n = 29)
Psychopathological Symptoms		
Somatization	–.38*	–.55**
Obsession–compulsion	–.50***	–.73***
Interpersonal sensitivity	–.51**	–.63**
Depression	–.57**	–.80***
Anxiety	–.48*	–.66***
Hostility	–.16	–.58***
Phobic anxiety	–.55**	–.64***
Paranoid ideation	–.39*	–.54**
Psychoticism	–.64***	–.71***
Additional (melancholy depression)	–.50**	–.58***
Total Psychopathological Symptoms	–.57**	–.80***
Global Severity Index (GSI)	–.57**	–.80***
Positive Symptom Total (PST)	–.45*	–.64***
Positive Symptom Distress Index (PSDI)	–.39*	–.59***
Personality Traits		
Neuroticism	–.37^{+}	–.74***
Extraversion	.57**	.55**
Openness	.01	.02
Agreeableness	.24	.26
Responsibility	.07	.27

*p < .05 **p < .01

Table 5
Multiple Linear Regression Analysis for Predictive Variables of Self-concept and Self-esteem in Adolescents with Visual Impairments

	R	R^2	Adjusted R^2	Standard Error	B	Standard Error	Constant	β	t
Predictors of Self-concept									
Psychoticism	.64	.41	.39	17.56	–2.41	.55	163.12	–.683	–4.33***
Extraversion	.74	.55	.51	15.66	1.65	.51	114.33	.441	3.19**
Hostility	.80	.64	.59	14.42	–1.78	.79	103.70	–.350	–2.26*
Predictors of Self–esteem									
Global Severity Index (GSI)	.80	.64	.63	2.48	–5.87	.83	34.66	–.804	–7.03***

*p < .05. **p < .01. ***p < .001.

Of the group of predictors of self-esteem in visually impaired adolescents (see Table 5), one was statistically significant: the GSI (β = –.804). The standardized Beta regression coefficient indicates that this variable loads high on the variable "self-esteem." According to this, the percentage of variance accounted for by this predictor variable was of a high magnitude (63%). Therefore, low level in the GSI, as a generalized and indiscriminant measure of global psychological and psychosomatic suffering, predicted high self-esteem in adolescents with visual impairment, and it explained 63% of the variance of self-esteem.

Discussion

This work had the following goals: 1) to compare self-concept, self-esteem, other personality traits, and various psychopathological symptoms in adolescents with and without visual impairment; 2) to explore the existence of gender differences in these variables in both samples; 3) to analyze the relations between self-concept-self-esteem with other personality traits and with psychopathological symptoms in visually impaired adolescents; and 4) to identify predictor variables of high self-concept-self-esteem in visually impaired adolescents.

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Firstly, the results show that no statistically significant differences were found either in self-concept or in self-esteem between the adolescents with and without visual impairment. Therefore, Hypothesis 1, which stated that both groups would have similar scores in self-concept and self-esteem, is confirmed. These results confirm the findings of other studies that have found no differences when comparing the self-concept and self-esteem of sighted and blind people, in studies carried out with children (Alexander, 1996; Pierce & Wardle, 1996), adolescents (Griffin-Shirley & Nes, 2005; Huurre et al., 1999; Kumar & Meena, 1997; López-Justicia et al., 2000, 2001, 2005; Lifshitz et al., 2007), and adults (Fok & Fung, 2004). However, they contradict the findings of other works performed with adolescents that have found lower scores in the blind (Beaty, 1991, 1992; Meighan, 1971).

The differences in the results of the studies may be due to the factors of self-concept investigated, the way the groups were selected, and the method of gathering data. The differences may be related to the instruments employed because some of them assess global self-concept, whereas others explore the differentiated dimensions of the self-concept. In general, a clear tendency was observed in the direction of absence of differences in the global self-concept between the adolescents with and without impairment. Another explanatory factor of the discrepancies may be related to the differences in the samples of the studies because they have different percentages of men and women, as well as the number of adolescents with psychological problems. In the sample of this study, the number of men and women with visual impairment is similar, no participant presented symptoms of psychopathological disorders complementary to the impairment, and all of them were studying at regular educational centers that promote integration. Moreover, another explanation of the fact that, in an increasing number of studies, no differences in self-concept-self-esteem are observed between impaired and unimpaired individuals may be due to the social campaigns carried out to achieve a higher acceptance of the *difference*. In general, people in our society live together with impaired people with more normality than a few years ago. The integration and inclusion policies may be positively affecting the factors of interest involved in this type of population.

Secondly, visually impaired adolescents had significantly higher scores in various psychopathological symptoms (obsession-compulsion, hostility, paranoid ideation, additional symptoms, total psychopathological symptoms, the GSI, and the PSDI) compared with unimpaired adolescents, which confirms Hypothesis 2. These data point in the same direction as those of other investigators (Burlingham, 1979; Dimitriou, 1973) who found more symptoms of anxiety and tension. The tensions associated with the typical characteristics of this developmental stage (physiological-physical changes, changes in social demands): more independence, modification of peer relations and relations with adults, sexual adjustment, educational-vocational preparation, etc.) and tensions related to the lack of vision and the subsequently derived maladjustment (difficulty to participate in activities charged with visual content, more dependence on others, more family control, negative ideas about their physical attraction, etc.) might explain this high level of symptomatology observed in the visually impaired adolescents.

The total or partial lack of vision may produce a situation of continuous alert in the affected individuals. For example, with regard to mobility, a blind person may find diverse and unexpected obstacles in the trajectories traveled daily. Another example may be related to the teaching-learning situations, when the teachers move objects from one place to another, which may totally disorient blind students, or when the teachers request school work without taking into account these students' characteristics and the effort they must make to comply. Many of these students prefer to go unnoticed and not reveal their difficulty, which leads them to carry out the task with much more effort and stress. Such situations could justify the increasing levels of worry and psychopathological symptoms in these students.

Thirdly, the scores of the visually impaired adolescents, compared to those of the sighted adolescents, were not significantly higher in neuroticism, so that Hypothesis 3 is rejected. These results contradict the findings of other studies (Dimitriou, 1973) that observed neurotic symptoms in blind people. Accordingly, in this work, significantly higher scores were found in agreeableness in the visually impaired adolescents, which shows that, compared to sighted adolescents, blind adolescents are more agreeable, altruistic, they empathize more with others, and are more likely to help others. These significantly higher scores could be accounted for by the visually impaired adolescents' marked need to be accepted by the group of sighted peers.

Fourthly, no statistically significant gender differences were found in self-concept between the adolescents with and without visual impairment. However, visually impaired female adolescents had significantly lower scores in self-esteem, compared to their male counterparts. Therefore, the data allow us to confirm Hypothesis 4 almost completely and are coherent with the data found in the study of Paulinelli and Tamayo (1986) in which blind adolescents presented no differences as a function of gender in any of the self-concept factors assessed. However, in other studies, females obtained lower scores in the dimensions of social self-concept, and they scored higher than males in physical self-concept (López-Justicia & Pichardo, 2003), and in self-identity, and physical, family, and social self-concept, and the males scored higher in self-satisfaction and moral-ethical self-concept (Rasonabe, 1995).

In contrast, compared to males, visually impaired females had higher scores in various psychopathological symptoms (obsession-compulsion, depression, anxiety, hostility, additional symptoms, the total psychopathological symptoms, the GSI, and the PSDI), which ratifies Hypothesis 5. In

adolescence, there are very important physical and psychological changes that generate strong emotional tensions. Anxiety emerges, derived from the physical and psychosexual changes, the feelings of lack of bodily harmony, and the concern about the body and the changes experienced. Adolescents feel observed, they are afraid of making fools of themselves, and this may become a source of stress. Perhaps adolescents with visual impairment are more aware and sensitive to these aspects, and this could explain their higher levels of tension, anxiety, obsessiveness, depressiveness, etc.

Sixth, visually impaired females did not score higher in neuroticism, so Hypothesis 6 is rejected. Nevertheless, in both samples, the females had higher scores than the males, although without reaching statistical significance. This result contradicts that found by Dimitriou (1973), who, in a school for the blind, observed a tendency to display neurotic symptoms. Moreover, the females had twice the percentage of neuroticism as the males. These discrepant results may be explained by the greater age of the subjects of the Greek sample and also by the different school context: "normalized or integrated" compared with a "specific school for the visually impaired," which can generate more emotional tension. The results of the correlational analyses in the visually impaired adolescents found significant negative relations of self-concept and self-esteem with psychopathological symptoms such as neuroticism, and positive relations with extraversion, which ratifies Hypothesis 7 almost completely. In accordance with these results, low psychoticism, high extraversion, and low hostility were identified as predictors of high self-concept, and low GSI was a strong predictor of high self-esteem. Therefore, Hypothesis 8, which stated that high sociability and low level of psychopathological symptoms would predict high self-concept and self-esteem in visually impaired adolescents, is confirmed.

Adolescence is a complex stage of life in which physiological and physical changes begin, which provide the youngsters with the capacities of mature people, but having such capacities does not guarantee an egalitarian position in society; they must achieve their position by competing with others (Delval, 1994). If we add an impairment—in this case, lack of vision—to this difficult situation, we find a very complicated stage of life, in which the youths need all the help and understanding that can be provided. There are few studies in the field of visual impairment carried out with student population about such important aspects as self-esteem, self-concept and other personality traits. The teachers of these students feel the need to know the areas or aspects in which they may need help and the results of this study are a contribution to this need.

As a limitation of the study, we note the small number of people who participated, although it must be taken into account that the population of visually impaired subjects of ages between 12 and 17 and without any other associated discapacity in the ACBC is small (n = 47). However, of the 47 subjects registered in the census who might have participated in the study, only 29 did so, and this could bias the results obtained. Among the contributions of the work can be noted the practical implications of the results obtained, as they suggest the importance of carrying out interventions with visually impaired adolescents aimed at decreasing their psychopathological symptoms, and, specifically, with females, who would also benefit from intervention programs to increase their self-esteem.

Among the future lines of research can be suggested: 1) to analyze the ethiological factors related to the high level of psychopathological symptoms found in visually impaired adolescents; 2) to study in more depth the interactions occurring in peer groups of adolescents with and without visual impairment; 3) to identify intervention variables that meet the needs that visual deficit generates in adolescence; and 4) to evaluate the way visually impaired adolescents elaborate their future life project and to determine whether there are gender differences in this elaboration.

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