



Working together  
www.rcis.ro

## **Revista de cercetare și intervenție socială**

ISSN: 1583-3410 (print), ISSN: 1584-5397 (electronic)

Selected by coverage in Social Sciences Citation Index, ISI databases

---

### **SOCIO-PROFESSIONAL INTEGRATION FOR AMBLYOPIC PATIENTS**

*Stefan-Tudor Bogdanici, Gabriel Martinescu, Codrina-Maria Sandulache,  
Camelia-Margareta Bogdanici*

Revista de cercetare și intervenție socială, 2016, vol. 52, pp. 187-194

The online version of this article can be found at:

*www.rcis.ro, www.doaj.org and www.scopus.com*

---

Published by:

Expert Projects Publishing House



On behalf of:

„Alexandru Ioan Cuza” University,

Department of Sociology and Social Work

and

Holt Romania Foundation

REVISTA DE CERCETARE SI INTERVENTIE SOCIALA

is indexed by ISI Thomson Reuters - Social Sciences Citation Index

(Sociology and Social Work Domains)



# Socio-professional Integration for Amblyopic Patients

Stefan-Tudor BOGDANICI<sup>1</sup>, Gabriel MARTINESCU<sup>2</sup>,  
Codrina-Maria SANDULACHE<sup>3</sup>, Camelia-Margareta BOGDANICI<sup>4</sup>

## Abstract

The aim of the study was to identify the quality of life and socio-professional difficulties for amblyopic patients. It is a retrospective and observational study on 35 patients with amblyopia follow-up in Ophthalmologic Clinic, Hospital “Sf. Spiridon” Iasi. Clinical parameters used: slit lamp examination of the anterior segment of the eye, ophthalmoscopy of the retina and optic nerve, visual acuity, objective refraction, intraocular pressure, orthoptic examination and ocular ultrasound (in selected cases). In 6 cases (students in different Universities) was applied a questionnaire about their problems of social integration. Unfortunately, the quality of life of patients with visual impairment is decreased because there are insufficient aids for low-vision used in our country. In Romania, on December 2011, there were 687,576 people with disabilities – 60,269 are children and 629,307 are adult people. Patients with visual disabilities can learn in normal educational system, according to the level of intelligence. Adolescents with visual impairment may attend Universities courses if proper aids for low-vision are provided. Socio-professional orientation should be performed as early as possible to increase the quality of life for amblyopic patients.

*Keywords:* amblyopia, life quality, questionnaires, social integration, low-vision.

---

<sup>1</sup> University of Medicine and Pharmacy “Grigore T. Popa”, Surgery Department, Discipline of Ophthalmology, Iasi, ROMANIA. E-mail: tudor.bogdanici@gmail.com

<sup>2</sup> University of Medicine and Pharmacy “Grigore T. Popa”, Surgery Department, Discipline of Ophthalmology, Iasi, ROMANIA. E-mail: g.martinescu@yahoo.com

<sup>3</sup> University of Medicine and Pharmacy “Grigore T. Popa”, Surgery Department, Discipline of Ophthalmology, Iasi, ROMANIA. E-mail: codrina.sandulache@gmail.com

<sup>4</sup> University of Medicine and Pharmacy “Grigore T. Popa”, Surgery Department, Discipline of Ophthalmology, Iasi, ROMANIA. E-mail: camelia.bogdanici@gmail.com (corresponding author)

## Introduction

Amblyopia comes from the Greek words amblyos (dull) and ops (eye). It is a frequent cause of vision loss affecting between 2% (Ruiz de Zarate & Tejedor, 2007) and 5% (Carlton, 2011) of the population. Amblyopia is the leading cause of reduced visual function caused by strabismus, anisometropia, or visual form deprivation during the critical period of visual development (Chua & Mitchell 2004). For quality of life is very important an early detection and treatment, facts that are very cost-effective in terms of benefits derived compared with cost of care. For 2010, WHO estimated that globally there are 285 million people visually impaired, of whom 39 million were blind (WHO, 2013). An estimated 19 million children are visually impaired. Of these, 12 million children are visually impaired due to refractive errors and 1,4 million are irreversibly blind for the rest of their lives and need visual rehabilitation interventions for a full psychological and personal development (WHO, 2014). Moderate and severe visually impairment are in Eastern Europe 46,1% (*Table 1*) (Bourne *et al.*, 2014). It is considered, that low vision and blindness is a severe public health problem even in 2015 (Tang *et al.*, 2015).

In Romania, on December 2011, regarding to the National Authority for the People with Handicap, there were 689,576 people with disabilities: 60,269 are children and 629,307 are adult people (Ionescu, 2012). Quality of vision and life is a modern problem discussed by ophthalmologists but is not fully sufficient investigated. Within the allocation of health-care resources, there is increasing demand for evidence regarding not only treatment effectiveness but also implication of the condition and the effect its treatment has on the patient in both the immediate and long term. Screening programs currently exist within the United Kingdom to identify children who have or those who are at risk of developing amblyopia (Carlton, 2011).

The use of health related quality of life (HRQoL) is increasing in health care resource allocation decisions (Stevens & Latham, 2009). The health-related quality of life (HRQoL) includes impact on family life, social interactions, activities and/or education (Carlton, 2013).

Table 1. Causes of blindness & vision loss 2010 in Europe (Bourne, 2014)

Eye Disease or Condition	Blind			Moderate and severe visually impaired (MSVI)		
	% of cases			% of cases		
	Eastern Europe	Central Europe	Western Europe	Eastern Europe	Central Europe	Western Europe
Cataract	20.6	21.6	13.8	18.4	18.1	13.8
Uncorrected Refractive Error	14.0	14.0	14.0	46.1	46.2	47.3
Age Related Macular Degeneration	16.6	15.4	16.1	6.8	7.4	5.4
Glaucoma	13.5	12.5	10.6	4.5	3.9	3.4
Diabetic Retinopathy	4.0	3.7	4.2	2.8	2.5	3.0

## Material and Methods

The study is retrospective and observational performed on a 2 years period (2013-2015) in Ophthalmological Clinic, Hospital “Sf. Spiridon” Iasi. We included in study 130 patients (49 female and 81 male) examined to release a medical certificate required for Medical Expertise Commission or for registration in schools or universities. Mean age of patients was  $18.42 \pm 3.09$  years. We selected 35 patients and from these 6 students (at Faculties – Sociology, General Medicine, Law, English Language and Informatics). All students completed a questionnaire with 12 questions about difficulties of visual impairment patients in socio-professional integration. As method we used standard clinical procedures history and the ophthalmological examinations: objective refraction, visual acuity, examination of anterior segment of the eye at slit-lamp, intraocular pressure and funduscopy. Orthoptic exam was performed in 31.42% cases and ocular echography at 14.28% of patients. All data was statistical analyzed and it was used t-student test.

## Results and discussions

Amblyopia is reduced vision in one or both eyes due to early, binocular inputs during the “critical period” (Wang, Crewther, & Yin 2015). WHO defines amblyopia as a reduced visual capacity in one or both eyes (commonly called “lazy eye”) in the absence of another specific eye disease (WHO, 2013). In our study, amblyopic patients included are 65.72% male and 68.57% live in rural areas. The

mean age of the patients was 15.98 years (limits between 12 and 27 years) and majority of cases (82.85%) were between 12 and 20 years old (our target group). We used the classification for amblyopia from visual acuity (VA) point of view: *relative* (VA=0.8-1.0), *mild* (VA=0.5-0.8), *moderate* (VA=0.3-0.5) and *severe* (VA=0.1-0.3) (Bogdanici, 2008). Handicap grades are established by a Health Minister Directive nr.707/538/2014 in order with VA: *medium visual handicap* – VA between 0.12 and 0.10 with optimal correction at the better eye; *pronounced visual handicap* – with VA between 0.08 and 0.04 at the better eye, *severe visual handicap* – VA at both eyes 0.04 – 0.00001.

Objective refraction was performed with auto-keratorefractometer Topcon KR8900. Refractive errors were at right eye (RE) between -14.00 diopters (D) and + 14.00 D (mean value=-1.8±6.3) (Figure 1). At left eye (LE), the values of refractive errors were between -15 D and +13 D (mean value= -1.28±6.1) (Figure 2).

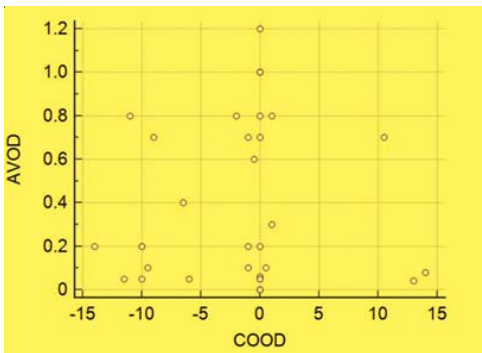


Figure 1. Refractive errors RE

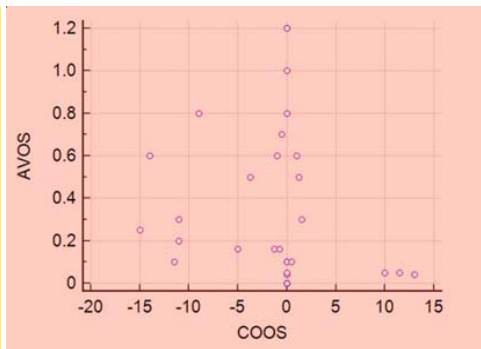


Figure 2. Refractive errors LE

We used Snellen test for visual acuity. The Snellen chart is the current standard for measurement of visual acuity in clinical practice because it is readily available as well as quick and easy to perform (Kaiser, 2009). Mean visual acuity was in RE  $0.38 \pm 0.37$  (limits between light perception – 0.00001 and 1.2) (Figure 3). In statistical analysis  $p=0.0723$  (statistically significant). In 85.71% of cases we found different types of amblyopia. At LE, mean visual acuity was  $0.30 \pm 0.36$  (with the same limits like in RE). In 91.42%, patients had amblyopia on the LE and in 17.14%, visual acuity was 0 (Figure 4).

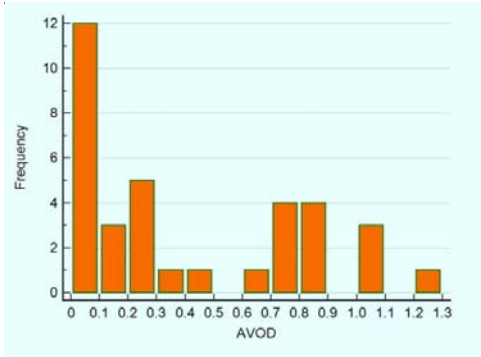


Figure 3. Visual acuity RE Figure

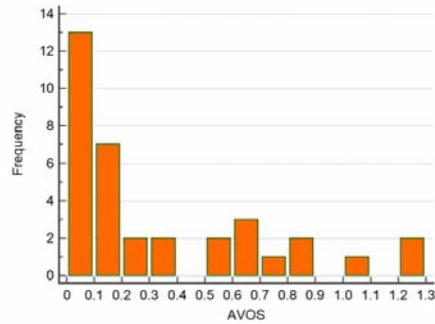


Figure 4. Visual acuity LE

In some studies, amblyopia is a common cause of vision loss affecting between 1% and 3% of the population. It has been reported to be more common in left eyes than right eyes (Repka, Simons, & Kraker, 2010) and is, according to the National Eye Institute, the leading cause of unilateral vision loss in the under-70 population (Ostrow & Friedlaender, 2014). In this study, amblyopia affected more frequent the LE, similar with data from literature. Examination on slit-lamp shows in 25.71% of cases changes of anterior segment of the eye at RE and in 34.28% at LE (3 cases with ocular prosthesis). Intraocular pressure (IOP) was determinate with Goldmann aplanotonometer. Presently, the Goldmann applanation tonometer (GAT) is regarded as the gold standard for IOP measurement (Hong, 2013). Mean value of IOP was  $13.92 \pm 2.36$  mmHg at 40% of RE and  $14.41 \pm 2.466$  mmHg for 34.28% of cases at LE. At 5.7% of patients we found ocular hypotony for both eyes. In 8.57% of cases we found ocular prosthesis.

At funduscopy we found in 65.71% (at RE) and in 51.42% (at LE) different retinal changes (myopic staphiloma, traumatic retinopathy, retinal detachment). Strabismus or binocular vision changes was found at orthoptic exam in 31.42%. Ocular echography (A and B mode) shows in 14.28% of cases ocular modifications. In our study, the main causes of VA decrease were: refractive/strabtic amblyopia (40%), congenital ocular diseases (31.4%). In 11.42% visual acuity was normal. The etiology of amblyopia was high and degenerative myopia (31.4%), esotropia (17.1%) and astigmatism (14.2%).

According to the data for 2010, 80% of visual impairment including blindness is avoidable. The two main causes of visual impairment in the world are uncorrected refractive errors (42%) and cataract (33%) (WHO, 2014). Strabismus or strabismus surgery history is present in 37,5% of the children with amblyopia, anisometropia in 34,4%, both conditions in 18.8% (Robaei *et al.*, 2006). Some patients had associated pathology which brings additional difficulties in their socio-professional integration). In our study, patients have associated other pathologies: mental retard (14.28%), extrapyramidal syndrome (2.85%), myoclonic

epilepsy (5.71%), spastic tetraplegia (2.85%), hemiparesis (2.85%), hydrocephalus (2.85%), temporal arachnoid cyst (2.85%), chronic meningitis (2.85%), pituitary dwarfism (2.85%) and hyperkinetic syndrome (2.85%). Visually impaired persons experience mental health problems related to their vision loss and they might need and want help for this (Bruijning *et al.*, 2014).

Eight patients wanted to study in normal schools (2 patients) or in Universities (6 patients). These patients are enrolled in following faculties: 2 patients at Faculty for Sociology – they want to do psychological counselling for people with disabilities. One patient is student at Law Faculty – he want to represent people with visual impairment. One student is at General Medicine – she has anisometropic amblyopia and she wanted since she was a small girl to help people with medical problems. One girl is student at English Language – she want to become teacher at special schools for blind people. One boy is student at Informatics - he knows to use special aids for low-vision people and he is using a computer monitor magnification system.

These patients completed the questionnaires who revealed following social difficulties in integration in Universities: they feel different because of wearing spectacles or optical devices; they feel embarrassed because they crash or drop objects; they feel not included because they cannot participate in social activities; they do not have a permanent contact with the collectivity.

From the professional point of view, students indicated: for them is difficult to see at the video projector; there is a difficulty to discern the writing on board. Students learned through other methods: registration on tap of lectures, learn with friends who read for them. Another problem is the absence of aids methods: zoom video devices, telescopic and hypercorrection systems, zoom PC monitor systems, lectures in Braille system etc. In literature, it is underlined that many patients were still unable to carry out their preferred everyday activities, and feelings of loneliness and isolation were unchanged (Hinds *et al.*, 2010). Vision loss is significantly associated with depression and certain traits of personality (specifically neuroticism and conscientiousness), independent of the severity of vision loss, and duration of vision loss (Tabrett, 2012).

## Conclusions

The main cause of vision loss in our study was refractive/strabismic amblyopia (40%), of which the most frequent is degenerative myopia (25.71%). From 35 selected patients only 17.14% are studying or want to study at a university. Patients with visual disabilities can learn in normal educational system, according to the level of intelligence. Adolescents with visual impairment may attend Uni-

versities courses if proper aids for low-vision are provided. Socio-professional orientation should be performed as early as possible to increase the quality of life for amblyopic patients.

## References

- Bogdanici, C.M. (2007). Ambliopia. In Bogdanici C.M. *Elemente de oftalmologie pediatrica, Iasi: Universitas XXI*, pp. 108-110.
- Bourne, R.R., Jonas, J.B., Flaxman, S.R., Keeffe, J., Leasher, J., Naidoo, K., *et al.* (2014). Prevalence and causes of vision loss in high income countries and in Eastern and Central Europe: 1990–2010. *British Journal of Ophthalmology*, 98(5), 629-638.
- Bruijning, J.E., van Rens, G., Fick, M., Knol, D.L., van Nispen, R. (2014). Longitudinal observation, evaluation and interpretation of coping with mental (emotional) health in low vision rehabilitation using the Dutch ICF Activity Inventory. *Health Qual Life Outcomes*, 12, 182.
- Carlton, J. (2013). Identifying potential items for the Child Amblyopia Treatment Questionnaire. *Optometry and Vision Science*, 90, 867-873.
- Carlton, J., Kaltenthaler, E. (2011). Amblyopia and quality of life: a systematic review. *Eye (London)*, 25(4), 403–413.
- Chua, B., & Mitchell, P. (2004). Consequences of amblyopia on education, occupation, and long term vision loss. *British Journal of Ophthalmology*, 88, 1119-1121.
- Hinds, A., Sinclair, A., Park, J., Suttie, A., Paterson, H., Macdonald, M. (2003). Impact of an interdisciplinary low vision service on the quality of life of low vision patients. *British Journal of Ophthalmology*, 87, 1391-1396.
- Hong, J., Xu, J., Wei A., Deng S., Cui, X., Yu et al. (2013). A new tonometer - the corvis ST tonometer: clinical comparison with noncontact and Goldmann applanation tonometers. *Investigative Ophthalmology & Visual Science*, 54, 659-665.
- Ionescu, I. (2012). Social policies of inclusion of the people with physical disabilities in Romania – Social diagnosis. *Journal of Community Positive Practices*, 4, 812-837.
- Kaiser, P. (2009) Prospective evaluation of visual acuity assessment: a comparison of Snellen versus ETDRS charts in clinical practice (an AOS thesis). *Transactions of the American Ophthalmological Society*, 107, 311-324.
- Ostrow, G., & Friedlaender, D. (2014). Amblyopia: Current Evidence-based Therapeutic Options. *International Ophthalmology Clinics*, 54(3), 33-40.
- Repka, M.X., Simons, K., & Kraker, R.T. (2010). Laterality of Amblyopia. *American Journal of Ophthalmology*, 150, 270-274.
- Robaei, D., Rose, K., Ojaimi, E., Kifley, A., Martin, F., Mitchell, P. (2006). Causes and associations of amblyopia in a population-based sample of 6-year-old Australian children. *Archives of ophthalmology*, 124(6), 878-884.
- Ruiz de Zarate, B., & Tejedor, J. (2007). Current concepts in the management of amblyopia. *Clinical Ophthalmology*, 1(4), 403–414.
- Stevens, K. (2009). Developing a descriptive system for a new preference-based measure for health-related quality of life for children. *Quality of Life Research*, 18, 1105-1113.



- Tabrett, D.R., Latham, K. (2012). Adjustment to vision loss in a mixed sample of adults with established visual impairment. *Investigative Ophthalmology & Visual Science*, 53, 7227-7234.
- Tang, Y., Wang, X., Wang J., Huang W., Gao Y., Luo Y., & Lu Y. (2015). Prevalence and causes of visual impairment in a chinese adult population. The Taizhou Eye Study. *Ophthalmology*, 122, 1480-1488.
- Wang, H., Crewther, SG., & Yin, Z.O. (2015). The Role of Eye Movement Driven Attention in Functional Strabismic Amblyopia. *Journal of Ophthalmology*, Article ID 534719, <http://dx.doi.org/10.1155/2015/534719>.
- WHO (2013). *Universal eye health: a global action plan 2014 -2019*.
- WHO (2014). Visual impairment and blindness. <http://www.who.int/mediacentre/factsheets/fs282/en/>