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The study of the causes of blindness and low vision in a school for visual disabilities in Bauru city

Estudo das causas de cegueira e baixa de visão em uma escola para deficientes visuais na cidade de Bauru

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Abstract

Objective: *To analyze the causes of blindness among students of the Lar Escola Santa Luzia Para Cegos in the city of Bauru, State of São Paulo. We also evaluated and discussed the degrees of social insertion of the students and the access to health and locomotion of the visually impaired.* ***Methods:*** *A prospective, qualitative and quantitative study was performed with all 66 students of the Lar Escola Santa Luzia para Cegos in the city of Bauru. Each person with visual impairment answered several questionnaires on various subjects and underwent an ophthalmologic examination consisting of: anamnesis, refraction and corrected visual acuity (VA), biomicroscopy, tonometry and fundus examination.* ***Results:*** *Out of the total of 66 students in the school, 44 participated in the study and 22 did not want or could not attend the ophthalmological visit. 56.81% (25) of the total participants were men and 43.19% (19) women. The students' challenges in this study basically include locomotion with greater autonomy, as well as greater resources available in computer science and Braille. The most frequent causes of visual impairment in the present study, in increasing order of prevalence were: optic atrophy, meningitis, toxoplasmosis retinocoriditis, optic neuritis, AMD, retinopathy of prematurity, tractional retinal detachment, hydrocephalus, ocular tumor, congenital glaucoma, uveitis, glaucoma, pigmentary retinitis, regmatogenic retinal detachment and ocular trauma.* ***Conclusion:*** *Government measures and the support of the society for effective and transformative intervention and solidarity-based social values for the visually impaired are essential for social inclusion.*

Keywords: *Blindness/epidemiology; Low vision/epidemiology; Visual impairment people; Scholar health services*

Resumo

Objetivo: Analisar as causas de cegueira dos alunos do Lar Escola Santa Luzia Para Cegos no município de Bauru, Estado de São Paulo. ambém avaliamos e discutimos o grau de inserção social dos alunos e a facilidade de acesso à saúde e locomoção dos deficientes visuais. **Métodos:** Foi realizado estudo prospectivo, qualitativo e quantitativo com todos os 66 alunos do Lar Escola "Santa Luzia" Para Cegos no município de Bauru. Cada pessoa com deficiência visual respondeu a questionários sobre diversos temas e foi submetido a um exame oftalmológico que constou de: anamnese, refração e acuidade visual corrigida (AV), biomicroscopia, tonometria e exame de fundo de olho. **Resultados:** Do total de 66 alunos da escola, 44 participaram do estudo e 22 não quiseram ou não puderam comparecer à consulta oftalmológica. 56,81% (25) do total de participantes eram homens e 43,19% (19) mulheres. Os desafios dos alunos deste estudo compreendem basicamente a locomoção com maior autonomia, além de maiores recursos disponíveis em informática e braile. As causas mais frequentes de deficiência visual no presente estudo, em ordem crescente de prevalência foram: atrofia óptica, meningite, retinocoroidite por toxoplasmose, neurite óptica, DMRI, retinopatia da prematuridade, descolamento tracional de retina, hidrocefalia, tumor ocular, glaucoma congênito, uveíte, glaucoma, retinose pigmentar, descolamento de retina regmatogênica e trauma ocular. **Conclusão:** Medidas governamentais e o apoio da sociedade no sentido de uma intervenção de maneira eficaz e transformadora e de valores sociais solidários em prol da pessoa com deficiência visual são imprescindíveis para a inclusão social.

Descritores: Cegueira/epidemiologia; Baixa visão/visão; Pessoas com deficiência visual; Serviço de saúde escolar.

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Introduction

Affirmative actions as a social inclusion of people with disabilities dates to less than half a century in Brazil, and faces the challenge of guaranteeing conditions of citizenship and equity for this part of the population. [1] The United Nations Convention on the Rights of Persons with Disabilities (CRPD) was incorporated into Brazilian legislation in 2008, and began to focus on rehabilitation encompassing effective and appropriate measures to enable persons with disabilities to achieve and maintain maximum autonomy and full physical, mental, social and professional capacity, as well as full inclusion and participation in all aspects of life.[2]

Data from the World Health Organization shows that there are approximately 36 million blind people in the world,[3] of whom 90% come from underdeveloped / in development regions, and 217 million people with moderate (corrected visual acuity up to 20/60) to severe (corrected visual acuity up to 20/200) visual acuity.[4] The World Health Organization (WHO) also points out that if there were more effective prevention and/or treatment actions, 80% of blindness cases could be avoided.[5] According to IBGE data from 2010,[6] 528,624 out of the more than 6.5 million people in Brazil with some visual impairment are considered blind.

According to Ordinance Nº. 3,128 dated December 24, 2008 from the Ministry of Health[7] and the 10th International Statistical Classification of Diseases and Related Health Problems (ICD-10), it is considered Subnormal Vision when the value of corrected visual acuity in the best eye is worse than 0.3, and better than or equal to 0.05 (20/400) or its Visual Field less than 20° in the best eye with the best correction. Blindness is considered when the visual acuity value is worse than 0.05 (20/400) in the best eye, or Visual Field less than 10°.

Ophthalmologists are of great importance in monitoring people with visual impairment, since their professional activity catalyzes the process of visual rehabilitation, and they can assess the degree of impairment of the patient, prescribe special treatments and optical resources, and be able to mobilize society so that a permanent and multidisciplinary team of help for these visually impaired people is formed.

Founded in 1969 in the city of Bauru - SP, Lar Escola Santa Luzia Para Cegos treats sixty six people with visual impairment between 18 and 94 years. Several activities are carried out to provide support and guidance, increase autonomy, and improve the quality of life of the visually impaired. The students have Braille, music, choir, guitar, theater, computer science classes, and handicraft activities, with multidisciplinary assistance in the areas of Social Work, Psychology, Occupational Therapy, Social Education, Pedagogy, Physiotherapy and Ophthalmology, as provided by ordinance Nº. 3,128, dated December 24, 2008. The site is active through a partnership between SEBES (Secretariat of Social Welfare) and the Municipal Secretary of Education, in addition to community members who volunteer.[8]

The main objective of the present study is to analyze the causes of blindness in students of Lar Escola Santa Luzia Para Cegos in the city of Bauru, State of São Paulo. We also evaluated and discussed the degree of social insertion of the students, and the ease of access to health and locomotion of the visually impaired.

Methods

A prospective, qualitative and quantitative study was carried out with the students of Lar Escola Santa Luzia Para Cegos in the city of Bauru - SP (Brazil) from March to June 2016. The study counted on 66 students enrolled in Lar Escola. Each person with visual impairment answered a questionnaire through a printed interview delivered by the CEO-Bauru clinic, which consists on identification (age, gender, color, naturalness, origin, religion, marital status, and degree of education), nineteen multiple-choice questions on different subjects (legislation and its execution, independence, social relations, accessibility to locomotion, employment, health, quality of sleep, income), and nine open questions (date and referral to Lar Escola; if paid work activity is performed, cause of blindness, autonomy, greater benefit and obstacle, which could facilitate access to reading, writing and information). In order to create this questionnaire, we used The World Health Organization Quality of Life (WHOQOL) questionnaire, an important instrument to evaluate the quality of life,[9] and the Accessibility Questionnaire of the Ethics and Citizenship Program to build values at school and in society.(10)

Inclusion criteria were: present irreversible bilateral blindness (VA <20/200), be related to Lar Escola Santa Luzia para Cegos (whether students, teachers, or even those in the waiting list), agree to sign the Free and Informed Consent, have no mental impairment nor any impairment preventing data collection. Each student was interviewed only once, and on this occasion, they underwent an ophthalmological exam consisting of anamnesis, refraction and corrected visual acuity (VA), biomicroscopy, tonometry, and fundus examination.

After data collection, the questionnaires were analyzed and tabulated electronically. Each sheet answered by the students was counted and compiled in the Excel program, evaluating the following subjects: laws for the protection of the visually impaired and their applicability; activity impairment; locomotion and accessibility; ease of employment and working conditions; access to health; social inclusion and income.

Results

Of the total of 66 students in the school, 44 participated in the study, and 22 did not want or could not attend the ophthalmological appointment. Of the total participants, 56.81% (25) were men and 43.19% (19) women. Regarding religion: 47.05% (16) declared themselves Catholics, 32.35% [11] evangelicals, 8.82% (3) Christians, and 11.76% (4) did not declare any religion. Regarding degree of education: 2.27% (1) declared higher education; 29.54% (13) complete high school; 27.27% (12) complete elementary education; 31.81% (14) had incomplete elementary education, and 9.09% (4) declared themselves illiterate.

Table 1 shows the relation of the students age at Escola Santa Luzia:

Regarding the cause of blindness, the following conditions were observed (Table 2).

Regarding the greatest challenges faced by the visually impaired, 44 responses were considered, according to table 3.

Regarding the question about how society could facilitate the lives of the visually impaired, the following result of table 4 was verified.

Regarding the benefits they receive from the government or income, forty four students responded according to table 5.

Regarding the closed questions, the following result shown in table 6 is observed.

Table 1
Age distribution of students from Lar Escola Santa Luzia Para Cegos

Age (years)	Visually impaired n(%)
11-20	1 (2.72)
21-30	10 (22.72)
31-40	2 (4.54)
41-50	6 (13.63)
51-60	14 (31.81)
61-70	7 (15.90)
Acima de 70	4 (9,09)

Table 2
Causes of blindness and people affected

Causes of blindness	People affected n (%)
Ocular trauma	7 (15.9)
Regmatogenic retinal detachment	6 (13.63)
Pigmentary retinosis	5 (11.36)
Primary Open-Angle Glaucoma	4 (9.09)
Uveitis	3 (6.81)
Congenital glaucoma	2 (4.54)
Ocular tumor	2 (4.54)
Hydrocephalus	2 (4.54)
Tractional retinal detachment	2 (4.54)
Retinopathy of prematurity	2 (4.54)
Exudative AMD	1 (2.27)
Optic neuritis	1 (2.27)
Retinocoroiditis by toxoplasmosis	1 (2.27)
Meningitis	1 (2.27)
Optic atrophy	1 (2.27)
Don't know / inconclusive ophthalmic examination	4 (9.09)

Table 3
Challenges faced by the impaired

Challenges	Visually impaired n (%)
Locomotion with independence	24 (54.54)
Braille and computers	4 (9.09)
Society recognizing the impaired	4 (9.09)
Adapting to the new reality	2 (4.54)
Nothing	10 (22.72)

Table 4
how to facilitate the life of the visually impaired

Ways to make life easier	Visually impaired n (%)
Computers and Braille	18 (40.9)
Audiodescription	9 (20.45)
Computers	4 (6.81)
Braile	3 (6.81)
Braile	1 (2.27)
Did not answer	10 (22.72)

Table 5
government benefits / income

Government benefits / income	Visually impaired n (%)
INSS/LOAS	26 (59.09)
Retirement	9 (20.45)
No benefits / family income	9 (20.45)

Table 6
Closed questionnaire (absolute number)

	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
There are laws to protect and guarantee the rights of the visually impaired	5	39	-	-	-
I feel supported by the enforcement of these laws	1	37	6	-	-
Visual impairment prevents my daily activities	-	6	-	38	-
I need help to do my daily activities	-	14	-	30	-
I have enough energy to do my activities	3	37	-	4	-
I can get around perfectly on the streets and shps	7	-	30	7	-
I am happy with the help I get on the streets to locomote	-	33	6	5	-
I am happy with my personal relations (friends, relatives, acquaintances ...)	1	42	-	1	-
I am happy with the ease of getting a job	-	4	16	22	2
I am happy with the working conditions	-	3	26	14	1
I am happy with the conditions where I live	-	42	-	2	-
I am happy with access to health	-	24	-	19	1
I am happy with the quality of sleep	1	37	-	6	-
I can easily concentrate on my tasks	-	42	-	2	-
I have feelings of bad mood, anguish and depression most of the time	-	3	-	41	-
most of the time	-	26	-	17	1

Discussion

The present study is based on the students of Santa Luzia de Bauru school, and does not necessarily reflect the profile of all the visually impaired in Bauru. Although Santa Luzia school represents a multidisciplinary and structured work to include the students who look for it, there is a part of the population with low vision who is not contemplated in this specialized care program. The lack of information and the difficulty of access to specialized medicine are obstacles that delay the implementation of social inclusion programs in Brazil.[11]

We observe an average age of 52 years, with a discrete male predominance (56.81%) in relation to women (43.31%). The most frequent causes of visual impairment in the present study in increasing order of prevalence were optic atrophy, meningitis, toxoplasmosis retinocoriditis, optic neuritis, AMD, retinopathy of prematurity, retinal traction detachment, hydrocephalus, ocular tumor, congenital glaucoma, uveitis, glaucoma, pigmentary retinosis, regmatogenic retinal detachment, and ocular trauma.

Ocular trauma is the most common cause of unilateral blindness in the United States, accounting for 7% of bilateral blindness in the age group of 20-64 years.[12,13] Our article showed that among Santa Luzia students the percentage of blindness due to trauma was 15.9%, with the peculiarity of involving young female people, and motorcycle and car accidents without a seat belt. This high rate of irreversible blindness caused by accidents demonstrates the importance of population awareness and the need for preventive actions.

Some of the main risk factors for regmatogenic retinal detachment are high myopia, ocular trauma, and the presence of peripheral retinal degeneration such as lattice degeneration.[14] In our study, this pathology accounted for 13.6% of causes of blindness, which is consistent with the percentage of study carried out in Uberaba (11.8%).[15]

Pigmentary retinosis is the third cause of blindness in the present study, and corresponds to a large portion of low vision in children in other epidemiological studies.[16,17] Primary open-angle glaucoma is considered the main cause of irreversible blindness in the world,[18] and was also emphasized in this study, corresponding to approximately 11.3% of cases of blindness in the study population. We found a higher rate in studies carried out in Ireland (16%)[19] and São Paulo (20%),[20] a similar rate in a study in Campinas (11.4%),[21] and lower than in Pratânia-SP (7.1%)[22]

The students' challenges in the present study basically include locomotion with greater autonomy, as well as greater resources available in computers and Braille. Through the representation of the alphabet by the Braille system, audiobooks, computers spetially for the blind, among other technologies, social inclusion gets shape and content in order to guarantee access to information and communication. It is necessary to extend this right, such as printing the Braille code on product labels, medicines, as well as other identifications and signs in general.

According to the BPC/LOAS (Benefit of Continuous Provision of the Organic Law of Social Assistance) in force in Brazil since 1993, persons with visual impairment who cannot provide self-support, besides belonging to a family group whose income is less than ¼ of the minimum wage, are entitled to the right of financial compensation related to a current minimum wage23. In the present study, more than half of the students have this benefit. It was found that two students receive for paid work activity: a musician and a botanist.

Law No. 8.213/1991, also known as the " Brazilian Quota Law", requires companies with more than 100 employees to fill 2 to 5% of the number of vacant positios with rehabilitated persons or impaired persons.[23] The percentage of positions allocated to the beneficiaries follows a scale of proportion to the total number of employees of the company, where the presence of up to 200 employees implies 2% of positions for beneficiaries, from 201 to 500 employees 3%, from 501 to 1000 employees 4%, and above 1000 employees 5%. However, there is still a lot to be done to guarantee the rights to this public, not only the simple hiring of the employee, but also the guarantee of equality of conditions, collection, recognition and treatment, as for Normative Regulation 98, which inspects the quality of hiring.

The lack of actions aimed at the professional preparation of the impaired, as well as the lack of information of the existing courses and the fear about work accidents are obstacles to prevent the inclusion of the visually impaired into the labor market.

Finally, students agreed that there are national laws to protect and support them, but they disagreed that visual impairment prevents them from carrying out daily activities, and complained about the accessibility and locomotion and the difficulties of entering the labor market. A little more than half of the respondents agreed on the ease of access to health, and also on the feeling of social inclusion.

Conclusion

The present study showed the main causes of visual impairment, besides illustrating the challenges faced by students of Santa Luzia school in the city of Bauru, such as the difficulty in getting around and the spread of the Braille system. Governmental measures and the support of society to effectively intervene and change the social values of solidarity for the visually impaired are essential for social inclusion.

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