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ORIGINAL ARTICLE

TEACHERS' KNOWLEDGE ABOUT SIGNS/SYMPTOMS WHICH INDICATE LOW VISUAL ACUITY IN STUDENTS

CONHECIMENTO DE PROFESSORES SOBRE SINAIS/SINTOMAS INDICATIVOS DE BAIXA ACUIDADE VISUAL EM ESCOLARES

CONOCIMIENTO DEL PROFESOR ACERCA DE LOS SIGNOS/SÍNTOMAS INDICATIVO DE LA AGUDEZA VISUAL BAJA EN ESTUDIANTES

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ABSTRACT

Objective: to evaluate the teachers' knowledge about signs and symptoms of visual impairment in students. **Method:** exploratory, descriptive study with a quantitative approach, with elementary school teachers of a public school in João Pessoa/PB, Brazil. Data were collected through a questionnaire. In the analysis we used the χ^2 test and Fisher-Freeman-Halton test. The research project was approved by the Research Ethics Committee under protocol nº 56/10. **Results:** it was related that there are students with reading problems (62.5%), with other signs and symptoms of visual impairment (75%) and who have sit in chairs near the blackboard in the classroom (67.5%). **Conclusion:** the study revealed poor knowledge among teachers about the signs and symptoms of visual problems, because they could not correlate them with low visual acuity, nor they have provided guidance to school and family. **Descriptors:** Students; School Health; Visual Acuity; Refractive Errors.

RESUMO

Objetivo: avaliar o conhecimento de professores sobre sinais e sintomas indicativos de baixa acuidade visual em escolares. **Método:** estudo exploratório, descritivo, de abordagem quantitativa, com professores do ensino fundamental de uma escola pública municipal de João Pessoa/PB, Brasil. Os dados foram coletados por meio de questionário. Na análise utilizou-se teste de χ^2 e teste de Fisher-Freeman-Halton. O projeto de pesquisa foi aprovado pelo Comitê de Ética em Pesquisa sob protocolo de nº56/10. **Resultados:** evidenciaram-se estudantes com dificuldade de leitura (62,5%), apresentando outros sinais e sintomas sugestivos de baixa acuidade visual (75%) e se sentando em cadeiras próximas a lousa na sala de aula (67,5%). **Conclusão:** estudo revelou conhecimento deficiente por parte dos professores a respeito dos sinais e sintomas de problemas visuais, pois não conseguiram correlacioná-los a baixa acuidade visual, como também não proveram orientações aos escolares e familiares. **Descritores:** Estudantes; Saúde Escolar; Acuidade Visual; Erros de Refração.

RESUMEN

Objetivo: evaluar los maestros de conocimiento acerca de los signos y síntomas de la deficiencia visual en la escuela. **Método:** estudio exploratorio, descriptivo, con abordaje cuantitativo, con los maestros de la escuela primaria de una escuela pública en João Pessoa/PB, Brasil. Los datos fueron recolectados a través de un cuestionario. En el análisis se utilizó el test χ^2 y el test de Fisher-Freeman-Halton. El proyecto de investigación fue aprobado por el Comité Ético de Investigación bajo el protocolo nº 56/10. **Resultados:** se presentaron a los estudiantes con problemas de lectura (62,5%), con otros signos y síntomas de la deficiencia visual (75%) y sentados en sillas cerca de la pizarra en el aula (67,5%). **Conclusión:** el estudio reveló poco conocimiento entre los profesores acerca de los signos y síntomas de problemas visuales, porque no podían correlacionarlos con baja agudeza visual, ni han proporcionado orientación a la escuela y la familia. **Descriptores:** Estudiantes; Salud Escolar; La Agudeza Visual; Los Errores de Refracción.

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INTRODUÇION

The vision plays a crucial role in the child development, it is essential for learning and receiving sensory information through the external environment.¹ This is an essential sense, especially with the child's entry into school, when developing greater visual effort required for the teaching-learning process. It is during this period that pre-existing eye disorders may be manifested.¹⁻⁴

Visual sensations integrated with other sensory impressions are the basic element for the development of memory, deduction, judgments, feelings and other major events to the emergence of intelligence and personality. Visual development occurs early and needs anatomical and functional perfect conditions to reach its potencial.^{5,6}

The relationship between the conventional educational system and the sense of sight has been the subject of studies that have shown results as the importance of this sense in school performance. The visual impairment is one of the main causes of school dropout and repetition rates among children in Brazil. According to the Solidarity Literacy Program, difficulty in seeing corresponds to 22.9% of truancy among elementary school students of public schools.^{3,7}

Children with visual impairment have signs and symptoms which suggest this problem what can be recognized by the their behavior while conducting activities in the classroom, such as difficulty in seeing the what is written in the blackboard, lack of attention, dispersion and decreased learning ability, but also by the headache complaints, pain, redness and ocular itching.^{3,8}

Not always the students can verbalize their visual difficulties. Therefore, the teacher should be aware of possible manifestations, because daily, in the classroom, she has a unique position in relation to the observation of visual difficulties and complaints of students in different school activities.^{9,10} In this perspective we highlight the importance of teacher and the need to implement programs aimed at training these professionals, so promotional activities of eye health and prevention of visual disabilities can be performed.⁹

Signs, symptoms and behaviors expressed by the students due to refractive errors are likely to be noticed by teachers and it is emphasized that "[...] requires specific preparation of the teacher in eye health, for their effective participation in prevention programs of visual and blindness disability at school".^{9: 396}

English/Portuguese

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The nurse is an important professional in the prevention of vision problems in school-age children, since this professional has the opportunity to be in contact with children in their different stages of development.¹¹ In this sense, nurses can work in education of teachers, parents and family members, instructing them about the signs and symptoms of common eye diseases and the importance of diagnosis and immediate intervention to prevent more serious optical problems. This action would be a key strategy for personal development and health improvement, to improve school performance, the learning process, education and socialization of studentd.^{2,12}

This study is a derivative of an umbrella research project in which we evaluated the visual acuity of elementary school children in municipal schools and it aims to evaluate the knowledge of teachers about signs and symptoms which are indicative of vision problems in students with low visual acuity.

METHODOLOGY

Article drawn from the monograph "Visual acuity and its implications for school performance", which was presented as a requirement for graduation in nursing at the Health Sciences Center, Universidade Federal da Paraíba/UFPB, João Pessoa, PB, Brazil, in 2010.

This descriptive, exploratory and quantitative study was developed in a public school in Joao Pessoa (PB). The sample consisted of six teachers who were sought to answer about the perception of signs and symptoms of vision problems in 40 students enrolled in the 4th and 5th year of elementary school. These students had been diagnosed with low visual acuity after the test with the Snellen chart. In this study, low visual acuity was subdivided into severe visual acuity between 0.1 and 0.3 and with moderate visual acuity between 0.4 and 0.7.

The data was collected from March to June in 2010, through the completion of questionnaire answered by teachers, which addressed the following topics: while reading the child skips words or lines; places the book/notebook very close to the face; sits next to the blackboard; nods and / or covering one eye to see the blackboard; has difficulty in reading; complains of headache; pain; redness or itchy eyes. Data were analyzed using the χ^2 test and Fisher-Freeman-Halton test and presented in tables.

The study was conducted in accordance with the requirements of Resolution 196/96 of the National Council of Health¹³, in which

there are standards and regulatory guidelines for research involving humans. The research project was approved by the Research Ethics Committee of Hospital Universitário Lauro Wanderley-CEP/HULW under protocol no. 56/10. We guaranteed anonymity of the study subjects, as well as the consent of the school directors, and students' parents, and teachers for the purposes of research.

The sample was composed of six teachers, aged between 29-43 years-old, mean of 35.8 years; exercising teaching function on average 12 years ago. Most teachers (83.3%) reported that they had never received any training related to eye health of schoolchildren.

Table 1 records the relationship of visual impairment to where the students sat in the classroom.

RESULTS

Table 1. List of visual impairment to where the students sat in the classroom.

Where does the student use to sit in the classroom?		Low visual impairment		Total
		Severe	Moderate	
Front	n	8	19	27
	%	29,63%	70,37%	
Middle/Back	N	5	8	13
	%	38,46%	61,54%	

It was mentioned that 27 students (67.5%) use to sit in the front seats, including eight of the 13 children with visual acuity classified as severe, and 13 (32.5%) use to sit in the farthest seats to the board.

As for the teachers' knowledge about the difficulty of reading for the students, the respondents stated that 25 students (62.5%)

had some degree of difficulty in reading, nine students was observed with serious low visual acuity, and 16 with moderate low visual acuity, and 15 students (37.5%) do not have any difficulty in reading, as shown in Table 2.

Table 2. Teachers' knowledge and the difficulty of reading in students with visual impairment.

Does the child have any difficulty in reading?		Low visual impairment		Total
		Severe	Moderate	
Yes	N	9	16	25
	%	36%	64%	
No	N	4	11	15
	%	26,67%	73,33%	

Teacher knowledge about other signs and symptoms of vision problems, such as: tilting their head and/or covering one eye to see what is written on the blackboard, having difficulty in reading, complaining of headache, pain, redness or itchy eyes, as

shown in Table 3, where 30 students (75%) were rated by respondents as having these signs and symptoms, noting that only two students with severe low visual acuity showed no signs or symptoms.

Table 3. Teachers' knowledge and other signs and symptoms of vision problems in students with visual impairment.

Does the child present other signs and symptoms of low visual impairment?		Low visual impairment		Total
		Severe	Moderate	
Yes	n	11	19	30
	%	36,67%	63,33%	
No	n	2	8	10
	%	20%	80%	

DISCUSSION

The results have indicated that the respondents did not have enough knowledge about eye health in school-age children, nor they have provided guidance to students and their families, even being revealed an average of 12 years of professional experience with students. It can be assumed that this time of teaching could have contributed to the teacher observe changes in appearance and

behavior of children in the classroom and suspected of visual difficulties faced by them.¹⁴ Still, the teachers were able to identify the presence of some signs and symptoms of eye problems in their students, but not correlated with visual pathology.

For the teacher has the ability to identify the signs and symptoms of visual problems requires specific preparation through professional training programs, however only one of the respondents claimed to have

received relevant training to promote eye health. For this, since 2007 in Brazil there is the Health Program in Schools (PSE) which aims at continuing education of these professionals regarding prevention, promotion and health care for children and adolescents. The proposal of the PSE indicates that teachers trained by a health professional can identify problem situations, such as visual difficulties, and make the referral of students to health.^{15,16}

In analyzing the results, respondents noted that most children with visual impairment would sit in front chairs in the classroom. This demonstrates the difficulty of students to observe what the teacher have written on the board and these students try to overcome vision problems having to sit in the chairs closer to the blackboard. Study pointed out that childhood visual impairment is commonly caused by refractive errors, and may be associated with visual impairment for distance.³

The teachers stated that 62.5% of students with visual impairment had some degree of difficulty in reading in the classroom. This difficulty is explained due to the refractive abnormalities, for example myopia, when there is imbalance between the length of the eye and the focal length of the dioptric apparatus of the eye, forming the blurred or unclear picture because the image plane is formed before the retina. Thus the image is correctly formed with very close located objects, seeing the distance in a blurred way.¹⁷ A study according to the survey conducted with school-children showed association between visual impairment with trouble in seeing the board and the ocular pain.²

In a self-referential study with 161 students of the third year of primary education in public schools of Juiz de Fora, Minas Gerais, 51.6% said they did not see well. The changes were perceived: double vision, blurred, and seeing badly away or close.¹⁸ The refractive errors interfere with good academic performance. Study conducted with 270 children who may have eye problems referred by teachers for eye examination showed that 80.5% of them could have their school shortcomings explained by low vision and/or addiction refractive.¹⁹

Regarding the expression of other signs and symptoms of vision problems, it was referred by teachers that most children (75%) have these characteristics. A similar value to that was found in a study that evaluated 1,581 students in the first grade of primary education in state schools of Passo Fundo.

From the total sample, 172 (10.88%) had visual impairment or symptom of visual problems.² Another study showed that 40.9% of students have difficulty in reading and writing, 45.4% with blurry vision and 40,9% with disinterest in activities that require visual effort. It pointed out that the repetitive stress caused by hyperopia can cause headache and conjunctival flushing.⁹

It is known that few children are able to report their problems, interventions that seek to evaluate the visual problems of this age group are very important. At home, most of the time, children do not realize their vision problems because they do not perform activities that require greater visual effort. Only from the school entry is that they will most often require their visual skills and compare them with those colleagues'. Even a careful observer may find it difficult to recognize a student with visual change; often visual impairment is mistaken for shyness or disinterest.^{1,2}

The Ministry of Health, through the Health Promotion Letters, states that "[...] it is essential to enable people to learn throughout life, preparing them for the various stages of life [...]", where the individual duly informed will be able to choose among many stock options, one that will not bring harm or help to obtain an optimal health condition.^{20: 24} From this perspective, nursing with the school as acting scenario should encourage new educational forms, promoting actions that will pass in a beneficial quality of life for students.

Nurses should act as a trainer to increase teachers' knowledge and understanding about the identification of students with vision problems, including programs to assess the visual accuracy.¹⁵ Creating health education strategies provides awareness of visual problems among schoolchildren, control visual impairment in childhood, and promotes healthy development.

CONCLUSION

The study showed teachers who have poor knowledge about the issue, since even when identifying the signs and symptoms indicative of visual impairment in school, they could not correlate them to vision problems, nor they have provided guidance to students and family. It was mentioned that 62.5% of students assessed with visual impairment had difficulty in reading; 75% have other signs and symptoms of visual impairment; and 67.5% use to sit near the blackboard.

This study confirms the importance of the teacher in observing visual changes in

students as well as the need to implement educational programs for teachers' visual health to establish conduct directed at early detection of visual problems, prevention of visual impairment and blindness in schools.

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