Multicentric Medical Student Profile and Their Perspectives About Ophthalmology Education

Perfil Multicêntrico do Acadêmico de Medicina e suas Perspectivas sobre o Ensino da Oftalmologia

Mariana de Almeida Ferreira1 https://orcid.org/0000-0003-3291-5021
Gustavo Rosa Gameiro2 https://orcid.org/0000-0002-0400-8013
Frederico de Miranda Cordeiro3 https://orcid.org/0000-0002-2779-3798
Thiago Viana Santos4 https://orcid.org/0000-0002-8878-6719
Ana Aurea Vilas Boas Pombo Hilarião5 https://orcid.org/0000-0002-8878-1061
Guilherme Macedo Souza6 https://orcid.org/0000-0002-3045-1297
João Jorge Nassaralla Neto6 https://orcid.org/0000-0002-8274-5051
Pedro Carlos Carricondo2 https://orcid.org/0000-0002-2916-205X
Armando José Freire Portes1 https://orcid.org/0000-0001-5530-1837
André Luís Freire Portes1 https://orcid.org/0000-0002-5440-5092

ABSTRACT

Purpose: To analyze quantitative and qualitative data about the profile of the Medical student who attended the Ophthalmology discipline, correlating aspects of the basic knowledge and the student perspectives on his training. Methods: An observational cross-sectional survey study was performed in 242 students over 12 brazilian states. The project was done by Associação Brasileira de Ligas Acadêmicas de Oftalmologia (ABLAO) with the participation of the associated Academic Leagues of Ophthalmology. The sample was composed by random undergraduate medical students, who have already had Ophthalmology as subject. An individual questionnaire was used with questions about the student profile, basic knowledge of the speciality and perspectives about their teaching. Descriptive statistical analysis was performed with the Statistical Package for Social Sciences SPSS program, measuring mean, standard deviation and 95% confidence intervals. Results: The mean age was 23.96 (3.36 ± ) years and female students were predominant in 63.6%. 42% of the states from all regions of Brazil participated. 71.9% of the students were from private educational institutions and were in the 8th period (±1,97). 43% were a member of the Academic League of Ophthalmology in the origin institution. Basic knowledge questions had a variation of the correct answers. Despite of only 31% of the students feel safe to attend or refer patients for evaluation of the specialist, 95.9% of the students answered that they consider ophthalmology important in their training as general practitioner. Conclusion: We defined in this research a profile for the undergraduate student who attended the Ophthalmology Department. We verify how the student considers eye health important and how they search for more knowledge in his preparation in general. We also found that the Medical Academic Leagues make up the main extracurricular support for their learning. It is important to discuss and implement different teaching strategies to improve their training.

Keywords: Tutorship; Education; Graduation; Medicine; Ophthalmology; Leagues

1 Universidade Estácio de Sá, Rio de Janeiro, RJ, Brazil.
2 Universidade São Paulo - SP, Brazil.
3 Faculdade de Ciências Médicas de Minas Gerais, Belo Horizonte, MG, Brazil.
4 Faculdade de Medicina de Campos, Rio de Janeiro, RJ, Brazil.
5 Escola Bahiana de Medicina e Saúde Pública, Salvador, BA, Brazil.
6 Faculdade de Medicina, Universidade Federal da Bahia, Salvador, BA, Brazil.
7 Universidade Federal de Goiás, Goiânia, GO, Brazil.

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INTRODUCTION

According to information from the World Health Organization (WHO), blindness is considered one of the most costly of all disabilities. Ophthalmological appointments represent 9% of appointments, and 5% of general medical emergencies.\(^{(1,2)}\)

It is essential that the teaching of ophthalmology in graduation courses enables the student and consequently the future doctor to diagnose and treat eye diseases in primary care.\(^{(3)}\)

Some studies reveal that the initial treatment of ophthalmic complaints is usually made by general practitioners, many of them having just graduated. These studies aimed at analyzing the degree of basic knowledge in ophthalmology of general practitioners and medicine students, showing a learning deficit during medical education.\(^{(4,6)}\)

Despite the existence of national guidelines for the medical education curriculum, there is a difference between the various institutions. Ophthalmology and several other medical sciences are inserted in this context, since well-organized and structured courses can be offered throughout the national territory, as well as unsatisfactory in academic teaching.\(^{(7,9)}\)

The national literature has limited information on the characteristics of ophthalmic teaching during the doctor’s graduation. There are works evaluating the quality of education, but they are restricted to a few states and educational institutions. It is known that there are flaws in training, and these imply unprepared professionals.\(^{(4)}\)

The ABLAO (Associação Brasileira de Ligas Acadêmicas de Oftalmologia) was created in July 2013 to promote the academic teaching and interest in working with the specialty, and perspectives on their learning. Students were asked to voluntarily answer the questionnaire (Figure 1) at no financial cost by signing the informed consent form (ICF). The project was previously submitted and approved by the Research Ethics Committee of the School of Medicine at Universidade Estácio de Sá.

Students under 18 years of age who did not answer all questions or refused to sign the ICF were excluded from the study. The study variables were both qualitative and quantitative, and the main ones to be analyzed included the location of the research, the period the student is attending, participation in the Ophthalmology academic league, and interest in working with the specialty. We also asked basic questions about some common eye diseases, and whether learning provides confidence for working as a doctor. The statistical analysis was performed using the Statistical Package for Social Sciences SPSS program in a descriptive way, with mean, standard deviation, and 95% confidence interval.

RESULTS

Information was obtained from 242 students from 12 states of all regions of Brazil. Regarding the student profile (Table 1), the average age was 23 (3.36) years old, and females were predominant in 63.6%. 42% of the Brazilian States were present in this survey, especially the states of Ceará, Minas Gerais and Rio Grande do Sul, which accounted for 54.08% of the total. The vast majority of 71.9% students who answered the survey were from Private Teaching Institution, and were...
Dear student,

This questionnaire is part of a multicenter research on the teaching of Ophthalmology in medicine schools in Brazil from the perspective of students. Your answers are very important for the growth and development of this work. You will not be identified at any time. We thank you in advance for your cooperation, and ask sincerely to the answers.

1. STUDENT PROFILE

Name (initials) ___________________ Age _______ Gender ( ) F ( ) M
City of the educational institution? ___________________________ State: ___________________________
Current period: _______________. The educational institution is ( ) Public ( ) Private
Do you want to specialize in ophthalmology? ( ) Yes ( ) No
If yes, what was the biggest influence on this decision?
( ) I have ophthalmologists in the family.
( ) It is a specialty with good financial earnings.
( ) Because it has a good quality of life.
( ) Because it is a very complete specialty (surgery, clinical practice, and complementary exams)
( ) Because I like it.
Were you or are you part of any ophthalmology league? ( ) Yes ( ) No

2. BASIC KNOWLEDGE

1- What is the anopsia present when light rays focus on two distinct points of the retina?
( ) Mynopia
( ) Hypertropia
( ) Hypotropia
( ) Astigmatism
Did you feel comfortable and safe answering the question above?
( ) 100% ( ) 80% ( ) 60% ( ) 40% ( ) 20% ( ) 0%

2- Regarding the figure below, identify the macula (MA) and the optical disc (OD).
Did you feel comfortable and safe answering this question?
( ) 100% ( ) 80% ( ) 60% ( ) 40% ( ) 20% ( ) 0%

3- Glaucoma is a disease characterized by increased intracocular pressure. ( ) Correct ( ) Incorrect
Did you feel comfortable and safe answering the question above?
( ) 100% ( ) 80% ( ) 60% ( ) 40% ( ) 20% ( ) 0%

4- A teenager was admitted to the emergency room of his hometown hospital with an acute condition of redness in the right eye, a feeling of sand, and a purulent secretion. He reported that upon awakening his eyelids were sticking together, and it was difficult to open them. Check the correct option for the case:
( ) It is a viral conjunctivitis whose spontaneous resolution usually occurs within 2-3 weeks.
( ) It is a bacterial conjunctivitis caused by a conjunctival reaction to the environmental allergens.
( ) It is a bacterial conjunctivitis. Although 60% of cases resolve within 5 days without treatment, topical antibiotics may be used to accelerate recovery.
Did you feel comfortable and safe answering the question above?
( ) 100% ( ) 80% ( ) 60% ( ) 40% ( ) 20% ( ) 0%

5- Which of the options below does not present red eye:
( ) Anterior uveitis ( ) Conjunctivitis ( ) Retinal detachment ( ) Acute Glaucoma
Did you feel comfortable and safe answering the question above?
( ) 100% ( ) 80% ( ) 60% ( ) 40% ( ) 20% ( ) 0%

3. PERSPECTIVES OF MEDICAL EDUCATION

When is the ophthalmology course taught at your educational institution? ________________
What is the workload of this subject in your educational institution? (Describe the number of days per week, long hours, workload)
Do you consider the teaching of ophthalmology important for the training of the general practitioner? ( ) YES ( ) NO
Do your university have a medical internship in ophthalmology? ( ) Yes, mandatory ( ) Yes, optional ( ) No
Does your school have other complementary ophthalmology activities? (You may check more than one option)
( ) Monitoring ( ) Academic League ( ) Externship Course ( ) Undergraduate research ( ) Nothing.

About the affirmations in the first column of the table, tick the corresponding one in the table:

A) I was taught and learned the following subjects

| Subject | 100-85% | 80-65% | 60-40% | 40-20% | <20%
|---------|---------|--------|--------|--------|------
| Ocular anatomy/physiology | | | | | |
| Eye surgery | | | | | |
| Acute retinal loss | | | | | |
| Chronic ocular loss | | | | | |
| Real Eye Syndromes | | | | | |
| Diabetic Retinopathy | | | | | |
| Hypertensive Retinopathy | | | | | |
| Age-Related Macular Degeneration | | | | | |
| Keratitis | | | | | |

B) According to the question above, do you consider yourself prepared about how and when to refer the patient to the ophthalmologist?
( ) Yes, I can say I know what I can guide and what I should refer and the right way
( ) Yes, but I will refer practically all eye disorders
( ) I’m not sure what to do, but when in doubt I refer
( ) I’m not sure what to do, and I will not refer anymore

Figure 1: Questionnaire applied to research involving information on the student profile, basic theoretical knowledge, and perspectives of medical education.
attending the 8th semester (1.97). Forty-three percent (43\%) of students who participated in the survey were part of some Ophthalmology Academic League, but only 22.3\% of the total students in the study said they intended to pursue an ophthalmologist career at that time.

Regarding basic knowledge (Table 2), 83\% of students got right what astigmatism is, 80\% bacterial conjunctivitis, and 68.6\% the question about red eye. However, 42.9\% had difficulty identifying the optic disc and/or macula, and the rate of correct answer for the glaucoma question was 40.8\%. The students’ maximum confidence in answering the questions asked was only 53.3\%, while the highest percentage of lower confidence was 9.9\%.

The third part of the questionnaire included questions about the perspectives of Ophthalmology teaching from student opinion (Table 3): 48.3\% of the institutions teach the discipline of Ophthalmology in the 7th semester. Extracurricular options related to the teaching and practice of Ophthalmology were also researched, and it was found that 43.4\% of students answered that their Medicine Course offered elective internship in Ophthalmology, 93\% League of Ophthalmology, 16.9\% Monitoring and 24.4\% Undergraduate research.

At the end of the analysis, 95.9\% of students answered that they consider Ophthalmology important in their training as general practitioners. However, only 31\% feel safe to attend and/or refer patients for evaluation of the specialist with their academic training.

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### Table 1
Student profile

<table>
<thead>
<tr>
<th>Age</th>
<th>23 (± 3.36)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>63.6% feminino</td>
</tr>
<tr>
<td>Educational institution</td>
<td>71.9% privada</td>
</tr>
<tr>
<td>Semester you are attending</td>
<td>8th (± 1.97) semester</td>
</tr>
<tr>
<td>Participates in ophthalmology academic league</td>
<td>43%</td>
</tr>
<tr>
<td>Intends to study Ophthalmology</td>
<td>22.3%</td>
</tr>
<tr>
<td>Influence on the choice of specialty</td>
<td>62.8% because it involves surgery, clinic and complementary exams</td>
</tr>
</tbody>
</table>

### Table 2
Basic principles

<table>
<thead>
<tr>
<th>Themes</th>
<th>Percentage of Correct Answers%</th>
<th>100% Certain to answer %</th>
<th>No certainty%</th>
</tr>
</thead>
<tbody>
<tr>
<td>REFRACTION</td>
<td>83.1</td>
<td>35.1</td>
<td>9.9</td>
</tr>
<tr>
<td>GLAUCOMA</td>
<td>40.9</td>
<td>53.3</td>
<td>1.7</td>
</tr>
<tr>
<td>RETINA</td>
<td>57.3</td>
<td>37.6</td>
<td>9.9</td>
</tr>
<tr>
<td>EXTERNAL DISEASES</td>
<td>80.6</td>
<td>29.8</td>
<td>4.5</td>
</tr>
<tr>
<td>RED EYE</td>
<td>68.6</td>
<td>26.4</td>
<td>9.5</td>
</tr>
</tbody>
</table>

### Table 3
Perspective of ophthalmology teaching

| Semester of the Ophthalmology Discipline | 7º (± 1.08) semester |
| Elective Internship                     | 43.4               |
| Undergraduate Research                  | 24.4               |
| Monitoring                              | 16.9               |
| Academic League                         | 93                 |
| Importance in General Practitioner Training | 95.9             |
| Safety to Guide and Refer the Patient   | 31                 |

Results expressed in percentages

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**DISCUSSION**

The poor training of the general practitioner in ophthalmic knowledge is a recurrent situation described in the literature. (5-7) It is worrying when in previous research it is observed that the undergraduate students’ ophthalmic knowledge is insufficient.(7) Some articles showed that 70\% of students did not know the basic concepts about optical correction, and 88\% about ocular foreign body,(6,7) Following the same line of questions, we observed that approximately half of the students had difficulty identifying both the macula and the optic disc, and could not correctly describe glaucoma. The lack of content in their learning reflects the uncertainty of approximately 90\% of students and newly-graduated doctors in their care.(4,5,10) In our survey, only 31\% feel confident about treating and/or referring patients to specialist evaluation with their academic background. Medical education and the search for ways to improve it shall be debated regularly, because the combination of uncertainty and low scientific knowledge can seriously damage the patients’ health.
In the present scientific work, we have gathered one of the largest and most recent statistics study on the subject. There were 242 questionnaires in 12 Brazilian states. Such amplitude was only possible due to the direct involvement of ABLAO. The Academic Leagues of Medicine, in addition to participating in the academic complementary process of student training with courses and theoretical-practical activities, help in health prevention projects, also considering at that time the scientific role, preparing and carrying out under the coordination of this article. The participation of medicine students from all regions of Brazil was only achieved in this project through ABLAO, which is also established as an important tool for academic digital communication.

The students’ profile regarding age and gender in this research is similar to the others seen in the literature, and we found that the discipline of Ophthalmology is generally taught in the 7th semester of the curriculum. In addition to enabling the diagnosis and treatment of some eye diseases in a first appointment, the educational process in this moment of training of the doctor consists in making the appropriate referral to the specialist. The student should also be given a broader view of the patient, an integration with other disciplines of the medical education program, as the eye symptom is commonly associated with other systemic diseases, and the student’s preparation for diagnosis and association is required, dealing with the patient in its entirety, and not isolated within a specialty. This is a very important context as it is impossible to separate eye health care from medical education.

Another relevant point that draws attention in this research is the fact that 43% of students are part of the institution’s ophthalmology league, but do not plan at this time to have a career as a specialist. We may question that the desire to participate in academic leagues goes beyond the student’s interest in becoming a specialist, but rather as a way to learn more about the subject by complementing their extracurricular training due to considering the discipline important. This can be confirmed by our study, where 95.9% of students responded that they considered ophthalmology important in their training as general practitioners.

Other extracurricular learning options such as monitoring, undergraduate research, and elective internship focused on ophthalmology are also found, but to a lesser extent. However, they do not reduce their importance in learning, as they contribute independently and within their specific objectives in complementing the student’s education.

CONCLUSION

In the present research, we defined a profile for the undergraduate student who attended the Discipline of Ophthalmology. We see how important they consider eye health, and that there is a demand for more knowledge in their training as general practitioners. We also found that the Medicine Academic Leagues comprise the main extracurricular support for their learning. We consider it important that different teaching strategies are discussed, elaborated and implemented to improve their education.

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**Corresponding author:**
André Luís Freire Portes
ZIP Code: 22020-002.
E-mail: allp80@hotmail.com