

Ophthalmology Training in Greece as Perceived by Resident Ophthalmologists in the Times of Crisis: A National, Questionnaire-based Survey

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Abstract

Purpose: To assess the level of perceived satisfaction with the current level of ophthalmology training in Greece from the perspective of residents and to identify deficiencies in the training curriculum.

Methods: This is a prospective, cross-sectional questionnaire-based study. An online, semi-structured questionnaire was designed to evaluate ophthalmology residents' extent of satisfaction with the quality of their postgraduate medical training. The survey was divided in two parts: demographics and evaluation of training. Resident ophthalmologists in all teaching hospitals in Greece were contacted and encouraged to complete it.

Results: A response rate of 53.8% was achieved. Two out of three participants stated their disappointment with the quality of training they received and deemed the four-year residency training program as insufficient. Surgical training was also viewed as unsatisfactory by the majority of the respondents. An interest in subspecialty training, as well as a significant participation in research activities, was noted.

Conclusions: Both training and overall satisfaction with working conditions must be improved to preserve the appeal of ophthalmology for young academics. A new, structured curriculum, reduction of unnecessary bureaucracy, and improved surgical training rank among the most essential priorities in order to improve postgraduate ophthalmology training.

Keywords: Ophthalmology trainees, Postgraduate training, Questionnaire

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INTRODUCTION

Since 2009, Greece has been facing an unprecedented fiscal crisis that has led the government to undertake strict austerity measures including public sector cuts. The ongoing crisis has heavily affected the Greek National Health System (GNHS).¹ Weaknesses in organization and management,² understaffing,³ and cuts in health expenditure, which have often led to lack of surgical equipment,⁴ have affected the quality of health that is currently being offered in GNHS hospitals. As postgraduate

medical training in Greece is exclusively conducted in public teaching hospitals, it is important to determine to what extent its quality has also been influenced by the crisis.

Ophthalmology residency training in Greece lasts four years and is conducted both in university and non-university departments. The Greek Ministry of Health determines the number of residency training posts in each department

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according to its total workload and activity. The lack of a common, national, structured training program leads to a great diversity as to the quality of training that is currently offered in Greek teaching hospitals. Residents' theoretical knowledge and clinical skills are assessed after the completion of their training with written and oral exams that are held six times a year and lead to the acquisition of the specialist title. However, quality of training is not being assessed from the residents' perspective.

Questionnaire-based surveys have been conducted in a number of countries to assess ophthalmology residents' perceptions of the quality of training they receive, producing interesting results.⁵⁻⁹ Clinical knowledge, surgical competence, and development of the doctor-patient relationship were among the main fields that were assessed. To the best of our knowledge, it is the first time that the quality of ophthalmology specialty training in Greece is being assessed by residents with the use of anonymous questionnaires.

METHODS

A semi-structured questionnaire consisting of 19 questions was designed to assess resident ophthalmologists' degree of satisfaction with current status of ophthalmology training in Greece. The study was conducted in accordance with the tenets of the Declaration of Helsinki and was approved by the local Institutional Review Board and Ethics Committee. The questionnaire, which was divided into two parts, demographics and evaluation of training, was available online and could be completed anonymously. Only one submission per respondent was allowed. No incentives were offered to improve response rate. Questions were taken or adapted from existing validated questionnaires.

The survey was available in the Greek and English languages after double and back translation. In particular, 2 separate forward translations by translators who are native speakers of the target language (English) were performed and, thereafter, 2 separate back translations by translators who are native speakers of the source language (Greek). The translation produced a questionnaire which was not only comparable in terms of language (linguistic equivalence) but conceptually comparable (conceptual equivalence) as well. The English version of the applied questionnaire is displayed in Table 1.

Resident ophthalmologists in all teaching hospitals in Greece were invited to participate in the survey. After contacting the competent institutions and careful review of the appropriate lists, 290 residents in 58 ophthalmology departments of 54 hospitals in Greece were informed through telephone and e-mail as to the survey and were encouraged to access the related site and to complete the questionnaire. Related contact information was provided by the Greek Ministry of Health and ophthalmological societies. The data were collected between February 10, 2014, and April 7, 2014.

Responses to the survey were initially coded in a Microsoft Excel spreadsheet (Microsoft Office 2007, Microsoft Corp.) for

analysis. Frequency data were tabulated and used for descriptive statistics. Statistical analysis was performed with Medcalc statistical software (version 9.3.0.0, Medcalc, Mariakerke, Belgium) and SPSS (v. 17.0 for Windows, SPSS INC, Chicago, IL). The data are given as mean \pm standard deviation. Normality was checked using the Kolmogorov-Smirnov test. Due to the fact that data were not in all cases normally distributed, both parametric and non-parametric methods were used. All *P* values were 2-sided and were considered statistically significant when less than 0.05. Chi-square test was used.

RESULTS

One hundred fifty-six questionnaires were anonymously completed giving a response rate of 53.8% (156/290). Eighty-five of the participants (54.5%) were men, and 71 (45.5%) were women. Mean age of the responders was 32.8 ± 4.6 years. Further demographic data are presented in Table 2 divided into two groups: whether respondents were occupied in university and non-university ophthalmology departments.

First year trainees responded at a rate of 51.5% (33/64), second year trainees responded at a rate of 52% (40/77), their third year colleagues responded at a rate of 53.3% (40/75), and final year trainees responded at a rate of 58.1% (43/75).

Only 31.4% of the participants (49/156) perceived their residency training as satisfactory while 55.8% of the participants (87/156) expressed their overall dissatisfaction with their training. Residents in university departments demonstrated a significantly higher level of satisfaction (60.8%, 31/51) in comparison with residents in non-university departments (23.8%, 25/105) ($P < 0,001$). 60.6% (20/33) of year 1 residents expressed their dissatisfaction, and similar results were observed in the other groups (year 2: 52.5%, 21/40, year 3: 52.5%, 21/40, year 4: 58.1%, 25/43).

Sixty two and one-fifth percent of the respondents (97/156) deemed the current four year ophthalmology residency curriculum totally or rather insufficient, without any statistically significant difference between residents in university and non-university departments ($P = 0.67$). Forty-one percent of the participants (64/156) stated that their department lacked a structured residency training program, and almost two thirds of them (66%, 103/156) identified books and scientific journals as the main sources of their clinical knowledge. Excessive bureaucracy was found to possibly contribute to the overall dissatisfaction of the participants, as four out of five (80.1%, 125/156) stated their belief that filling in unnecessary paperwork accounted for a significant part of their working hours. It is also noteworthy that two out of five resident ophthalmologists (40.4%, 63/156) did not believe that by the end of their four-year residency training program they would have acquired the necessary skills to start their own practice.

Surgical training was also viewed as unsatisfactory by two out of three of the respondents (66.7%, 103/156). Residents

Table 1: Questionnaire as it was applied**Part A: Demographics**

Please tick the appropriate box or complete the answer. There is no right or wrong answer. Please choose the answer which best represents your opinion

1. Are you
 - a. Male?
 - b. Female?
2. What is your current age?
3. What year of your training are you currently in?
4. Do you work in a
 - a. University department?
 - b. Non-University department?

Part B: Assessment of training

Please tick the appropriate box or complete the answer. There is no right or wrong answer. Please choose the answer which best represents your opinion

5. Are you satisfied with the quality of postgraduate medical training that you receive?
 - a. Yes
 - b. No
6. Do you consider the current 4 years duration of residency training as sufficient?
 - a. Yes
 - b. No
7. What is the main source of your clinical knowledge?
 - a. Books
 - b. Journals
 - c. Residency curriculum
 - d. Congresses and meetings
8. Do you believe that you are burdened with excessive bureaucratic work?
 - a. Yes
 - b. No
9. Do you believe that you will be competent to begin your own practice as soon as you complete the residency training program?
 - a. Yes
 - b. No
10. Are you satisfied with the quality of surgical training that you receive?
 - a. Yes
 - b. No
11. How many phacoemulsification procedures have you performed as first surgeon (both under supervision or unsupervised) during residency?
12. In your opinion, what is the main factor that does not allow residents to perform a greater number of operations during their training?
 - a. Lack of experienced trainers
 - b. Lack of equipment
 - c. Limited time of training
 - d. Other (please state)
13. Do you believe that you will be competent to perform unassisted cataract surgery as soon as you complete the residency training program?
 - a. Yes
 - b. No
14. Do you consider training in an ophthalmology subspecialty as a necessity?
 - a. Yes
 - b. No
15. Which ophthalmology subspecialty would you be interested in training in after you complete the residency training program?
 - a. Cornea and external disease
 - b. Glaucoma
 - c. Neuro-ophthalmology
 - d. Ophthalmic plastic surgery
 - e. Pediatric ophthalmology
 - f. Vitreoretinal diseases
 - g. Cataract and anterior segment
 - h. Medical retina
16. Would you be interested in pursuing a subspecialty training abroad?
 - a. Yes
 - b. No

participating in this survey had performed a mean of 23.2 ± 14.3 phacoemulsification procedures, and the majority (51.9%, 81/156) had not completed any cataract removal operations at all. The number of completed phacoemulsification cases per resident was found to correlate statistically significantly with their year of training ($r = 0.79, P < 0.0001$), whilst residents in their last year of training were recorded to have performed a mean of 45.8 ± 17.2 phacoemulsification surgeries. Even fourth-year residents, who were approaching the end of their training, had performed a relatively low number of surgeries as a primary surgeon (mean: 45.8). Participants attributed the low number of surgeries mostly to the lack of experienced trainers (32.7%, 51/156) and lack of necessary equipment (21.8%, 34/156) other than the already mentioned limited training time (30.8%, 48/156). Consequently, the proportion of residents who are rather or very confident they would have acquired the necessary surgical skills in order to conduct unassisted cataract surgery by the end of their specialty training is relatively low (16.7%, 26/156). More details on residents' perceived surgical competency are given in Table 3.

The final part of the questionnaire was meant to record participants' plans for the future as well as extra-curriculum research activities. Almost all of the respondents (96.8%, 151/156) considered post-residency training in an ophthalmology subspecialty a necessity. Cataract (32.7%, 51/156) and cornea (17.3%, 27/156) ranked among the most popular subspecialties, followed by medical retina, vitreoretinal diseases, glaucoma, neuro-ophthalmology, ophthalmic plastic surgery, and pediatric ophthalmology.

More than three quarters of the participants (75.6%, 118/156) stated that they would be eager to pursue subspecialty training abroad.

An interest in research was demonstrated by a substantial proportion of the respondents. Nearly a quarter (25.6%, 40/156) had participated in at least one multicenter study, and more than half (52.6%, 82/156) had participated in the preparation of at least one paper that had been presented during an international congress. More than a third of respondents (34.6%, 54/156) had contributed to the preparation of at least one paper that had been published in a peer-reviewed journal.

DISCUSSION

Despite the economic crisis that has engulfed Greece and the growing strain on its health-care system, young Greek ophthalmologists perform well on their national exams and display a genuine interest in pursuing further specialization after completing their residency training program. Moreover, they demonstrate an increasing tendency to participate in the European Board of Ophthalmology (EBO) examination, which is held annually, and they contribute greatly to its soaring popularity.¹⁰ However, this study identifies a number of perceived deficiencies in the quality of training they receive during the four years of their residency.

Ophthalmology trainees in Greece tend to be significantly older than their colleagues in other countries.⁶ This difference may reasonably be attributed to the high demand for the relatively few ophthalmology training posts, which leads to

Table 2: Main demographic data for residents in university and non-university ophthalmology departments and their respective P-value (Student's t-test, Fisher's exact test)

	University departments	Nonuniversity departments	P	Total
Residents occupied	94	196		290
Respondents (rate %)	51/94 (54.3%)	105/196 (53.6%)	0.98	156/290 (53.8%)
Gender	22 female/29 male	49 female/56 male	0.73	71 female/85 male
Age (years)	33.4±3.9	32.5±4.7	0.24	32.8±4.6
Years in training	2.8±0.7	2.6±1.2	0.27	2.7±1.1

Table 3: Percentages of responses (and respective absolute numbers in brackets) on perceived surgical competency for residents in university and non-university ophthalmology departments

	University departments	Non-University departments	P
Satisfaction with the quality of surgical training			
Not satisfied	51 (26/51)	73.3 (77/105)	0.21
Satisfied	49 (25/51)	26.7 (28/105)	0.07
Competence to perform unassisted cataract surgery after completion of residency training program			
Not competent	68.6 (35/51)	90.5 (195/105)	0.3
Competent	31.4 (16/51)	9.5 (10/105)	0.007
Factors contributing to fewer operations during training			
Lack of experienced trainers	25.5 (13/51)	36.2 (38/105)	0.39
Lack of adequate equipment	15.7 (8/51)	24.8 (26/105)	0.41
Limited time of training	33.3 (17/51)	29.5 (31/105)	0.73
Others	25.5 (13/51)	9.5 (10/105)	0.03

long waiting lists for entry in the residency program, as there is currently no other method of selection (interview, national examinations). An ongoing discussion regarding the possible implementation of a new objective selection system has yet to produce any results.

Duration and structure of the training program rank among the main issues that need to be addressed, according to participants. The length of the residency program is deemed as insufficient by most Greek residents. Extensive bureaucracy, which is identified as one of the causes of the Greek economic crisis, also reduces available time for training, as trainees are not properly supported by administrative clerks and often need to devote a significant part of their time and energy to non-clinical tasks, which could have been undertaken by other members of staff, if staffing was adequate. It is, therefore, reasonable to expect that a longer program might provide adequate training opportunities in areas that are currently viewed as deficient. It should be noted that in a number of countries with excellent eye health care services postgraduate training lasts a minimum of five years.¹¹ Implementation of a new, uniform, national competency-based curriculum may also improve quality of training, as great inequalities as recorded as to the content of training residents receive in different types of hospitals. University ophthalmology departments tend to allow exposure to a wider range of ophthalmology subspecialties, which may relate to the recorded difference in levels of satisfaction between residents of university and non-university departments.

Surgical training lies on the epicenter of residents' criticism. Acquisition of a surgical skill set is fundamental to every ophthalmology training program, and it is therefore safe to assume that this perceived weakness contributes greatly to residents' overall dissatisfaction. Surgical volumes, according to participants' recordings, are inadequate, remaining far from the minimum requirement of 86 cataract surgeries as it was established by the ophthalmology Residency Review Commission (RRC) and the Accreditation Council for Graduate Medical Education (ACGME),¹² even for residents approaching the completion of their training. Although residents that work in university departments maintain a relatively higher rate of satisfaction, the need for changes intended to address this weakness is clearly underlined. Greek residents do not, as a rule, receive surgical training during the primary stages of their training, which drastically limits the time they spend inside the operating room and the number of operations they undertake. A curriculum that would provide residents adequate surgical experience from the beginning of their training may lead to higher surgical volumes and, as a result, to a significant reduction of complications.¹³ Wet labs^{14,15} and surgical simulators¹⁶⁻¹⁸ represent valuable complementary tools, and their contribution to ophthalmic surgical training has been well documented; it is, therefore, reasonable to expect that their application in Greek training hospitals may contribute to improved results as well.

Our study demonstrates limitations. Questionnaire-based surveys rely on participants' personal assessments, which allow for a degree of subjectivity. Response rate, though consistent with that of similar studies, may also represent a potential source of bias. Furthermore, the data contain the perceptions of residents still in training, whose assessment of their overall satisfaction may change as they approach later stages of the residency program.

In conclusion, despite the perceived difficulties, Greek residents manage to maintain a creative attitude regarding their future. The vast majority of participants state their intention to pursue further specialization, with anterior segment being their main field of interest. Research and extra-curriculum activities such as participation in multicenter studies are also indicative of Greek residents' effort to improve their competency in certain clinical areas. It is safe to assume that if the Greek state were to address the weaknesses of the postgraduate medical training system, young physicians' productivity would increase significantly. Providing an environment that would allow adequate clinical and surgical training in all ophthalmology areas should be a government priority, as it ensures an effective provision of ophthalmic health-care services in Greece in the near future.

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Conflicts of interest

There are no conflicts of interest.

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