



# EXPLORING BARRIERS AND MOTIVATORS FOR NEURO-OPHTHALMOLOGY SUBSPECIALIZATION AMONG OPHTHALMOLOGISTS: A NATIONAL SURVEY

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## ABSTRACT

The study sought to find out what ophthalmologists currently know, think and feel about neuro-ophthalmology; what holds back many from becoming subspecialized in this area; and what suggested solutions can raise the appeal of neuro-ophthalmology to them. Over the last decade, specialty programs have improved ophthalmology, yet neuro-ophthalmology continues to be underrepresented and is given less funding than areas like retina, glaucoma, anterior segment and community medicine. Its purposes were to analyze ophthalmologists' understanding, opinions and beliefs about neuro-ophthalmology, identify training barriers and explore methods to stimulate more specialists in the area. A study survey was given to 150 consultants and residents present at a national ophthalmology meeting. People who took part in the survey completed a well-established questionnaire that gathered data on their background, level of training received, willingness to pay and opinions about neuro-ophthalmology. About 54.2% of respondents were younger than 40 and most were based in tertiary public healthcare institutions. Not many participants had much experience in neuro-ophthalmology; only 7.5% trained for a year or more and 15% had not had any exposure. Very few residents, 4.6%, chose neuro-ophthalmology as a career, while most, 80.4%, expressed little interest. Almost 9 out of 10 teachers said they would pursue training with either full or partial financial support and about 60% of those who wanted partial support said they would contribute from their own pocket. Results suggest that a lack of early exposure to neuro-ophthalmology in training and economics are main reasons for the low rate of practicing it. By including neuro-ophthalmology in early medical education, broadening fellowship grants and encouraging programs where experts from different fields join, the field is able to support and encourage new talent. Also, supportive work arrangements can help ensure all people can take part equally. Such findings stress that using different approaches strengthens neuro-ophthalmology and guarantees a competent and durable pool of specialists in this field.

**Keywords:** - Neuro-ophthalmology, Sub specialization, Barriers, Motivators.

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## INTRODUCTION

In the last ten years, ophthalmology has seen major changes, thanks to the introduction of specialized training started in 2005. At one point, ophthalmology was introduced as a broad specialty that gave little attention to specialized subfields. Although retina, glaucoma, anterior segment and community ophthalmology specialties have

gained much patient attention and support through fellowship sponsorships, neuro-ophthalmology receives far less and is poorly funded. Neuro-ophthalmology is not represented in any local fellowship programs, so trainees must go abroad and often pay high costs for their training. On the other hand, other highly developed subspecialties are now setting up their own local

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fellowship training programs. Step should be taken to add more interest and participants in neuro-ophthalmology to prevent a possible shortage of specialists. When the International Council of Ophthalmology got involved in 2005, training and clinical care have improved a lot and the country still gets continuous support. Because of interest groups organized by national ophthalmological societies, training and practice in various subspecialties grew rapidly. Although cataract surgery, glaucoma, community ophthalmology, cornea and anterior segment have both plenty of interested patients and recognition, the emerging specialties must cope with a lack of people and trouble attracting attention among other important demands. This specialty examines eye problems that come from disorders of the brain, nerves or optic nerve. Often, the scope of emergency medicine is not well understood, since providers typically do preliminary diagnosis and only operate when the procedure is necessary. Part of what makes this specialty demanding is managing consultations that take a long time, running expensive diagnostic procedures and getting results that can be quite different from patient to patient. In addition to other issues, neuro-ophthalmologists will evaluate the eyes of patients with systemic disorders such as thyroid eye disease. Because most ophthalmologists are surgical experts, greater efforts are needed to encourage new trainees towards neuro-ophthalmology. In recent surveys of intern doctors at major teaching hospitals, it was found that details about cornea/external eye, lens/cataract and glaucoma are usually well understood at the undergraduate level, but neuro-ophthalmic topics were experienced by fewer than half of interns. Most medical graduates choose their specialty within five years, mainly thanks to their personal interest in it. Investigations have repeatedly shown that how and when study happens in a medical specialty matters a lot for future decisions. Because of this, teaching about neuro-ophthalmology early in medical training might increase the number of specialists choosing this field. Effective strategies for promoting can only be designed after the motivators and barriers affecting that choice in the local setting are identified. So, this study was carried out to find out what ophthalmologists think about neuro-ophthalmology and to suggest ways to boost interest in it, hoping more trainees will take an interest.

## METHODS

This study utilized a cross-sectional survey design to explore ophthalmologists' knowledge, attitudes, and perceptions regarding neuro-ophthalmology, as well as the barriers and facilitators influencing subspecialty interest and training. The study population consisted of consultant ophthalmologists and ophthalmology residents attending a national

ophthalmology conference representing various geographic regions. Participation was voluntary, and all respondents provided informed consent prior to inclusion in the study. A validated, structured self-administered questionnaire was developed based on existing literature and expert input to ensure content relevance and clarity. The questionnaire was pretested among a small group of ophthalmologists to assess comprehensibility and reliability, leading to minor revisions before widespread distribution. The instrument comprised multiple sections collecting demographic data (including age, gender, professional status, and workplace setting), educational background, and clinical experience related to neuro-ophthalmology and other ophthalmic subspecialties. Participants were asked to rate the duration and intensity of their exposure to neuro-ophthalmology during their undergraduate and postgraduate training. The questionnaire also assessed respondents' interest in pursuing further subspecialty training in neuro-ophthalmology and identified potential obstacles, including financial, logistical, and institutional factors. Additionally, participants' knowledge of the roles, responsibilities, and clinical relevance of neuro-ophthalmologists was evaluated through targeted questions. Questionnaires were distributed during the conference, and respondents completed them anonymously to encourage honest and unbiased responses. Data were collected over the course of the event and subsequently entered into a secure database for analysis. Descriptive statistics, including frequencies, percentages, and measures of central tendency, were calculated to summarize demographic characteristics, exposure ratings, financial commitment willingness, and perceived barriers. The data were analyzed using appropriate statistical software to ensure accuracy.

## RESULT

The demographic distribution of the respondents revealed a fairly balanced age range, with the majority falling between 35 and 39 years (28.0%) and over 35 years (26.2%). The age groups 40–44 years and 45–49 years constituted 13.1% and 12.1% of the respondents respectively, while those above 50 years accounted for 20.6%. This distribution indicates a predominance of mid-career ophthalmologists among the surveyed group, reflecting a reasonable mix of experience levels within the sample of 150 respondents. Regarding neuro-ophthalmology exposure during training, the responses indicate significant variability in the duration and intensity of exposure to this subspecialty. Only 7.5% of respondents reported a very high exposure lasting more than one year, while 18.7% experienced high exposure ranging from six to twelve months. A modest exposure duration of three to six months was reported by 15.9%, whereas the largest

proportions had low to very low exposure: 22.4% for one to three months and 20.6% for less than one month. Notably, 15.0% indicated no exposure to neuro-ophthalmology during their training period. These findings highlight that a substantial proportion of ophthalmologists received limited or no formal training in neuro-ophthalmology, which may contribute to the observed low interest in this subspecialty. The financial commitment respondents were willing to invest toward neuro-ophthalmology training further underscores the challenges facing this field. Among 125 respondents providing financial data, only 4.7% indicated a willingness to invest more than one million NGN, with an additional 5.8% prepared to allocate between 500,000 and 1,000,000 NGN. The majority expressed readiness to commit modest to very little funds: 23.3% in the range of 100,000 to 499,999 NGN, 19.8% between 50,000 and

99,999 NGN, and 29.1% willing to invest only 10,000 to 49,999 NGN. Furthermore, 7.0% reported no financial commitment, and 10.5% did not respond to this query. These figures suggest that while some interest in neuro-ophthalmology training exists, financial constraints and limited willingness to make significant monetary commitments remain considerable barriers to pursuing advanced subspecialty training. Collectively, these results reveal a pattern of limited exposure and financial hesitation among ophthalmologists toward neuro-ophthalmology, potentially contributing to the subspecialty's ongoing challenges in attracting trainees and building capacity. Addressing these issues through increased training opportunities and financial support may help stimulate greater interest and enrollment in neuro-ophthalmology.

**Table 1: Age distribution of respondents**

Age Group	Frequency (No.)	Percent (%)
>35 years	39	26.2
35–39 years	42	28.0
40–44 years	20	13.1
45–49 years	18	12.1
>50 years	31	20.6
<b>Total</b>	<b>150</b>	<b>100.0</b>

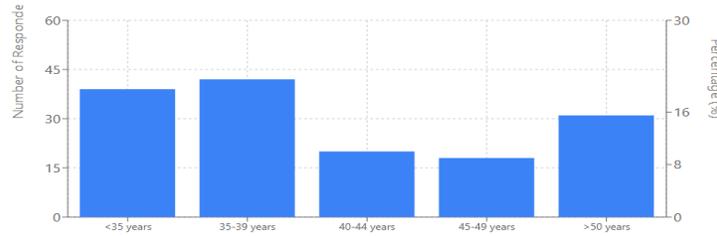
**Table 2: Respondent's rating of neuro-ophthalmology exposure during training**

Exposure Rating (Duration)	Frequency (No.)	Percent (%)
Very high (>1 year)	11	7.5
High (6–12 months)	28	18.7
Modest (3–6 months)	24	15.9
Low (1–3 months)	34	22.4
Very low (<1 month)	31	20.6
None	23	15.0
<b>Total</b>	<b>150</b>	<b>100.0</b>

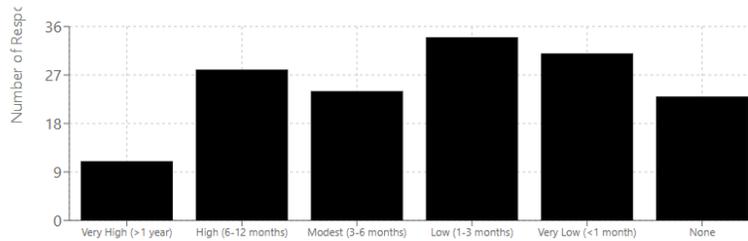
**Table 3: Proposed financial commitment toward neuro-ophthalmology training (NGN) in 86 respondents**

Proposed Financial Commitment	Amount (NGN)	Frequency (No.)	Percent (%)
Very much	>1,000,000	6	4.7
Much	500,000 – 1,000,000	7	5.8
Modest	100,000 – 499,999	29	23.3
Little	50,000 – 99,999	25	19.8
Very little	10,000 – 49,999	36	29.1
None	0	9	7.0
No response	No response	13	10.5
<b>Total</b>		<b>125</b>	<b>100.0</b>

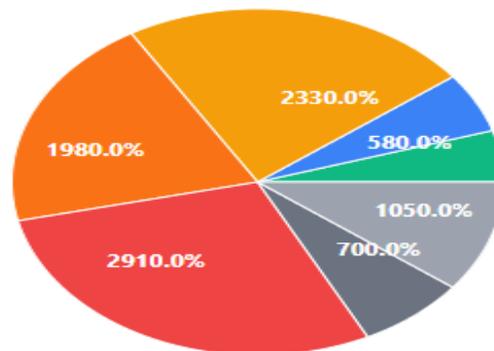
**Figure 1: Age Distribution of Respondents (N=150)**



**Figure 2: Neuro-Ophthalmology Exposure During Training (N=150)**



**Figure 3: Proposed Financial Commitment Toward Neuro-Ophthalmology Training (N=125)**



**DISCUSSION**

There is a decreasing number of trainees choosing neuro-ophthalmology and a coming shortage of specialists around the world. Several regions have a lower interest in this ophthalmic subspecialty than in others. We wanted to explore how ophthalmologists think about neuro-ophthalmology and to identify why many are not interested in further training in this area. Based on a survey by the NANOS, not enough fellows are trained each year to meet the clinical needs in neuro-ophthalmology. It was thought that 10 to 14 trainee neuro-ophthalmologists were needed every year, but each year, only five graduated. No overall count of needed specialists has been made, but it is clear that ophthalmologists are typically not interested in neuro-ophthalmology. Perhaps this apathy is caused in part by training that doesn't involve dealing with the subspecialty enough. Since students encounter anterior

segment diseases, cataract, glaucoma and retinal disorders, medical students typically find these more interesting than neuro-ophthalmology. Past research has consistently confirmed that early meaningful exposure to a specialty often determines a person's medical career. According to investigations, where medical students apply depends on what lifestyle they want, their clinical exposure and starting to treat patients early. Experience in clinics early on has encouraged students to learn more about internal medicine, nephrology and rheumatology. Surveys done on graduating ophthalmology residents worldwide show that subspecialty programs are getting more popular, even so, neuro-ophthalmology still appeals to few trainees. Specialty selection is influenced by how well respected a profession is, where and how the training takes place and the geographical area, as many trainees decide early in their training. Consequently, including neuro-ophthalmological topics in the first years

of medical school may build students' interest in this field.

One big problem is that, while medical students still learn about cornea, cataract and glaucoma, half of them complain they do not book enough neuro-ophthalmology experience during their training. People's financial circumstances play a big role in determining which specialty to choose. During uncertain times, looking for employment and higher earnings is more important to most people. A number of individuals said they were discouraged by the lack of work in neuro-ophthalmology, so they did not feel it was worth investing their effort or resources. Other areas have experienced similar problems, but once people start specialist training in ophthalmology, they usually keep going. In addition, many studies have found that although students are interested in ophthalmology, just a small number follow it as their primary career, usually because training does not provide much support. Rotations in ophthalmology usually last only a few days and give little importance to neuro-ophthalmology. Nevertheless, neuro-ophthalmology is central to medical, pediatric, neurological, surgical and radiological practices. Learning about pupil issues, problems affecting the optic nerve, cranial nerve illnesses, nystagmus and strabismus early in training helps attract and sustain students' interest in neuro-ophthalmology. When you teach pupillary reflexes, observation of eye movements and inspection of the interior eye, your students will learn and see more in clinical settings. When skills such as reading visual field results are combined with neuroimaging findings, understanding of the disease is greatly improved. The primary reason specialization is difficult is because few training opportunities are paid for. Creating sponsored fellowships would ease the burden of costs and time pressures and strengthen interest in working in neuro-ophthalmology. Twinning partnerships between advanced and developing neuro-ophthalmology programs help each group learn from the other and grow. The work is strongly supported by grants, collaboration in research and agreements from international bodies and government agencies.

## CONCLUSION

The study points out that neuro-ophthalmology has many ongoing challenges, including a decline in

interest and enrollment among ophthalmologists. Although neuro-ophthalmology plays a key role connecting various medical specialties, it continues to be less widely represented than most other subspecialties in ophthalmology. The small amount of training in medical school seems to be an important reason why some individuals lose interest. Because they get to learn about anterior segment diseases, cataract, glaucoma and retinal conditions earlier and more often, many medical students and trainees find themselves spending less time on neuro-ophthalmology. Financial issues are an important factor in determining what career to pursue. According to the survey, only modest spending on ophthalmology training involving the brain is considered acceptable by many ophthalmologists, with just a few willing to make bigger investments. Because of this, there is a clear need for more sponsored fellowship opportunities to help trainees bear the costs of training. Support from funding lowers economic hurdles and also demonstrates a strong commitment from institutions and governments to increase recognition of neuro-ophthalmology as a key specialty. This research indicates that medical students should receive early training in neuro-ophthalmology principles. Understanding neuro-ophthalmology through both clinical rounds and the use of exams and recognition tools can help spark curiosity and prepare trainees. Showing the relationships neuro-ophthalmology has with general medicine, neurology, pediatrics, neurosurgery and radiology can increase its status and make it more attractive to others. Working together in "twinning" programs helps established and starting neuro-ophthalmology units grow. By joining forces, companies can easily share experience, access tools and resources and pass on their knowledge, quickening the progress of local teams. International and governmental organizations will need to assist by offering grants, arranging training programs and initiating new policies to support these actions. Tackling barriers caused by gender is important for fair representation in this field. Being flexible with employees' schedules and offering assistance at work can ease the pressure from home and in society that influences women, so more workers join STEM. Supporting neuro-ophthalmology requires providing early training, helpful finance, teamwork programs and policies that consider gender well-rounded.

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