

The ophthalmology postgraduate training programme in South Africa: The registrars' perspective



Author:

Nonhlanhla Majola¹ 

Affiliation:

¹Department of Ophthalmology, University of KwaZulu-Natal, Durban, South Africa

Corresponding author:

Nonhlanhla Majola,
drnmajola@gmail.com

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Background: In South Africa, to become an ophthalmologist, one must successfully complete a 4-year postgraduate training programme as a registrar. This training has been offered at different institutions around the country for many years without ever being scrutinised.

Aim: The aim of this study was to evaluate the training methods and platforms, overall satisfaction levels, problems and solutions pertaining to postgraduate ophthalmology training as identified by ophthalmology registrars.

Setting: The study was conducted in all the institutions across South Africa offering ophthalmology postgraduate training.

Methods: This was an educational evaluation study. The data collection instrument used was a questionnaire created using SurveyMonkey.com and sent via email to all ophthalmology registrars, including supernumerary candidates. Ethical approval was granted by the university's Biomedical Research Ethics Committee.

Results: There was a 48% response rate to the survey. Registrars were satisfied that they had received adequate teaching and support, although there was room for improvement. The common problems that impacted the quality of training, as cited by the registrars, were staff shortages, large patient numbers as well as old and broken-down infrastructure or equipment. Despite 86% of the registrars spending at least 5–10 h a week in theatre, 13.3% indicated that they had no supervision during that time. Access to teaching materials (journals, library and Internet) was not available to 34% of the respondents.

Conclusion: Registrars were generally satisfied with their training, but major problems that negatively affect their time as trainees were highlighted. Cooperation between registrars, universities, heads of departments and the department of health will be important to remedy this situation.

Keywords: ophthalmology; registrar training; training programme; South Africa.

Introduction

In South Africa, doctors who want to become ophthalmologists have to undergo postgraduate training offered at recognised and accredited hospitals affiliated to eight university tertiary institutions. During the 4 years of intensive clinical and surgical training, they must complete a research project to obtain their Master of Medicine (MMed) degree. In addition, they must also be successful in written and oral examinations administered by the Colleges of Medicine of South Africa (CMSA). The ophthalmology training programme in South Africa has a similar structure to the American and European residency programme.¹ A curriculum stipulates all the learning objectives and outcomes that need to be achieved, and there are recommended learning resources, research requirements and surgical logbook targets. This information is made readily available to all the trainees. What is expected from them when they exit the programme is proficiency and competence in managing ophthalmological conditions, the ability to perform surgical procedures and sound research-orientated skills. The skills and knowledge they have acquired during their years of training should equip them to render eye care services to their communities.

Having completed the 4 years of training, passed the fellowship examination and published the MMed thesis, they are able to register with the Health Professions Council of South Africa (HPCSA) as specialist ophthalmologists. This allows them to join the estimated 204 909 ophthalmologists worldwide according to a survey sent out via email to 213 global ophthalmological societies by the International Council of Ophthalmology (ICO) and reported

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on by Resnikoff et al.² Data were presented for 193 countries in their study. Their findings showed that despite there being over 200 000 ophthalmologists in the world, there was still a significant shortfall in the number of ophthalmologists in developing countries; in the developed countries, the current numbers would not be able to keep up with a growing population of those aged over 60 years. The ICO Strategic Plan for 2017–2020 estimates that there are 253 million blind or visually impaired people worldwide, with 89% of them from low- to middle-income countries. With population growth, an ageing population and the increase in diseases of lifestyle, one can expect even more pressure on eye care services in the future and these demands will need to be met.³

Currently, there is no accurate data on how many ophthalmologists there are in South Africa and where they practice. The Ophthalmological Society of South Africa (OSSA) has 233 members, and the HPCSA has 593 ophthalmologists registered on their database. This number reflects those who obtained their qualifications in South Africa, but may be practising within and outside the country's borders. The true number of those working within the country probably rests at just under 400 ophthalmologists working in both the private and public sectors. Research conducted by *Lecuona* found that there were 62 hospitals with eye units in the public sector in South Africa serving 80% of the population. In order for the country to fulfil its World Health Organization (WHO) Vision 2020 goals of increasing the cataract surgery rate (number of operations per year, per million population members), the country will need at least 124 cataract surgeons to serve these facilities. This will ensure an ophthalmic surgeon to patient ratio at 1:250 000 (the recommended ratio), up from the 1:305 721 that it was in 2017 when the study was conducted.⁴ This study highlights the need to train and produce more ophthalmologists as the population grows and ages. Of even more importance is to ensure that these ophthalmologists are well trained.

South Africa has a population of over 56 million people and is currently experiencing the negative effects of infectious diseases such as HIV or AIDS and tuberculosis.⁵ The increase in diseases of lifestyle, such as diabetes mellitus and hypertension, is also having an impact on the health care system. All these diseases (infectious and lifestyle diseases) can have severe and blinding ocular consequences often resulting in those affected losing their jobs and being denied an income to provide for their families. Citizens that should rightfully be contributing to the economy, instead, become dependent on the state for social and disability grants. According to the United Nations International Children's Emergency Fund (UNICEF) South Africa, the South African government spent 13.5% of total government expenditure (R183 billion) on health care for the 2017 and 2018 financial period. If this spending is compared to Gross Domestic Product (GDP), South Africa rates among the highest investors in health care on the continent. Even with this generous spending on health, it has not translated to better outcomes. Problems of resource limitations still exist on the

ground, largely because of poor planning, corruption and wasteful expenditure at the provincial health department level. With the rising tide of diseases, this will undoubtedly put more pressure on available resources, requiring better strategic distribution of these resources and better future planning.

Trainees in ophthalmology are usually subjected to a demanding work and academic schedule. Because they are expected to undergo examinations to assess their competency, it is only fair to expect that the training they receive will adequately prepare them for success in these examinations. It is therefore important to determine whether the registrars are satisfied with the training they receive in both quantity and quality. A literature review revealed numerous studies evaluating the training of registrars in other specialties in countries around the world.^{6,7,8} There are also examples of studies that have been conducted in developing countries, such as India, specifically assessing the training of ophthalmologists.⁹ There are no published studies on this topic of ophthalmology training in South Africa. With over 85 ophthalmology registrars in our country and more joining the training every year, the need to investigate this is thus long overdue. It is this premise that prompted our research. Frank questions were asked to ascertain the nature of the registrars' experience while in training, the level of satisfaction and their input on what improvements needed to be made to address the issues they raised.

Methods

This was an educational evaluation study. The data collection instrument used was an online questionnaire designed using SurveyMonkey.com. Ethical approval was obtained from the university's Biomedical Research and Ethics Committee. All efforts were made to adhere to the university's bioethics guidelines. By participating in the survey, it was implied that the respondents were giving informed consent. Only after ethical approval was obtained did the data collection process commence. The questionnaire was sent via email to all the registrars enrolled in a postgraduate ophthalmology registrar training programme in South Africa. It was first sent to all the heads of departments (HODs), who were then asked to forward it to all the registrars in their departments. This email explained the objectives of the study and contained a link to the survey. The only inclusion criteria were that the participant should be in an ophthalmology clinical department and registered as a registrar in 2018. Supernumerary registrars (trainees in the programme that are not employees of the Department of Health (DOH) and mostly are not South African citizens) were also included in the study. The survey ran for a period of 2 months in 2018 and concluded when a response rate of at least 40% was achieved with respondents from each of the universities. This was deemed an adequate response rate for our survey as adequate response rates for internal and external surveys have been cited at between 30%–40% and 10%–15%, respectively. The identities of the participants were kept anonymous, and the survey results were generated automatically by the online

survey platform software. The results were viewed and analysed online by the investigator using password-protected access to the collected data. There was no direct contact between the participants and the investigator. Along with demographic information, data such as which institutions the candidates attended, their year of study, their personal and professional working environment and resources available to them were gathered. Also of interest were the academic, research and surgical aspects of their training and their perceptions of these components. Qualitative information, regarding the type and quality of training the participants were receiving, their satisfaction levels, additional comments and recommendations including any suggested solutions to problems they raised, was reviewed. Descriptive statistics were used to define these as well as the study population. Quantitative data were also analysed, and the results were presented in text, table and graph form.

Ethical considerations

Final ethical approval was obtained from the University of KwaZulu-Natal School of Medicine (Ethical clearance number: HSS/0398/018M).

Results

Of the estimated 87 ophthalmology registrars currently enrolled for training we received responses from 42, giving us a 48% response rate. The average time to completion of the survey was 14 min and there was a 69% completion rate. From the 42 responses, 66.7% ($n = 28$) were between the ages of 30–35 years, 57% ($n = 24$) were male and 43% ($n = 18$) were female. The racial distribution was 43% ($n = 18$) Caucasian, 31% ($n = 13$) African, 19% ($n = 8$) Indian and 7% ($n = 3$) who identified themselves as other. We had responders from first year (31.7%), second year (26.8%), third year (19.5%) and fourth or final year (22%). The demographic information is summarised in Table 1.

TABLE 1: Demographics.

Parameters	Values	
	%	<i>n</i>
Age		
25–30 years	9.5	4
30–35 years	66.7	28
35–40 years	21.4	9
40–45 years	2.8	1
Gender		
Male	57.0	24
Female	43.0	18
Race		
African	31.0	13
Caucasian	43.0	18
Indian	19.0	8
Other	7.0	3
Year of study		
First year	31.7	13
Second year	26.8	11
Third year	19.5	8
Fourth year	22.0	9

From the cohort, 33% ($n = 10$) had been successful in part 1A examinations, 57% ($n = 17$) in part 1B examinations and only 10% ($n = 3$) in part 2 examinations. A total of 30% admitted to having more than one attempt before success at any of their examinations. The majority (93.6%) confirmed that they were receiving formal teaching at their institutions. This teaching took the form of tutorials (83.9%), journal clubs (93.6%), grand ward rounds (87.1%), simulated examination scenarios (71%) and 77.4% for case presentations, as shown in Figure 1. They were aware of the syllabus before each of their examinations (87.1%), and they were able to easily access this information from the CMSA website. In the clinics, 47% of the registrars had a consultant with them to teach and supervise at all times (Figure 2). They felt confident that they saw enough patients, which exposed them to a wide enough variety of pathology and 80% could attend sub-specialist clinics. The busy clinics, however, meant that they often rushed through the long queues in an effort to finish on time. This did not allow them the time to spend with their patients and thoroughly assess them. They also struggled to prepare for examinations because of exhaustive working hours managing busy clinics with too few staff. Staff shortages were also cited as a reason for not having enough time in the day for clinical teaching to take place. Access to learning material (journal, library and Internet) was a problem with

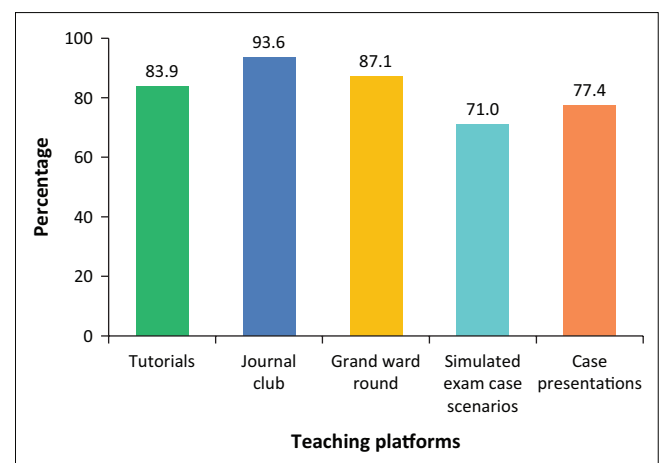


FIGURE 1: Teaching platforms at institutions.

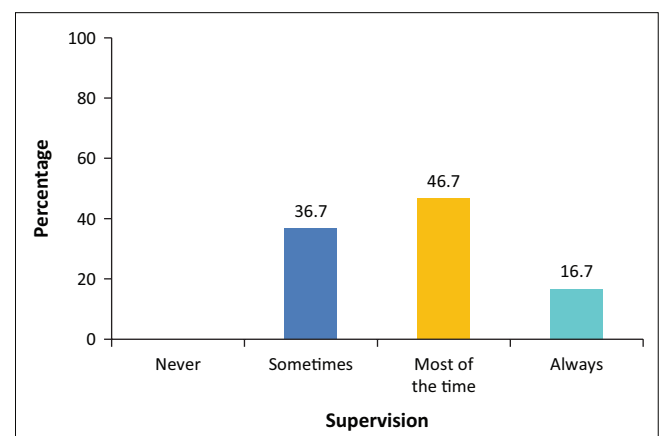


FIGURE 2: Consultant supervision in the clinics

34% of the respondents, claiming not being able to find the necessary study resources to prepare for examinations.

More than 30% of the respondents had performed between 200 and 400 cataract surgeries (Figure 3), between 1 and 10 glaucoma surgeries and between 1 and 10 oculoplastic surgical procedures. We also found that 62% had undergone wet laboratory surgical teaching and 87% had between 5 and 10 h of theatre time exposure per week (Figure 4). Over 93% had vitreoretinal exposure, either assisting or observing in theatre. This made 67% of the registrars feel confident that they would fulfil their logbook requirements. Less than half or 47% of the registrars reported having consultant supervision in theatre at all times. Of concern was the 13% who admitted to always being alone and unsupervised in theatre (Figure 5). In some institutions, the registrars felt frustrated by having to compete for cutting time with junior consultants who still wanted to hone their surgical skills. Some decried not having enough oculoplastic and corneal refractive surgery exposure. The lack of after-hours theatre time generally available to ophthalmology departments in some of the hospital resulted in emergency cases not being attended to during the night with subsequent disruption of scheduled elective theatre lists the following day.

The hospitals around the country, where ophthalmology registrars undergo their training, are affiliated to eight universities spread over six of the nine provinces. It is these

universities that oversee the research component of the registrars' training. We received registrar responses from all the universities (Figure 6). The majority (74%) said they received enough research support from their university and their department heads and 68% had easy access to supervisors and statisticians. In addition, 71% said they were given time off from work to focus on their research projects. With respect to these projects, 30% said they had not yet started and 48% of them admitted struggling to decide on a research topic. Only 10% had submitted their paper for marking or publication (Figure 7). Inconsistent supervisor availability and some supervisors lacking experience and an interest in research were cited as some of the barriers to progress. One of the institutions did not have a statistician available, thus forcing students from there to pay for private statisticians out of their own pockets. There were complaints about the slow pace in getting ethical approval and difficulties with data collection because of poor patient record keeping at some of the hospitals. The lack of access to journals is an impediment to the process of literature review. Those involved with multicentre studies found that

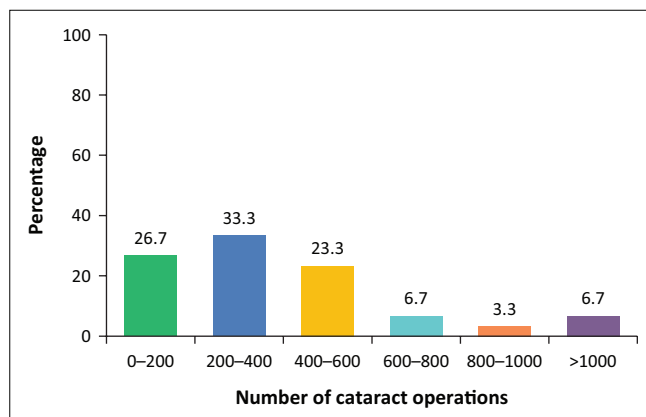


FIGURE 3: Number of cataract operations performed.

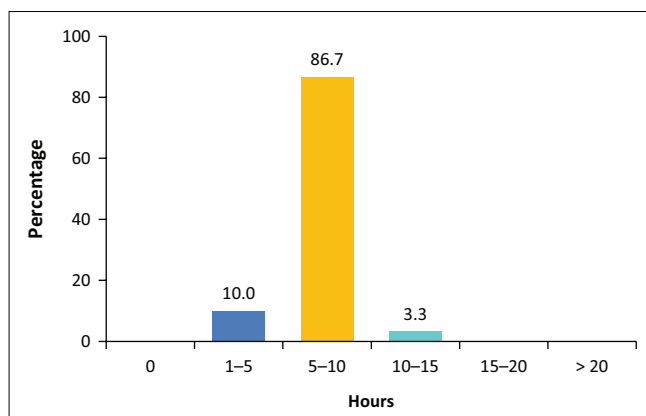


FIGURE 4: Hours spent in theatre per week.

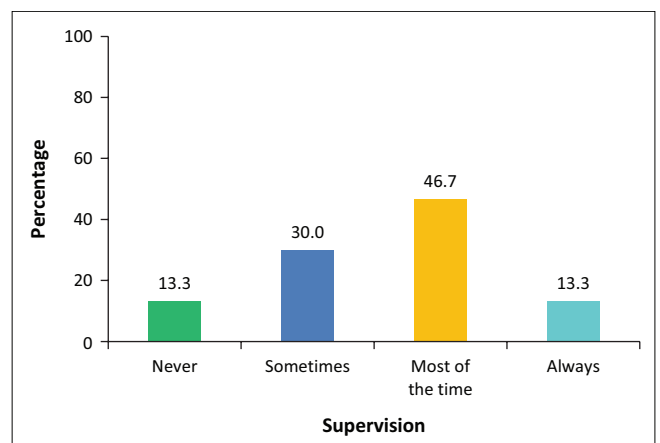
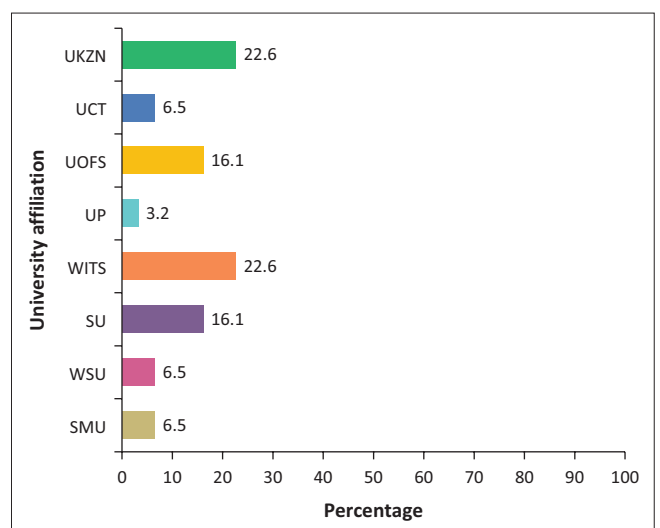


FIGURE 5: Consultant supervision in theatre.



UKZN, University of KwaZulu-Natal; UCT, University of Cape Town; UOFS, University of the Free State; UP, University of Pretoria; WITS, University of the Witwatersrand; SU, Stellenbosch University; WSU, Walter Sisulu University; SMU, Sefako Makgatho Health Sciences University.

FIGURE 6: Respondents' response rate by university affiliation.

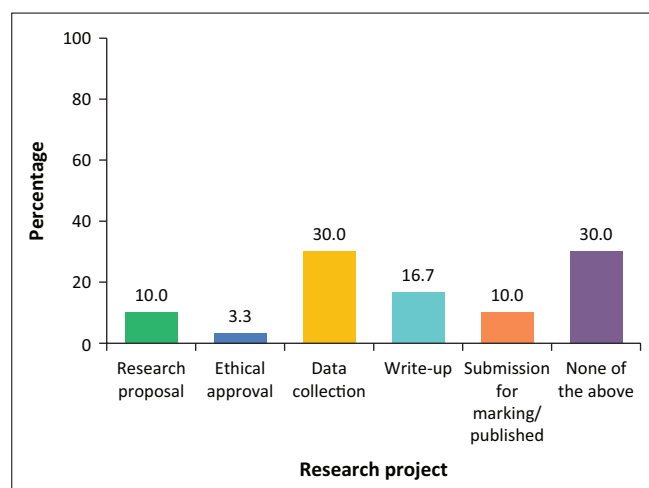


FIGURE 7: Progress with research project.

poor collaboration and cooperation between institutions hampered their efforts. At some universities, there was a lack of formalised step-by-step guidance, in the form of lectures and on how to conduct clinical research. This resulted in a lack of clear direction on how to start and proceed with research projects.

Resource-specific problems included the high patient numbers coming through the clinics, with often an insufficient number of doctors to attend to these patients and still allow for teaching to take place. Some of the senior doctors were employed on a part-time or sessional basis, making the staffing situation dire. Most of the hospitals had poor record keeping mechanisms and chaotic patient booking systems. This made it difficult to plan and allocate staff effectively from day to day. The inadequate record keeping negatively impacted continuity of care and data collection for research purposes. Poor adherence to referral patterns and lack of adequate intervention at the lower levels of care allowed for floods of patients to walk in, usually unbooked, when they could have been properly managed at the appropriate levels of care. This was because of poor eye care services being offered at district and primary care levels. The trainees pointed out how they worked with outdated and poorly maintained infrastructure or equipment. This equipment often broke down and remained so for long periods of time, resulting in procedures and theatre cases being cancelled or postponed indefinitely. The availability of resources was also inconsistent when comparing the institutions.

The registrars rated their senior staff at 7/10 for approachability, friendliness, availability and willingness to help. The majority (73%) confirmed that social relationships were encouraged outside of work and 77% said their work environment was generally conducive to teaching and learning. They, however, pointed out working under very difficult conditions. It was a high stress situation within a high workload-laden environment that put pressure on them and their studies, which took its toll. This type of environment resulted in a high burnout rate with significant absenteeism as a result. There were also isolated reports of victimisation,

power struggles and an unfair hierarchy system that caused more harm than good. Some felt that auxiliary staff (nurses, optometrists) were often at odds with them and were not being used effectively to alleviate their load.

Discussion

A proper understanding and evaluation of any training programme is crucial to assess its effectiveness and ability to reach desired targets. Lee et al. adopted a novel approach to assess and improve teaching offered to residents at the Department of Ophthalmology, University of Iowa.¹⁰ Their plan was to develop a structured and standardised curriculum that would align with the Accreditation Council for Graduate Medical Education guidelines and at the same time be specific to their own local needs. This rigorous process of assessing the effectiveness of the ophthalmology training programme in South Africa has never happened and our research tries to address this. Registrars should be active participants in their own academic journey and should be placed at the centre of developing and maintaining their training curriculum. It is for this very reason that studies aimed at evaluating the registrars' perspective of their training with an emphasis on specific aspects of the programme should be encouraged. Assessing trainee satisfaction is an effective way of getting valuable insight and input from them. Zhou et al. performed a survey in Canada that did not just evaluate the adequacy of their ophthalmology resident programme in achieving the ICO competencies, but also looked at whether their residents were satisfied with their programme.¹¹ It was conducted using a questionnaire. There was a 40% response rate to their questionnaire with 85% of the respondents stating their satisfaction with their residency training, with a preference towards clinic-based training. More than 60% of the participants felt their surgical experiences were positive and satisfactory. They highlighted insufficiencies in how they were taught low vision rehabilitation, refraction and spectacle prescription and neuro-ophthalmology. They admitted to having problems with extracapsular cataract surgery (72.5%), refractive surgery (72.5%) and orbital surgery (57.5%). All participants were successful at their examinations at first attempt. Another study by Young et al. compared the differences in ophthalmology resident training between China and the Hong Kong Special Administration Region.¹² They found that residents in Hong Kong performed more cataract surgery, while those in China spent more time completing paperwork (62.5% vs. 5.3%, $p < 0.00001$), were less supervised (4.4% vs. 65%, $p < 0.00001$), were less likely to want their children to practise medicine and were less satisfied. Their opinion was that more surgical time with supervision for the Hong Kong residents resulted in higher satisfaction levels and this hands-on approach would be useful in improving the low cataract surgery rate in China. In India, Ajay et al. performed a survey similar to that conducted 7 years earlier on their final-year ophthalmology trainees to also assess satisfaction levels.¹³ His group identified case presentations and wet laboratory exposure as their most preferred teaching methods. Although they were generally satisfied with the quality of teaching they received, they did

identify a need for improvement across all aspects. One of the most compelling studies so far was the one conducted by Al-Salem et al. in Jordan.¹⁴ In addition to comparing the Jordanian curriculum with the ICO competency levels, they also assessed registrar satisfaction. They sent out an open-ended questionnaire to all who completed their training between 2006 and 2011. Their participants were satisfied with clinical conferences, journal clubs, scientific lectures and wet laboratory sessions as effective teaching tools. They were most unhappy with the lack of case simulations, outpatient clinic teaching and operating room training. They reported a low mean phacoemulsification number of 2.96 cases per resident and 75.4% had never performed phacoemulsification throughout their residency. Unfortunately, 72.1% had also never assisted with vitreoretinal surgery. They found all these factors to be barriers to success at board examinations. There was an overall satisfaction rate of only 34%, with only 23% passing their board examinations at first attempt and feeling that their training adequately prepared them for these examinations. This evidence seems to imply a relationship between the quality of the training residents receive and their performance at final board examinations.

Registrars that responded to the questionnaire were generally satisfied with the training they received. There was formal and fairly standardised theoretical teaching and surgical training happening at all the institutions. There was a sense that they knew what was required of them to prepare for examinations. They saw enough pathology in the clinics and spent time in theatre acquiring surgical skills. Their criticism was directed at the three main areas of concern that negatively impacted their training: staff shortages, high patient volumes and lack of adequate resources. We found these three key problem areas to be common to all the institutions, although at different degrees of severity between institutions. These problems were also chronic in nature. For example, in all the centres the registrars felt that their time was being spent disproportionately to fulfil their service delivery obligations at the expense of teaching and learning. Because of chronic staff shortages and particularly of full-time employed consultants it meant they sometimes went unsupervised in critical areas such as in theatre. There is, therefore, an urgent need to increase ophthalmology consultant, medical officer and registrar posts to meet the demand for eye care provision for the population. More consultants need to be employed on a full-time basis so they can provide teaching and supervision in theatre and in the clinics at all times. The registrars who participated in our study expressed that they lacked exposure to oculoplastic, orbital, glaucoma and refractive surgery, and this made them less confident to independently perform these surgical procedures. To correct this, special attention needs to go towards giving registrars exposure to all the different ophthalmology sub-specialty domains. They need to be afforded an opportunity to rotate through all the sub-specialty disciplines, and this should be the standard everywhere. This will go a long way to making them well-rounded general specialists able to treat a wide range of clinical and surgical eye diseases.

To aid with their examination preparations, the registrars wanted to see an increase in consultant-led tutorials, discussions on academic topics, mock examination scenarios and weekly informal tests closer to examination time. In order for the consultants to fulfil all these teaching obligations, they must be taught to become better teachers. This skills training must begin at trainee level so they can have these teaching skills for the future, as suggested by Chee et al.¹⁵ Consultants need to be able to identify those registrars struggling with surgical skills or academic work so they can give them extra attention. Decreasing the work load and allowing for protected time off from work for those preparing for critical assessments will help to make life easier for registrars. The large patient numbers need to be curtailed by improving and adhering to referral patterns, improving patient booking systems and placing skilled ophthalmic trained staff at lower levels of care to screen and manage patients adequately. They need to act as gatekeepers. Hospitals and their managers must prioritise regular maintenance and repair of infrastructure and equipment. They also need to update old equipment to keep on par with technological advances. These must all be factored into hospital budgets. These and other efforts require commitment from the DOH to allocate funding and for the ophthalmology clinical HOD to plan and utilise these resources better.

All registrars have to be afforded equal access to resources and equipment. Minimum standards and requirements, needed to render care to patients and allow for quality teaching of registrars, must be met in order for the hospitals tasked to deliver training to maintain their accreditation status. Where budgets fall short, it might become important for those institutions that have more to find ways to share their resources, skills and expertise with those that do not have. Partnerships with private sector ophthalmologists may be another option to expose registrars to state-of-the-art equipment, surgical procedures and teaching they do not have available to them in the public sector.

As registrars are required to complete a research project before they can register as specialists, this research component also needs special attention. Barriers to doing research need to be identified and removed. Time constraints, funding and lack of mentorship were the most common barriers cited by Eze et al. from their Nigerian-based study.¹⁶ They concluded that residents needed dedicated research time, adequate funding and mentorship to successfully participate in health care research in resource-constrained environments. To overcome the barriers our registrars face, we suggest that supervisors be specifically and deliberately chosen for their experience and interest in research so they can better serve the registrars' needs. The registrars require formal step-by-step lectures and workshops made available to guide them on how to conduct clinical research. Statisticians and editors should also be made available to everyone. Access to libraries, Internet and journals for all is another requirement. The universities have an obligation to provide these services to the registrars because they are enrolled students and pay

tuition fees for the duration of their training. Better patient record keeping systems also need to be implemented at all hospitals to make data collection effortless. Research collaborations should be encouraged between institutions. Better interactions will make it much easier to conduct large multicentre research or trials that will increase the wealth of knowledge available to our country and the world. Perhaps a dialogue between the HPCSA, universities, CMSA and the DOH on increasing training to 5 years should be prioritised. This extra year could be dedicated to research after the clinical and surgical components have been concluded. It might ease the pressures on registrar time and benefit the service delivery objective.

Registrar wellness deserves a special mention too. It is a well-known fact that registrars in South Africa work under difficult and often stressful conditions. They have to balance this with their academic load, often leading to neglect of their own needs and wellness to meet the demands and expectations placed on them. Cedfeldt et al. demonstrated just how detrimental this can be to registrar well-being.¹⁷ They asked residents and fellows in the United States whether they were aware of the existence of a time-off policy and what the barriers were to its use. This policy was put in place to allow them to access personal health care. Of the residents who responded to the questionnaire 89% were aware of the policy, but only 49.7% had made use of it. The most common barrier to use was the concern about what impact being absent from work would have on colleagues and patients. They admitted to being reluctant to take time off for personal care with detrimental results. High rates of stress, burnout and depression were also demonstrated by Al Ghailani et al. among trainees when they performed a study on the wellness of postgraduate trainees in Abu Dhabi.¹⁸ They found that of their study cohort, 86.4% reported feeling stressed, 65.7% reported exhaustion, 50.8% were depressed and 58.8% with a chronic disease admitted their disease was not controlled. These findings were more apparent in those disciplines that longer hours required of work. Our registrars clearly expressed the negative impact working in their current environment has had on both their health and studies. They spoke of long hard hours and burnout leading to absenteeism. This put even more strain on interpersonal relationships. Some of the simple changes they requested were for decent tea or rest rooms with basic amenities and for protected lunch or tea breaks to be made mandatory and used as opportunities for colleagues to socialise and rest. The registrars also suggested more social events outside of work to foster better relationships, improve cooperation and build a spirit of teamwork. They expressed the need to see stronger leadership, support and action from their senior colleagues and supervisors. They wished to be given open platforms to express their thoughts and feelings and where there were problems, the opportunity to speak without fear of victimisation. Better work environments needed to be created to make it conducive to working and learning. These workspaces needed to be safe and comfortable and were a basic right.

Universities and academic HODs are responsible for the training and teaching of registrars, and they need to ensure they are fulfilling this mandate if they want to see better results. The responsibility to provide health care to the community and a safe and productive work environment with adequate human and physical resources, however, rests on the shoulders of the DOH. The buck ultimately stops with them. They need to be held accountable for the shortcomings and should be obligated to correct all the systemic problems that exist.

A limitation of this study was the questionnaire's low response rate of 48% and an average completion rate of 69%. We did not perform a breakdown of the responses according to the institutions the registrars came from. This may have given better insight into the specific institutional issues and shed more light on the bias that could result from certain institutions having more respondents than others. Another criticism is that only registrars were included and not recently qualified consultants. The results will, therefore, only reflect a narrow view from registrars who may not yet have formed any expectations of their training. The argument is that registrars may not be able to fully and critically review the programme. We therefore recommend that future studies be extended to also include newly qualified specialists to gauge whether their expectations of their training were met. Our study was designed to unmask major problems common to all institutions. We therefore did not report on isolated and institution-specific issues. For this purpose, we recommend that all institutions implement their own assessments to address these and other institution-specific problems.

Conclusion

Our investigation has shown that there are strengths within the current ophthalmology training programme in South Africa, particularly regarding the volume and variety of surgical and clinical exposure that registrars receive. The registrars were satisfied with this. There were, however, critical problems with lack of equipment, poor working conditions and human resource shortages that resulted in levels of dissatisfaction. These require urgent attention. Detailed evaluations of the ophthalmology programme will need to be undertaken by all the institutions where registrar training is taking place to focus on issues that affect registrars and their training. This should be done on a regular basis. There also needs to be a concerted effort from the DOH, deans of universities and the academic heads of ophthalmology departments to work together to support and improve the conditions under which the registrars work and study. This will go a long way to ensure they all have an equal and fair chance at success, enabling them to qualify as ophthalmologists and maintain the highest level of excellence needed to render quality eye care services to the people of South Africa.

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Competing interests

The author declares that she has no financial or personal relationships that may have inappropriately influenced her in writing this article.

Authors' contributions

N.M. is the sole author of this the article.

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Data availability statement

New and original data was collected, analysed and presented for this study.

Disclaimer

The views and opinions expressed in this article are those of the author(s) and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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