Subspeciality Interests Among the Ophthalmology Residents: A Mixed-Methods Study

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ABSTRACT

Objective: To determine the popular subspeciality choices among ophthalmology residents, to explore the factors affecting that choice, and to identify the obstacles that they face while selecting a subspeciality fellowship.

Study Design: Mixed-methods study.

Place and Duration of the Study: Department of Ophthalmology of Hayatabad Medical Complex and Lady Reading Hospital, Peshawar, from 1st September to 30th November, 2021.

Methodology: The qualitative (1st) phase comprised of focussed group discussion (FGD) followed by an online in-depth interview (IDI). Quantitative (2nd) phase was conducted as online survey and consisted of currently enrolled FCPS-ophthalmology residents. Themes were generated and used to modify the pre-designed questionnaire. Questionnaire was piloted and necessary adjustments were made. In the 2nd phase, the online link of the questionnaire was shared with the eligible participants all over the country. For the association between categorical variables, the Pearson Chi-square test was used with significance at p-value <0.05.

Results: Nine participants were recruited in the first phase and three themes were generated. In the second phase, a total of 138 responses were received, among which mean age was 29.37 $\pm$ 3.9 years, and 74 (53.6%) participants were males. The top three subspeciality choices were cataract and refractive surgery (n = 31, 22.5%), vitreoretinal surgery (n = 30, 21.7%) and orbit and oculoplasty (n = 13, 9.4%). Sixty-two (48.8%) participants stated interest in the career to be the main reason to choose a particular fellowship, and 54 (42.5%) participants identified challenging subspeciality as the main obstacle. An association between gender and the intended subspeciality showed significant results (p = 0.029).

Conclusion: Ophthalmology residents of Pakistan have different approaches and motivations for selecting a fellowship programme. Professional needs and scientific reasons are their main motivations.

Key Words: *Ophthalmology, Fellowship, Motivations, Career choices, Mentor, Pakistan.*

How to cite this article: Mahsood YJ, Khalid F, Farooq S, Arif N, Rehman K. Subspeciality Interests Among the Ophthalmology Residents: A Mixed-Methods Study. *J Coll Physicians Surg Pak* 2023; **33(12)**:1433-1438.

INTRODUCTION

The field of ophthalmology is experiencing a significant trend toward increased subspecialisation, with fellows showing a stronger preference for selecting specific subspecialities as compared to the past.[1] The importance of subspeciality training cannot be denied as a recent research has shown that the majority of leaders in ophthalmology professional organisations are subspecialists who have completed fellowships and are actively practising at academic institutions.[2] The Pakistan National Blindness and Visual Impairment Survey concluded that cataract and aftercare services, as well as refractive error correction, need special attention to reduce the blindness prevalence in Pakistan.[3]

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Received: November 20, 2022; Revised: July 25, 2023; Accepted: August 21, 2023
DOI: https://doi.org/10.29271/jcpsp.2023.12.1433

This study also highlighted the need for subspeciality fellowships in ophthalmology but unfortunately, Pakistan is still lagging behind in this perspective. The spectrum of eye problems demands more subspecialities to be developed so that quality care can be given to the population.

A qualitative study done on medical students revealed that income and prestige were the main deciding factors in choosing a future career.[4] Studies on graduating ophthalmology residents have shown variable results about their future choices and factors influencing these choices.[5,6] Among American ophthalmology residents, 64% opted for subspeciality training and among them, 35.6% selected vitreoretina as the most popular choice while only 0.7% were interested in uveitis.[7] Among the Canadian ophthalmology residents, medical retina (36%) was the most popular choice, and low vision rehabilitation was the least popular subspeciality choice.[8] However, these studies were conducted in high-income countries whereas Pakistan is a lower-middle-income country.[9] So, it cannot be inferred from their results that the same situation exists in Pakistan. Also, there is a rising concern that there will be a lack of trained fellows in paediatrics ophthalmology, glaucoma, and neuro-ophthalmology in the near future.[10-12]

To the best of authors' knowledge, there is no mixed-methods study conducted to address this important issue. So, this study was conducted to determine the popular subspeciality choices among ophthalmology residents, to explore the factors that residents consider while choosing a particular subspeciality in Pakistan, and to identify the obstacles that they face while selecting a fellowship.

METHODOLOGY

The study was a mixed-methods (exploratory), sequential design. An ethical approval was obtained from Advanced Studies and Research Board (ASRB) of Khyber Medical University, Peshawar before commencement of the study. Informed written consents were obtained from participants of Phase 1 while participants of Phase 2 consented by filling the online questionnaire. Only those participants were included who were currently enrolled in FCPS-ophthalmology programme with the College of Physicians and Surgeons Pakistan (CPSP). Qualitative part (Phase 1) comprised of focussed group discussions (FGD) and in-depth interviews (IDI) followed by a quantitative part (Phase 2) which was an online survey. The FGD were conducted in the Department of Ophthalmology of Hayatabad Medical Complex (HMC), Peshawar and IDI were conducted in Department Ophthalmology of Lady Reading Hospital (LRH), Peshawar in September 2021. For Phase 1, purposive sampling while for Phase 2 census techniques were used. For Phase 2, all the ophthalmology residents in Pakistan were contacted *via* email and phone. The contact information of the participants was taken from the different academic groups on social media platforms. The data collection was from October 01, 2021 to November 30, 2021.

The FGD group comprised of six participants, one male and one female from 2nd year, 3rd year, and 4th year residency programme and IDI comprised of three participants. The themes were generated and were used to modify the pre-designed online questionnaire. In the 2nd phase, this questionnaire was then piloted on residents before the study and a final questionnaire was prepared. The online link of this questionnaire was shared *via* email and social media groups to the participants all over the country. Three reminders were sent to the participants after starting date of data collection, one each in the 2nd, 3rd, and 4th week. At the end of the 4th week, the link was closed. Data were collected regarding the demographics, intended fellowship, the influencing factors, future plans of practice, financial support from parents, place of living, and authorship of research papers (research interest).

The data of the FGD and IDI were transcribed and coded. Codes were identified from the transcripts. These codes were gathered under a category based on their relationship. These categories were then gathered under the themes. Themes were explained considering representative quotes. For the quantitative part, the analysis was done on SPSS version 24. All the continuous variable(s) (e.g. age) were analysed for mean $\pm$ standard deviation. For categorical variables (e.g., gender, marital status, intended subspeciality, factors responsible for selecting the subspeciality, least preferred subspeciality and the factors, future place of work), frequencies and percentages were calculated. For the association between categorical variables, the Pearson Chi-square test was used. A p-value <0.05 was set for establishing statistical significance.

RESULTS

Out of nine participants, six were included in FGD and among them, three (50%) were males. The mean age of the participants was 28.11 ± 0.93 years. The scholar explained and discussed the purpose, aims, objectives, and ways to achieve those objectives with all the participants. The scholar familiarised himself with the data and expanded the outline for data categorising. The inductive method was used to analyse the data by generating codes from all the FGDs and IDIs, developing categories, and finally suggesting themes for qualitative data analysis as mentioned in Figure 1.

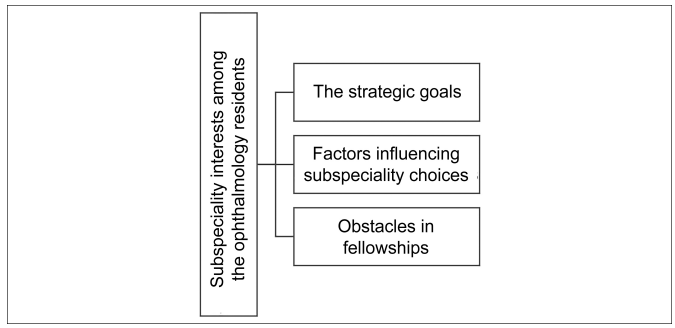

Figure 1: Three main themes of the study.

Most of the participants opted for ophthalmology as a field because they were keen to perform delicate surgeries. These fine surgeries require ultra-care because of the highly fragile eyeball anatomy. One of the participants claimed the sophisticated nature of this profession and was passionate about performing ocular surgeries. According to many participants, ophthalmology demands microsurgical skills that distinguish it from other fields. Seniors who would perform microsurgeries in the operating room had influenced other candidates. For some, it was a less hectic and more gratifying job.

Participants stated that vitreoretinal and paediatric ophthalmology are the two popular subspecialities of ophthalmology. The main reason behind it was that in lower OPD (outpatient department), most of the patients were referred frequently to vitreoretinal surgeons. These subspecialties thus offered more job opportunities. Accordingly, vitreoretinal surgery was a gratifying field for a specialist in the sense that they can restore, protect, and enhance the eyesight of their patients. Participants also revealed interest in the paediatrics subspeciality.

Participants showed interest in the surgical side of speciality and not in the medical side. Participants also mentioned few other obstacles in selecting a particular fellowship like lack of supervisors.

Of the 138 responses from ophthalmology residents, 74 (53.6%) were males and the mean age of the participants was 29.37 ± 3.9 years. Most of the participants were married (85, 61.6%), 58 (42%) had children, 106 (76.8%) were living independently, and 51 (37%) were receiving financial support from their parents.

Table I: Characteristics of the study participants.

Characteristics		Frequency (n = 138)	Percentage
Age in years (SD)	29.37 (3.9)		
Gender	Male	74	53.6
	Female	64	46.4
Marital Status	Single	53	38.4
	Married	85	61.6
Location of training institute	Punjab	49	35.5
	Khyber Pakhtunkhwa	50	36.2
	Sindh	27	19.6
	Islamabad Capital Territory	12	8.7
Current year of PG residency	PGY1	38	27.5
	PGY2	30	21.7
	PGY3	28	20.3
	PGY4	42	30.4
Preferred intended subspeciality, (n = 138)	Cataract and refractive surgery	31	22.5
	Vitreoretinal surgery	30	21.7
	Orbit and oculoplasty	13	9.4
	Cornea and external disease	12	8.7
	Paediatrics ophthalmology and strabismus	12	8.7
	Have not decided	11	8.0
	Medical retina	9	6.5
	Glaucoma	8	5.8
	General Ophthalmology	7	5.1
	Neuro-Ophthalmology	4	2.9
	Ocular Oncology	1	0.7
Single most important reason for intended speciality, (n = 127)	Earning potential	12	9.4
	Prestige	1	0.8
	Challenging subspeciality	9	7.1
	Ability to combine medicine and surgery	14	11.0
	Interest as a career	46	36.2
	Working hours / family commitments	5	3.9
	Lack of experts in the subspeciality	12	9.4
	Inspired from mentor	18	14.2
	Availability at institute	2	1.6
	Research opportunity	2	1.6
	Job market	4	3.1
	Rewarding / good prognosis	2	1.6
Least preferred subspeciality choice, (n = 127)	Ocular genetics	35	27.6
	Low vision rehabilitation	20	15.7
	Vitreoretina (Surgical)	14	11.0
	Paediatrics Ophthalmology and Strabismus	10	7.9
	Orbit and oculoplasty	8	6.3
	Glaucoma	7	5.5
	Ocular Oncology	7	5.5
	Neuro-Ophthalmology	6	4.7
	Uveitis	6	4.7
	Ophthalmic Pathology	5	3.9
	Medical retina	4	3.1
	Cataract and refractive surgery	2	1.6
	Cornea and external disease	2	1.6
	General Ophthalmology	1	0.8

n = Number of participants, PG = Postgraduate, PGY = Postgraduate year of residency, SD = Standard deviation, FCPS-1 = Fellowship of College of Physicians and Surgeons Pakistan Part 1 examination.

Table II: Association between gender and intended subspeciality choice.

		Gender of participant		Total	p-value[W]
		Male	Female		
Subspeciality choice	Cornea and external disease	4 (5.4%)	8 (12.5%)	12 (8.7%)	0.029
	Cataract and refractive surgery	20 (27%)	11 (17.2%)	31 (22.5%)	
	Vitreoretina (Surgical)	20 (27%)	10 (15.6%)	30 (21.7%)	
	Glaucoma	7 (9.5%)	1 (1.6%)	8 (5.8%)	
	Medical retina	2 (2.7%)	7 (10.9%)	9 (6.5%)	
	Have not decided	4 (5.4%)	7 (10.9%)	11 (8%)	
	Paediatrics Ophthalmology and strabismus	8 (10.8%)	4 (6.3%)	12 (8.7%)	
	Orbit and oculoplasty	5 (6.8%)	8 (12.5%)	13 (9.4%)	
	General Ophthalmology	2 (2.7%)	5 (7.8%)	7 (5.1%)	
	Neuro-Ophthalmology	1 (1.4%)	3 (4.7%)	4 (2.9%)	
	Ocular Oncology	1 (1.4%)	0 (0%)	1 (0.7%)	
Total		74 (100%)	64 (100%)	138 (100%)	

% = Percentage, W = Chi-square test (when the expected count was <5 in 20% of the cells, then Fisher's exact test was applied).

Table III: Association of marital status, parental status, financial support, place of living, and authorship of scientific paper with intended subspeciality choice.

	Marital status		Total	p-value	Parental Status		Total	p-value	Financial Support		Total	p-value	Place of living		Total	p-value	Authored a paper		Total	p-value[W]
	Single	Married			No	Yes			No	Yes			Home	Hostel			No	Yes		
Cornea and External disease	5 (9.4%)	7 (8.2%)	12 (8.7%)	0.368	5 (6.3%)	7 (12.1%)	12 (8.7%)	0.809	6 (6.9%)	6 (11.8%)	12 (8.7%)	0.643	11 (10.4%)	1 (3.1%)	12 (8.7%)	0.255	7 (6.7%)	5 (15.2%)	12 (8.7%)	0.486
Cataract and Refractive surgery	10 (18.9%)	21 (24.7%)	31 (22.5%)		17 (21.3%)	14 (24.1%)	31 (22.5%)		20 (23%)	11 (21.6%)	31 (22.5%)		26 (24.5%)	5 (15.6%)	31 (22.5%)		22 (21%)	9 (27.3%)	31 (22.5%)	
Vitreoretina (Surgical)	14 (26.4%)	16 (18.8%)	30 (21.7%)		17 (21.3%)	13 (22.4%)	30 (21.7%)		21 (24.1%)	9 (17.6%)	30 (21.7%)		19 (17.9%)	11 (34.4%)	30 (21.7%)		23 (21.9%)	7 (21.2%)	30 (21.7%)	
Glaucoma	5 (9.4%)	3 (3.5%)	8 (5.8%)		6 (7.5%)	2 (3.4%)	8 (5.8%)		3 (3.4%)	5 (9.8%)	8 (5.8%)		7 (6.6%)	1 (3.1%)	8 (5.8%)		7 (6.7%)	1 (3.5%)	8 (5.8%)	
Medical retina	5 (9.4%)	4 (4.7%)	9 (6.5%)		7 (8.8%)	2 (3.4%)	9 (6.5%)		6 (6.9%)	3 (5.9%)	9 (6.5%)		7 (6.6%)	2 (6.3%)	9 (6.5%)		7 (6.7%)	2 (6.1%)	9 (6.5%)	
Have not decided	1 (1.9%)	10 (11.8%)	11 (8%)		6 (7.5%)	5 (8.6%)	11 (8%)		7 (8%)	4 (7.8%)	11 (8%)		9 (8.5%)	2 (6.3%)	11 (8%)		10 (9.5%)	1 (3%)	11 (8%)	
Paediatrics	3 (5.7%)	9 (10.6%)	12 (8.7%)		7 (8.8%)	5 (8.6%)	12 (8.7%)		8 (9.2%)	4 (7.8%)	12 (8.7%)		7 (6.6%)	5 (15.6%)	12 (8.7%)		9 (8.6%)	3 (9.1%)	12 (8.7%)	
Ophthalmology and Strabismus																				
Orbit and Oculoplasty	6 (11.3%)	7 (8.2%)	13 (9.4%)		9 (11.3%)	4 (6.9%)	13 (9.4%)		6 (6.9%)	7 (13.7%)	13 (9.4%)		11 (10.4%)	2 (6.3%)	13 (9.4%)		11 (10.5%)	2 (6.1%)	13 (9.4%)	
General Ophthalmology	2 (3.8%)	5 (5.9%)	7 (5.1%)		4 (5%)	3 (5.2%)	7 (5.1%)		6 (6.9%)	1 (2%)	7 (5.1%)		6 (5.7%)	1 (3.1%)	7 (5.1%)		5 (4.8%)	2 (6.1%)	7 (5.1%)	
Neuro-Ophthalmology	2 (3.8%)	2 (2.4%)	4 (2.9%)		2 (2.5%)	2 (3.4%)	4 (2.9%)		3 (3.4%)	1 (2%)	4 (2.9%)		3 (2.8%)	1 (3.1%)	4 (2.9%)		4 (3.8%)	0 (0%)	4 (2.9%)	
Ocular Oncology	0 (0%)	1 (1.2%)	1 (0.7%)		0 (0%)	1 (1.7%)	1 (0.75)		1 (1.1%)	0 (0%)	1 (0.7%)		0 (0%)	1 (3.1%)	1 (0.7%)		0 (0%)	1 (3%)	1 (0.7%)	
	53 (100%)	85 (100%)	138 (100%)		80 (100%)	58 (100%)	138 (100%)		87 (100%)	51 (100%)	138 (100%)		106 (100%)	32 (100%)	138 (100%)		105 (100%)	33 (100%)	138 (100%)	

% = Percentage, W = Chi-square test (when the expected count was <5 in 20% of the cells, then Fisher's exact test was applied).

Participation of ophthalmology residents from Khyber Pakhtunkhwa was more, 50 (36.2%), as compared to other areas, and representation of postgraduate Year 4 (PGY4) residents were 42 (30.4%) followed by PGY1 (38, 27.5%). The top three subspeciality preferences among residents were cataract and refractive surgery followed by vitreoretinal surgery and orbit and oculoplasty (Table I). Out of 138, 127 residents gave further details about their intended subspeciality choice. Most of the residents (69, 54.3%) said that their intended subspeciality was not available at their parent institute but 88 (69.3%) said that it was available elsewhere in Pakistan. PGY1 residency was the time during which most of the residents, 45 (35.4%), had decided on their intended subspeciality. The single most important motivation to select a particular subspeciality was interest in it as a career. The top three least preferred subspecialities among the residents were ocular genetics (27.6%) followed by low vision rehabilitation and vitreoretinal surgery. Table I shows the characteristics of study participants.

Out of 138 residents, 127 gave their opinions on factors that affect their decision to choose a particular subspeciality. Among them, interest as a career (48.8%), ability to combine surgery and medicine (33.9%), and inspiration from a mentor (31.5%) were the top three reasons. The common obstacles for not choosing a particular subspeciality were challenging subspeciality (54, 42.5%) followed by non-availability of fellowship at the parent institute 38 (29.9%) and demanding patients (25, 19.7%). When asked about the plans after subspeciality fellowship, the majority (95, 74.8%) wanted to work in Pakistan after the successful completion of their fellowship. About practice settings, 52 (40.2%) said that their preference was a teaching hospital in a government set-up.

When the association between gender and the intended subspeciality was analysed, it was found that a significant difference ($p = 0.029$) was present as shown in Table II. Females were more interested in cornea and external disease, orbit and oculoplasty, medical retina, and general ophthalmology while males were more interested in cataract and refractive surgery, vitreoretinal surgery, and paediatrics ophthalmology and strabismus.

Marital status, parental status, financial support from parents, place of living, and authorship of a scientific paper did not have any significant association with decision of the intended subspeciality choice (Table III).

DISCUSSION

According to the study's qualitative phase, the most popular subspeciality choices were paediatric ophthalmology and vitreoretinal surgery, and the patient load was the key deciding factor. Lack of supervisors, formal training, and appropriate equipment were noted as obstacles to choose a particular subspeciality. According to the quantitative phase of the study, cataract and refractive surgery was the most often chosen subspeciality among the Pakistan residents. The most important factor in choosing a subspeciality was interest in the field as a career, and most participants said that choosing a challenging speciality was the greatest obstacle.

Among the participants, the three most popular subspeciality choices were cataract and refractive surgery, surgical vitreoretina, and orbit and oculoplasty. These findings suggested that the residents chose a subspeciality with most patient load and the ability to practice in remote locations. These findings differed from those of researches done on residents in ophthalmology in the United States and Canada but were comparable to those from Saudi Arabia. The three most popular subspecialities among Americans were vitreoretina (35.6%), cornea and external disease (25.2%), and glaucoma (12.6%).[7] Medical retina (36%), anterior segment/cataract (34%), and cornea (32 %) were the top priority among Canadian residents.[8] However, among Saudi residents, laser refractive surgery (62%) was the most chosen subspeciality.[13] It was apparent from these studies that residents had historically placed cataract and refractive

surgery among their top choices. The explanation may be because this subspeciality has more patients than others and the outcomes of cataract and refractive surgery are excellent, both of which contribute to the professional satisfaction. The present researchers observed a statistically significant difference (p=0.029) when the relationship between speciality preferences and gender was examined. Males showed more interest in surgical vitreoretina (20/138 *vs*. 10/138) and cataract and refractive surgery (20/138 *vs*. 11/138), while females showed greater interest in orbit and oculoplasty (8/138 *vs*. 5/138). These results indicated that females chose extraocular and aesthetic surgeries, whereas males were more likely to pick a subspeciality that involved intraocular surgery. The present findings were consistent with those of the Canadian study, which found that females were less likely than males to pursue refractive surgery and surgical retina.[8] Likewise, the authors looked at the impact of residents' intended subspeciality choices and their marital status, parental status, financial situation, place of residence, and authorship of scientific papers, but in no case did they find any differences that were statistically significant. This clearly implied that choosing a subspeciality was heavily influenced by gender. Females may be more attracted to a subspeciality with a somewhat shorter learning curve since they have other obligations, such as family duties.

Through the study's qualitative phase, the reasons for selecting a certain subspeciality were explored. Patient-flow into the OPD, job market, and professional satisfaction were the top three reasons. However, the quantitative findings were quite different. The popular reasons for choosing a specific subspeciality were interest as career, inspiration from a mentor, and the ability to combine medicine and surgery. Contrary to the predictions, it was intriguing that Pakistani residents' decisions were mostly motivated by professional needs rather than financial benefits. These findings diverged from reports of other researchers. According to Gedde *et al*., the key factors influencing a subspeciality choice among American residents were acquiring special skills, favourable job market, and prestige.[7] The ability to combine medicine and surgery, being inspired by a mentor, and intellectual stimulation, however, were the most important criteria among Canadians.[8] Similarly, Al-Essa *et al.* discovered that Saudi residents' preference for a certain subspeciality was mostly driven by their ability to combine medicine and surgery.[13] One may generalise from the aforementioned studies that the ability to combine medicine and surgery, as well as mentorship, were the most often cited motivations. Ophthalmologists can benefit from the variety of clinical treatment offered in their area of expertise due to its ability to combine medicine and surgery. Likewise, mentors play a crucial role in motivating the residents. The residents aspired to emulate their role models since good mentors serve as good role models.

Ocular genetics, low vision rehabilitation, and vitreoretina (surgical) were the three least preferred subspecialities, respectively. Most residents stated, during FGDs and IDIs, that the major reason for not choosing a specific fellowship was a lack of supervisors. According to the survey's findings, the primary reasons of not selecting a specific fellowship were challenging subspecialities, the lack of fellowships at parent institutions, and challenging patients. Therefore, it is presumed that Pakistani residents are cautious to select a fellowship where there is a lack of direction and structured training. As these subspecialities have developed FCPS training programmes under the College of Physicians and Surgeons Pakistan (CPSP), the popularity of surgical vitreoretina and orbit and oculoplasty among the residents support this assumption.[14] About 14 different subspeciality fellowships are offered by the International Council of Ophthalmology (ICO), and so far they have trained more than 1200 fellows from all over the world in these fields.[15] However, the CPSP only offers fellowship training in three subspecialities at the moment: paediatric ophthalmology and strabismus, orbit and oculoplastic, and vitreoretinal ophthalmology.[14] Furthermore, only a limited number of institutions in Pakistan offer organised fellowship training in these subspecialities. It can thus be declared with certainty that the scarcity of training programmes, facilities, and supervisors are the reasons why residents do not choose other subspecialities. A study was conducted on Indian residents to find out why paediatric ophthalmology is not a popular subspeciality.[11] They concluded that the majority of residents (69%) were hampered to purse this subspeciality due to lack of organised training and untrained faculty. The obstacles faced by ophthalmology residents in Pakistan are almost the same as faced by Nigerian residents which demands prompt action.[16] It is usually difficult to begin a fellowship in a new subspeciality since it necessitates much documentation and communication with other departments, particularly in medical education. The authors would advise the government and health authorities to view this challenge as an opportunity to improve medical education and come up with a solution. Focus should be placed on faculty develop-ment, and institutions should encourage the creation of additional training opportunities. Otherwise, human resources will soon run out of potential, which would inevitably under-mine healthcare.

CONCLUSION

The strength of this study was that it was a mixed-methods study which allowed it to explore the life experiences of Pakistani residents. This study had a good representation of residents from all over the country. This study highlighted the concerns of the residents and identified the major obstacles in achieving the goals. However, there were a few shortcomings because of the prevailing COVID-19 pandemic. The FGD of eight residents could not be arranged and finally the authors had to rely on a group of six. Secondly, 11 out of 138 residents did not complete the whole survey and those may have interfered with the results. It is, thus, recommended to expand the scope of this work by asking the residents and authorities for their suggestions about successful strategies to face these

challenges. Ophthalmology residents in Pakistan have different approaches and motivations for selecting a fellowship. Professional needs and scientific reasons are their main motivations and not financial gains. Most of the residents want to serve the country, but the lack of structured training is not allowing them to accomplish their aim of the desired subspeciality and hence, they must choose a readily available subspeciality. This practice is saturating specific subspecialities and creating a large vacuum in others. Creating more structured subspeciality opportunities is the only way out to resolve the human crisis issue of the future and for this, Pakistan authorities must work harder than ever.

ETHICAL APPROVAL:

An ethical approval was obtained from Advanced Studies and Research Board (ASRB) of Khyber Medical University, Peshawar before commencement of the study.

PARTICIPANTS' CONSENT:

Informed written consents were obtained from participants of Phase 1 while consents by filling an online questionnaire were obtained from participants of Phase 2.

COMPETING INTEREST:

The authors declared no competing interest.

AUTHORS' CONTRIBUTION:

YJM: Contributed to the idea, design, analysis, and interpretation of data, and drafting, and final approval of the manuscript.

FK, NA, KR: Contributed to the design and interpretation of data, and drafting and final approval of the manuscript.

SF: Contributed to the design, and acquisition of data, and drafting and final approval of the manuscript.

All authors approved the final version of the manuscript to be published and agreed to be accountable for all aspects of the work.

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