

## Evaluation of Resident Satisfaction Towards Cataract Surgery Training in Nepalese Ophthalmology Residency Programs

Nayana Pant<sup>1</sup> , Subash Bhatta<sup>1</sup>   
<sup>1</sup>Geta Eye Hospital, Dhangadhi, Nepal

### ABSTRACT

**Introduction:** Although cataract surgery training is considered an integral part of all ophthalmology residency programs in Nepal, there is no literature about the training patterns and its effectiveness. The objective was to study the perspectives of young ophthalmologists towards the patterns and quality of cataract surgery training in their residency programs.

**Materials and methods:** An anonymous web-based survey was conducted among MD Ophthalmology graduates completing their residency between January 2018 and December 2020 in Nepal.

**Results:** A total of 74 respondents included graduates from all 13 medical colleges under four universities/academic bodies. All the respondents were primarily trained in Manual Small Incision Cataract Surgery technique (MSICS) with 28.4% (n=21) also having limited exposure to phacoemulsification. Overall, 62.1% (n=46) of respondents had some exposure to wet lab training. Around 42% (n=31) had performed less than 25 cataract surgeries as a primary surgeon during residency and only 36.5% (n=27) felt confident enough to perform cataract surgery independently after completion. More than 47% (n=35) graded their cataract surgery training experience to be poor or below average.

**Conclusions:** Ophthalmology residency programs may need to reassess their surgical training methods as the majority of recently graduated ophthalmologists from Nepal feel inadequately trained in cataract surgeries.

**Key words:** Cataract surgery, Job satisfaction, MSICS, Ophthalmology residency, Surgical training.

### INTRODUCTION

The number of graduating ophthalmologists has grown significantly in recent years as an increasing number of institutions are

introducing MD ophthalmology training in their academic programs. Our country requires more ophthalmologists to provide eye services to a large number of the underserved population but there hasn't been adequate development of

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#### Corresponding Author

Dr. Nayana Pant

Geta Eye Hospital, Geta, Dhangadhi, Nepal

E-mail: pantnayana@gmail.com

Contact: +9779841658991



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eye care facilities needed for the recruitment of these ophthalmologists. Increased production of ophthalmologists without developing necessary infrastructures and job opportunities may have a negative impact on the career opportunities and professional growth of newly graduated ophthalmologists. With the increased uptake of residents, there also comes a greater responsibility to ensure and maintain a certain level of standard in quality of training. A poor residency program also increases the risk of substandard services for the patients due to poor clinical and surgical training of the enrolled candidates.

As cataract surgery is the most common surgical procedure in ophthalmology practice (Khairallah M et al, 2015), cataract surgery training remains an important component of all the residency programs. All MD Ophthalmology curricula require candidates to be able to perform cataract surgeries independently at the end of the training program. However, the curricula are non-specific about the training protocols, the surgical technique to be mastered, or the level of competence required to graduate. This allows for great variability in cataract surgery training in different residency programs. There is no literature from Nepal to understand these variabilities and their effect on the satisfaction of the residents towards the training program. Hence we conducted this descriptive study to find out the patterns of cataract surgery training and evaluate the overall satisfaction level of residents towards the training and their residency programs.

## MATERIALS AND METHODS

Focus group discussions were conducted with freshly joined ophthalmologists to construct an anonymous web-based survey using Google Docs. The survey comprised of multiple-choice and Likert-scale questions regarding the techniques of cataract surgery exposed during the residency, perceived adequacy and efficacy of the cataract surgery training, confidence in performing independent cataract surgery, and satisfaction towards the cataract surgery training, residency program, and the job obtained after the completion of the residency program. Link to the survey was sent to 87 MD Ophthalmology graduates who completed their residency between January 2018 and December 2020 from different residency programs of the country. The survey was completed in January 2021. All the responses to the survey were recorded using Statistical Package for the Social Sciences version 20 (SPSS Inc, Chicago, IL, USA). Basic statistical analyses were performed.

## RESULTS

Out of 87 ophthalmology graduates, 85% (n=74) responded to the survey. The respondents included all 13 medical colleges under four universities or academic bodies which produced ophthalmology graduates in the study period of January 2018 to December 2020 as shown in Table 1. Number of institutes under each academy varied from one to five. The maximum number of respondents from an academy was 35 and the minimum number was 6. The

**Table 1: Demographic characteristics of all respondents (n=74).**

Characteristics of respondents	Number of Respondents (%)
Gender	
Females	50(54.1)
Males	34 (45.9)
Year of graduation	
2018	16(21.62)
2019	35(47.2)
2020	23(31.08)
Academy* (No. of institutes)	
A (3)	19(25.7)
B (4)	14(18.9)
C (5)	35(47.2)
D (1)	6(8.1)
Current place of work	
NGO Hospital	43(58.1)
Academic institution	7(9.4)
Government	15(20.27)
Unemployed	7(9.4)
Private practice	1(1.4)

\*A, B, C and D in all tables refer to four different Universities/Academic bodies involved in Ophthalmology residency training programs in Nepal.

majority of respondents 58.1% (n=43) were working in NGO hospitals and 9.4% (n=7) were unemployed at the time of survey. The detailed demographic characteristics of the responders are listed in Table 1.

Table 2 shows the exposure of residents to the wet lab and different techniques of cataract surgeries. All the residents had an opportunity to perform Manual Incision Cataract Surgery (MSICS) during their training period whereas 28.4% of the respondents had some exposure to phacoemulsification. Exposure to the wet lab was seen in 62.1 %. Majority (41.9 %) of the respondents had performed less than 25 cataract surgeries as primary surgeons and only 13.5 % of residents had performed more than 100 surgeries during the residency (Table 3). Majority of the respondents 75.7% (n= 56) performed less than 10% of their total surgery cases in their primary institution (Table 4).

When asked to grade their overall residency and cataract surgery training, 25.7% (n=19) respondents graded their overall ophthalmology

**Table 2: Exposure to wet lab and different surgical techniques during residency.**

No. of respondents exposed to:	A (n=19)		B (n=14)		C (n=35)		D(n=6)		Total (n=74)	
	N	%	n	%	n	%	n	%	n	%
Wet lab	10	13.5	6	8.1	26	35.1	4	5.4	46	62.1
ECCE	9	12.2	2	2.7	1	1.4	1	1.6	13	17.6
MSICS	19	25.7	14	19	35	47.3	6	8.1	74	100
Phacoemulsification	8	10.8	4	5.4	7	9.5	2	2.7	21	28.4

ECCE: Extracapsular cataract extraction

MSICS: Manual small incision cataract surgery



residency program to be poor or below average compared to 47.3% (n=35) of respondents who graded their cataract training experience to be poor or below average (Table 5). Majority 82.2% (n=61) of the respondents felt that good cataract surgical skills can enhance the chance of better

job placement in an early career. However only 36.5 % (n=27) of the ophthalmologists felt confident enough to perform cataract surgery independently after residency and just 33.8% (n=25) felt a sense of appreciation at their first job (Table 6).

**Table 3: Cataract surgeries performed as primary surgeon during residency.**

Number of cataract surgeries	A	B	C	D	Total frequency (%)
<25	6	8	15	2	31 (41.9)
25-49	9	5	4	3	21 (28.4)
50-74	2	0	2	1	5 (6.7)
75-99	1	1	5	0	7 (9.5)
100-199	1	0	6	0	7 (9.5)
>200	0	0	3	0	3 (4)

**Table 4: Exposure to cataract surgeries in primary institution.**

Surgeries done in primary institution (% of total surgeries done )	A	B	C	D	Total Frequency (%)
Nil	2	5	0	0	7(9.4)
<10 %	17	6	21	5	49(66.2)
10-25 %	0	3	5	1	9(12.2)
>25-50 %	0	0	1	0	1(1.4)
>50 %	0	0	4	0	4(5.4)
100%	0	0	4	0	4(5.4)
Total	19	14	35	6	74(100)

**Table 5: Self-reported satisfaction towards surgical training and overall residency program.**

Grading	Surgical training		Residency program	
	Frequency	Percent	Frequency	Percent
1 Poor	14	18.9	6	8.1
2 Below average	21	28.4	13	17.6
3 Average	31	41.9	34	45.9
4 Good	6	8.1	17	23.0
5 Excellent	2	2.7	4	5.4
Total	74	100	74	100

**Table 6: Job experiences after the completion of residency.**

Responses to the questions	Yes Frequency (%)	Maybe Frequency (%)	No Frequency (%)	Total
Confident to perform independent surgery after residency?	27(36.5)	23(31.1)	24(32.4)	74
Felt the need of good cataract surgical skill for good job placement?	61(82.2)	10(13.5)	3(4.1)	74
Feel appreciated at the job?	25(33.8)	34(45.9)	15(20.3)	74

## DISCUSSION

Although ophthalmology residents need to perform various ophthalmic surgeries, exposure and competency in cataract surgeries is generally considered a basic requirement in most of the residencies around the world. Accreditation Council for Graduate Medical Education (ACGME), USA requires residency programs to ensure their residents perform an average of 86 cataract surgeries, Saudi board ophthalmology curriculum demands 105 cataract cases and All India Ophthalmological Society (AIOS) requires 50 cataract surgeries to be performed by the residents to complete residency training (Tabbara K et al, 2014; ACGME 2016b, Grover AK et al, 2018). The ophthalmology curriculum in Nepal iterates the need for residents to have the competency to perform cataract surgeries but they don't mention any specific criteria apart from one academic body requiring at least 30 cataract surgeries to be performed by residents during 3 years of training. As there is also no literature regarding resident cataract surgery training patterns in Nepal, we conducted this

study to understand the state of cataract surgery training in the country from the perspective of recently graduated ophthalmology residents. This survey summarizes responses from 85% of residents completing residency between January 2018 and December 2020 from all 13 institutions in concern.

As surgical training should find a balance between skill development opportunities for residents and the safety of the patients, the use of wet labs and simulators can play an important role in residency programs. Studies have asserted that simulation helps in basic cataract surgery training by improving the technical skills and patient outcomes after cataract surgery (Lowry EA et al, 2013; Kloek CE et al, 2017). No training program in the country uses simulators for cataract surgery training. Some exposure to wet labs was available to 62.1 % (n=46), of the respondents but a separate analysis showed that only 5.4% (n=4) residents felt that they had adequate practice in wet labs to be comfortable for intraocular surgery. There were similar findings in India which show half of the final-



year residents had not experienced wet lab/ simulation lab training (Ajay K et al 2015). However, ACGME in the USA has mandatory requirements for all training institutes to have a wet lab or a surgical simulator (ACGME 2016a).

All respondents had exposure to Manual small incision cataract surgery (MSICS). In comparison, 17.6% of the respondents had exposure to conventional extracapsular cataract extraction (ECCE) which is observed in decreasing trend over the last 3 years. This shifting focus from ECCE to MSICS is also evident in residency programs in India. (Ajay K 2015, et al; Gupta S et al, 2018). Most of the western countries have also shifted from conventional ECCE to phacoemulsification as the primary technique of cataract surgery training for their residents (Kaplowitz K et al, 2017). More than two-thirds (71.6%) of the respondents in our survey had no exposure to phacoemulsification surgery during their residency. Opposed to prior thinking, studies suggest that low complication rates can be achieved by learning phacoemulsification directly and conventional ECCE skills are not a prerequisite for learning other cataract surgical techniques. (Meeks L et al, 2013; Unal M et al, 2006). As phacoemulsification is now being widely accepted as the primary choice of surgical technique for cataract surgery in Nepal too, more exposure to phacoemulsification during residency may be necessary to prepare residents for their professional careers.

In our study, 41.9% had done less than 25 cases of MSICS as primary surgeons during all three years of residency. The average number of cataract surgery performed by residents is significantly less than that reported from the USA where each resident performs an average of 162 procedures as the primary surgeon (ACGME 2020) and a major resident training institute in India where residents perform 346 MSICS cases in average during their three years residency program (Gupta S et al 2018). A study from India recommends that ophthalmology residency programs in developing nations need to provide residents the opportunity to perform 300 or more MSICS surgeries to achieve intraoperative and postoperative complications rates of less than 2% (Gupta S et al 2018). Similar studies on residents' learning curve in phacoemulsification have shown that residents require exposure to 70-80 cases to obtain adequate skills to perform independent and safe intraocular surgeries. (Kaplowitz K et al, 2017). Based on these findings, most of our residents are being exposed to an inadequate number of surgical opportunities to develop good surgical skills. The study also showed that 75.7% of residents performed less than 10% of their total surgery cases in their primary institution. The fact that the majority of residents have limited opportunity to perform cataract surgery cases in their primary institution highlights the need for governing bodies to regulate residency programs to see if they have necessary equipment and facilities, skilled consultants, and volume of patients to train the residents in required capacity.

As a matter of concern, 25.7% and 47.3% of the residents respectively graded their overall ophthalmology residency program and cataract training experience to be below average or poor. The poor satisfaction level of residents is also reflected in few other studies from developing countries (Ajay K et al, 2015, Gogate PM et al 2017). In contrast, the vast majority of respondents in developed countries were satisfied (93.6%) with their residency program and surgical exposure (Abdelfattah et al 2016). As only 36.5 % of the ophthalmologists felt confident enough to perform MSICS surgery independently after their residency, our survey suggests that our ophthalmology residency programs are still short of providing reasonable surgical exposure and confidence to residents to start a comfortable professional career.

As our data were derived from the first hand responses of the majority of freshly graduated ophthalmologists, we believe that our findings provide a window to the real status of cataract surgery training in residency programs of the country. Limitation however is the subjective

nature of the responses and recall bias. There might also have been some effects of Covid-19 pandemic in surgical exposure for residents.

## CONCLUSION

Our study, in providing some important resident perspectives about cataract surgery training in the country, points to the need for some significant changes to be made in these training programs. Based on this study, we recommend that it is high time for the concerned authorities to evaluate our training programs and work with residents and other direct stakeholders to ensure the production of skilled and satisfied ophthalmologists who can meet the challenges of their professional lives. Formulation of proper guidelines on training methods and requirements, honest implementation of these guidelines, and regular monitoring of the residency programs may prove critical in improving these programs.



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