ORIGINAL ARTICLE

Bali Journal of Ophthalmology (BJO) 2021, Volume 5, Number 1: 13-17
P-ISSN.2089-1180, E-ISSN.2302-2914

Bali Journal of Ophthalmology

The role of the community outreach program as an effort to increase the number of cataract surgeries for residents in Department of Ophthalmology, Universitas Udayana

Anak Agung Gede Anom Indraswara[1*], Ni Made Ari Suryathi[2], Ni Made Suryanadi[2], I Made Agus Kusumadjaja[2]

[1]Ophthalmology Resident of Ophthalmology Department, Faculty of Medicine Universitas Udayana, Sanglah Hospital Bali
[2]Ophtalmology Specialist, Department of Ophthalmology, Universitas Udayana, Sanglah Hospital Bali

*Corresponding to:
Anak Agung Gede Anom Indraswara; Ophthalmology Resident of Ophthalmology Department, Faculty of Medicine Universitas Udayana, Sanglah Hospital Bali;
anom_i@yahoo.com

Received: 2021-01-05
Accepted: 2021-03-13
Published: 2021-04-22

ABSTRACT

Introduction: Cataract is the most common cause of blindness and its high prevalence still a global problem. The ability to perform cataract surgery is very important for ophthalmology residents. However, the stratified referral system resulted in a small number of targeted cases of surgery. Another alternative is to look for patients outside the main and network hospitals, called a community outreach program.
Methods: This is a descriptive study to asses the impact of *Community Outreach* program for ophthalmology resident in Universitas Udayana to reach the target number of cataract surgeries. Twenty-nine residents who had undergone a minimum of 4 semesters of residency and complete the Cataract and Refractive Surgery division for 6 months and had performed cataract surgery both in and outside Bali fill out a Questionnaire regarding cataract surgeries and *Community Outreach* program.
Results: Most ophthalmology residents of Universitas Udayana (86.2%) with a minimum of 4 semesters and have passed the Cataract and Refractive Surgery division for 6 months, performed only less than 5 surgeries at the main hospital. Cataract surgery performed at network hospitals provided a significant increase in surgery opportunities. However, it was still under target where only 48.27% of residents performed >15 surgeries. Community outreach programs held outside and inside the Bali island provide a significant increase in the number of cataract surgeries, with the addition of cases to more than 15.
Conclusion: The community outreach program helps residents increase the number of cataract surgeries.

Keywords: community outreach program, ophthalmology resident, and cataract surgery.
Cite This Article: Indraswara, A.A.G.A., Suryathi, N.M.A., Suryanadi, N.M., Kusumadjaja, I.M.A. 2021. The role of the community outreach program as an effort to increase the number of cataract surgeries for residents in Department of Ophthalmology, Universitas Udayana. *Bali Journal of Ophthalmology* 5(1): 13-17.

INTRODUCTION

High blindness rates globally, including in Indonesia, is still a major problem. In 2010, an estimated 32.4 million people were blind and 191 million had visual impairments. Currently, the number of global cataract cases reaches 47.8%–51.0% of all blindness cases in the world. According to a research conducted in Indonesia, cataract is one of the most common causes of blindness with a prevalence of 1.8%.[1] It is necessary to have an adequate number of ophthalmologists following the size of the population to be able to give proper care for this problem.

In addition to ophthalmologist quantity in a nation, the quality is also a very important factor to keep in mind. Ophthalmologist education is the forefront aspect that determines the clinician quality. One of the most important things in the ophthalmology residency is the ability to perform cataract surgery. Different countries, through its corresponding organization that manages the education process for ophthalmologists, impose different target numbers of cataract surgeries during the residency. In the United States, the Accreditation College of Graduate Medical Education in charge of determining the minimal requirement, similarly in Indonesia, the Indonesian Ophthalmology Collegium – Indonesian Ophthalmology Association regulates these requirements.[2]

Over time, the ophthalmology residents encountered several problems in achieving the target number of surgery. In the current BPJS era (Indonesian Universal Health Care scheme), the main obstacle is the referral system which requires patients to seek treatment based on the severity of health condition. For example, cataract surgery without complications, the case needed by the ophthalmology resident, should be managed at type-C hospitals. On the other hand, most residency training in Indonesia are Centred at type A (Tertiary level) hospitals. This condition would result in a decreasing number of cataracts patients encountered and handled by residents.

Residency in the Department of Ophthalmology requires 4 years of training. During the study period, residents will undergo the Cataract and Refractive Surgery division (*Katarak dan Bedah Refraktif* or KBR) for 6 months. They are expected to get training and achieve sufficient skills in cataract surgery,

improve their performance efficiency through handling a targeted number of cases. Residents are required to complete 40 cataract surgery to take the national board exam and 60 procedures before completing the study. Cataract surgery competencies given to residents during the KBR division are adjusted to a predetermined curriculum, the Small Incision Cataract Surgery (SICS) procedure, and phacoemulsification. Thus, when graduated, the residents are considered competent to perform the SICS and phacoemulsification procedure independently. In comparison, ophthalmology training in Iran has required the residents to be able to perform cataract surgery with phacoemulsification since the 2nd year of residency.[3]

Department of Ophthalmology in Universitas Udayana has one main teaching hospital (Sanglah Hospital Denpasar) and four network hospitals (Mangusada Badung Hospital, Karangasem Hospital, Singaraja Hospital, and Bali Mandara Eye Hospital) to increase their chance of patient exposure and performing cataract surgery. However, all those hospitals are prioritized for residents undergoing Cataract and Refractive Surgery division. The surgery at the network hospital also involves an ophthalmologist to supervise the process. If the resident has passed the KBR division, they are given the opportunity to performed cataract surgery in the Vision and Blindness Management activities (*Kegiatan Penanganan Gangguan Penglihatan*) which are routinely held in several places across the island of Bali, in collaboration with the Bali Mandara Eye Hospital and the John Fawcett Foundation (JFF).

An alternative to help achieves target cases for residents is to look for patients outside the main and network hospitals. In our institutions, the implementation is called *The Community Outreach Program.* This program, in addition to generally reducing the morbidity of blindness due to cataracts, is also an educational medium for residents. Until now, the community outreach program has been implemented in the Bali Island area through the Vision and Blindness Management Program (PGPK) in collaboration with the Bali Mandara Eye Hospital in several locations. In addition, the ophthalmology department also routinely holds this program in Jembrana in collaboration with the Negara Hospital to obtain additional cases of cataract patients. For areas outside the island of Bali, several places that have been visited including the City of Maumere in East Nusa Tenggara, Sumba, and Sumbawa. Through this program, it is hoped that the residents will reach their target handled case thus increase their skill performance. This case report aims to describe the advantage of the *community outreach* program conducted by Department of Ophthalmology, Universitas Udayana as a solution to meet the target number of cataract surgeries for residents.

METHODS

This report is a descriptive study that analyses the survey given to residents from the Department of Ophthalmology, Universitas Udayana. Twenty-nine residents who had undergone a minimum of 4 semesters of residency and complete the Cataract and Refractive Surgery division for 6 months and had performed cataract surgery both in and outside Bali fill out a questionnaire regarding the *Community Outreach* program conducted by the Department of Ophthalmology, Universitas Udayana. All residents at least finished their residency in the KBR division, thus had performed cataract surgery for the first time under full guidance. The number of surgery performed by the residents varies from 11 to 52 cases.

RESULTS

In accordance with the questionnaire, most cataract surgeries were performed outside Sanglah Hospital. Of the 29 participants who answered the questionnaire, 25 participants (86.2%) perform less than 5 surgeries at Sanglah General Hospital, two participants perform 6-10 surgeries, and two participants perform more than 10 surgeries. This shows the difficulty of obtaining cataract surgery at Sanglah Hospital, the main teaching hospital for residents (Figure 1).

Rotation to network hospitals was able to increase the number of cataract operations performed by the residents. In the BPJS era, the status of network hospitals which mostly type C hospitals resulted in many cases of cataract patients without complications. The questionnaire results showed that two participants performed less than 5 surgery (6.89%), four participants performed 6-10 surgery (12.9%), 9 participants performed 11-15 surgery (31.03%), 14 participants performed more than 15 surgery (48.27%). These results prove that cataract patients at network hospitals for 6 months increase the number of operations, but still below the target (Figure 2).

Through the questionnaire, it also shown that 72.4% of all participants have participated in the *Community Outreach Program* in the Bali Island and 48.2% have participated in the program outside of Bali. Some residents did not have the opportunity to participate in the community outreach program both inside and outside of Bali. Among the 29 participants, 9 participants had never participated in the *Community Outreach* program in the Bali. For some who have joined this program, 11 participants

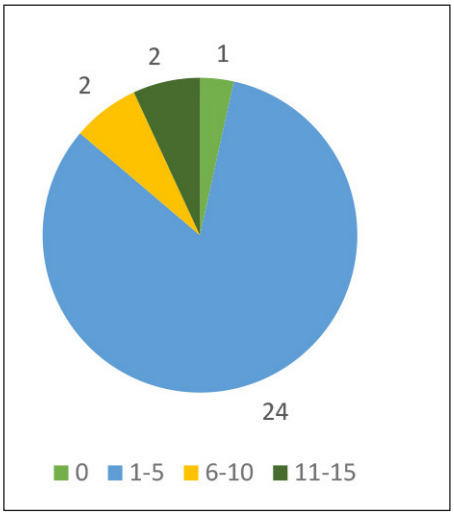

Figure 1. The number of cataract surgeries performed at Sanglah Hospital Denpasar. The data obtained through the questioner from residents who had undergone a minimum of 4 semesters of study and have passed the Cataract and Refractive Surgery division for 6 months. Most participants (86.2%) perform less than 5 surgeries at Sanglah General Hospital, which shows the difficulty of obtaining cataract surgery.

performed 1-5 surgery, 5 participants performed 6-10 surgery and 4 participants performed 11-15 surgery (Figure 3).

Community outreach programs outside the Bali area that involve residents provide a significant additional number of cataract surgeries. Based on the questionnaire, it was found that 15 participants had never participated in a *community outreach* program outside the Bali area. For residents who have participated in this program, 6 participants performed 6-10 cataract surgery, 3 participants performed 11-15 surgery and 5 participants performed cataract surgery for more than 15.

DISCUSSION

Cataract Surgery Training and the difficulty achieving the target

The need for cataract surgery is an important provision that has been established for ophthalmology residencies worldwide. In the United States, the number of cataract surgery required before a resident become an ophthalmologist is 86 cases. This number is determined by the *Accreditation College of Graduate Medical Education* to be the minimum required for a doctor before he has sufficient skills to become an eye surgeon. This is different from ophthalmology residents in various countries in Europe. The requirements for cataract surgery for residents ranged from 10 to 50 surgeries.[2,4]

The need for cataract surgery for ophthalmology residents is following the minimum surgery requirements provided by the *Kolegium Ilmu Kesehatan Mata Indonesia* (KIKMI), which is under the Association of Indonesian Ophthalmologists or *Persatuan Dokter Ahli Mata Indonesia* (PERDAMI). All ophthalmology residents are required to undergo wet lab training before allowed to perform cataract surgery on patients. Wetlab is a cataract surgery practice to introduce and train proprioceptive using pig or goat's eye. The cataract surgery wet lab was introduced at the beginning of the residency and progressed gradually until the resident was deemed competent to perform surgery on the patient. The number required for residents in Indonesia is a minimum of 40 surgical procedures to be allowed to take the national exam and 60 surgical procedures before the resident is graduated as an ophthalmologist. This shows that the minimum number of surgery by residents in Indonesia does not differ much from those of residency participants in the United States and the European Union[5,6]

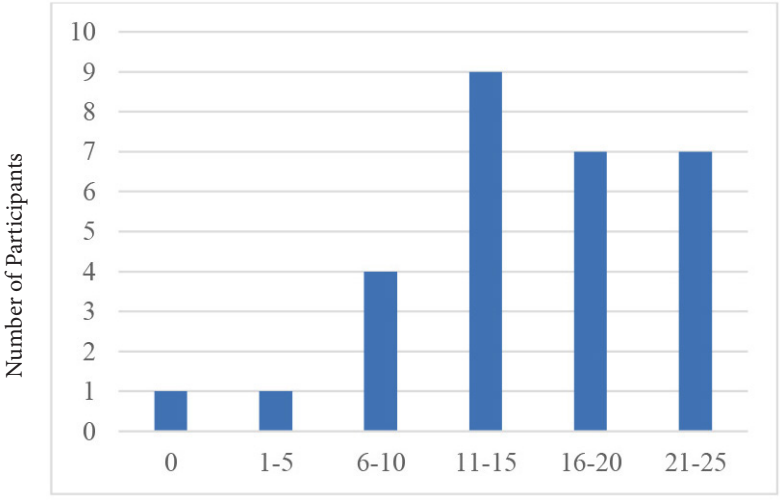

Figure 2. The number of cataract surgeries performed at Network Hospital. Fourteen residents performed more than 15 operations (48.27%), indicate that rotation to network hospital increased the cataract surgery experienced by the residents.

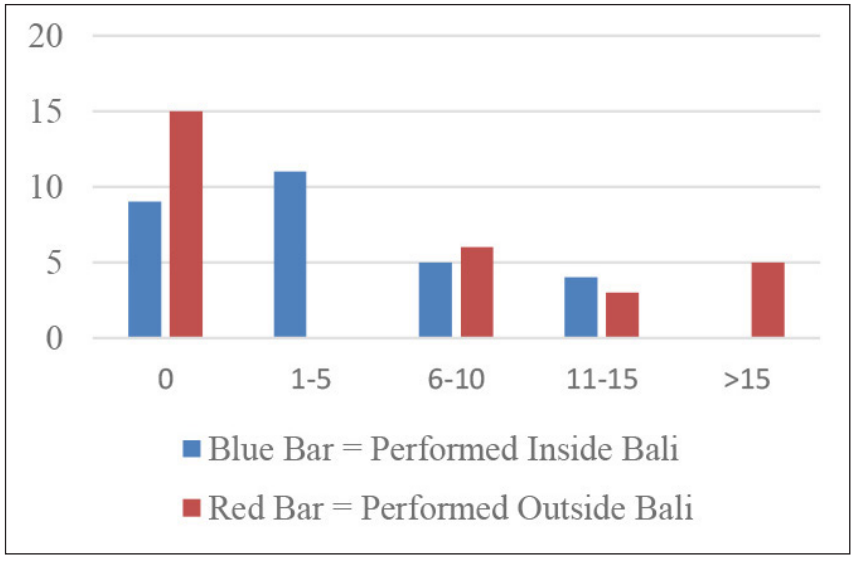

Figure 3. The number of cataract surgeries performed from the *Community Outreach* program. It is clear that this program, particularly program conducted outside Bali, provide a significant additional number of cataract surgeries for the residents.

Obstacles in Achieving the Target of Cataract Surgery

Many problems encountered by residents in achieving cataract surgery target. According to the results on the questionnaire, the number of operations from 29 residents mostly had not reached the target. This is due to the difficulty in finding cataract surgery for residents, which is due to several factors. Sanglah Hospital Denpasar, the main teaching and a type A hospital, which is the main referral hospital. Following the regulations by the *Badan Penyelenggara Jamian Sosial* (BPJS) number 2 the year 2018

which regulates health services including cataract patients, the referral system must be stratified from primary health services gradually increased according to the severity of the disease. This regulation resulted in only a rare, complicated or highly difficult cases are treated in Sanglah Hospital. This resulted in cataract patients at Sanglah General Hospital are at different competency level from the patients suitable for resident training.

The second problem is the limited number of supervision. The required number of resident operations can be resolved by opening new facilities outside the main teaching hospital. However, this is also problematic due to the insufficient number of specialists in-network hospitals who can guide the surgery process performed by residents. This relates to the provision that every cataract surgery procedure performed by a resident must be accompanied by at least one ophthalmologist. This was also mentioned by dr. I Wayan Gde Jayanegara, Sp.M (K), as the head of the KBR division of the ophthalmology program that there are a lot of type C hospitals that can be used for residents to get cataract surgery cases, but this is hindered by the lack of the number of ophthalmologists from related hospitals. For surgery in the community outreach program, until now assistance has been conducted by ophthalmologists under the Bali branch of PERDAMI who were on duty during the program.

The Importance of the *Community Outreach* Program for Residents and the Community

The Head of the community ophthalmology division of Udayana University, dr. Ni Made Ari Suryathi, M. Biomed, Sp.M (K), stated that the community outreach program aims to reach patients in remote areas with difficult access to health services. Problems faced by patients include distance, time, and cost. This program is declared successful if there is an increase in services and health in an area after the program is implemented. The Bali branch of the PERDAMI community ophthalmology service coordinator, dr. Ni Made Suryanadi, Sp.M said that currently the community outreach program in Bali has been implemented optimally through the PGPK program in collaboration with the Bali Mandara Eye Hospital. The surgery is held in a mobile operating unit which is routinely held several times each month, in certain areas around the island of Bali. Through the cataract surgery community outreach program, the Universitas Udayana ophthalmology program strives to prioritize public health services and at the same time, residents can improve their abilities and increase their operating experience.

As said by the head of the Universitas Udayana ophthalmology program, Dr.dr. Anak Agung Mas Putrawati Triningrat, Sp.M (K), the process of education and training for cataract surgery in the Universitas Udayana in principle always adheres to the guidelines provided by KIKMI, every learning target in quality and quantity including operation targets is also following the KIKMI guidelines. This further emphasizes the importance of the *Community Outreach* program for Universitas Udayana ophthalmology residents. To meet the operational quantity target as stipulated by KIKMI, this program offers a significant increase in the number of surgery for residents, as shown by the data obtained in the questionnaire. After all, the importance of operating training and exposure to environmental conditions during residency to provide the best results after residents become specialists.[7]

The number of surgery obtained by residents who have participated in the community outreach program both inside and outside the Bali Island area showed that this program is an important component that can facilitate reaching the target number of surgeries. Besides, this program helps in providing exposure to varying operating conditions to the resident. A study by Gupta et al stated that exposure to operating conditions plays an important role in the development of the ophthalmologist candidate. Also, in a study conducted in Manchester, it was found that the learning curve for specialist candidates has an important role in the development of the quality of an ophthalmologist candidate because it includes various aspects including problem-solving. [8,9]

Our expert, Dr.dr. Putu Yuliawati, Sp.M (K) and dr. I Gusti Ayu Juliari, Sp.M (K) as a specialist doctor who is experienced in participating in the *Community Outreach* program as a mentor, stated that there is a significant difference from the atmosphere and preparation for surgery in hospitals and outside hospitals (such as in the *Community Outreach* program). This affects the operation process and can be used as a lesson to achieve the best operating results in any condition. From the perspective of the community, this program is very beneficial, especially for people who live in areas without an ophthalmologist. As a comparison, according to data from the Ministry of Health's Pusdatin 2014, the number of ophthalmologists in East Nusa Tenggara is only 10 doctors while serving a population about 994,360 people. This support this program as public health services, especially to increase the rate of cataract surgery in area.[10]

Community Outreach Programs in the Area of Bali Island and Outside Bali Island

Based on the results of the questionnaire, 72.4% of all participants have participated in this program in the Bali Island area and 48.2% have participated in the program outside the Bali Island. This proves the need to increase the number of community outreach programs outside Bali so that more residents get an opportunity to join the program. All participants who have participated in this program had experienced a significant increase in the number of operations, especially in programs held outside Bali.

The ophthalmology program both inside and outside Bali has different advantages and disadvantages. As stated by Dr. dr. Putu Yuliawati, Sp.M (K), the community outreach program held outside Bali requires a different form of preparation. Limited tools and materials require greater logistical capabilities, compared to programs held in the Bali. Besides, there is difficulty of keeping track of the surgery results due to distance, making it difficult to carry out a continuous follow-up.

The positive side of the program held outside Bali Island is the relatively higher number of operations due to the large

number of patients who have not been treated. Besides, there are differences in the morphology and conditions of patients between outside and inside the island of Bali. This can help residents to recognize the types and procedures that must be performed in the cataract surgery. Our expert, dr. I Wayan Gde Jayanegara, Sp.M (K), said that there was an influence on the results of surgery on different patients and settings during surgery. The limitations of supervision due to the lack of facilities such as observation cameras also impose limitations on supervision, so that the opportunities given to residents will also be different.

CONCLUSION

Community outreach programs can provide benefits for ophthalmology residents as well as the community. The ophthalmology resident is greatly helped in increasing the number of operations to meet the target of cataract surgery. The community outreach program held outside the island of Bali requires more preparation, but it is in line with the potential for a larger number of cataract patients to increase the number of resident surgeries. For the community, the community outreach program can help people who need eye care services in areas that lack facilities and doctors. The effectiveness of this program cannot be measured qualitatively.

CONFLICT OF INTEREST

All authors declared no conflict of interest.

FUNDING

No additional funding from any third-party sources.

STUDY APPROVAL

Study has been approved by Department of Ophtalmology, Universitas Udayana. All participants had provided consent before filling the questionnaire.

AUTHOR CONTRIBUTION

All authors contributed equally in all study phases.

REFERENCE

1. Zafar S, Chen X, Sikder S, Srikumaran D, Woreta F. Outcomes of resident-performed small incision cataract surgery in a university-based practice in the USA. Clin Ophthalmol. 2019; 13:529–34. DOI: 10.2147/opth.s198870
2. Tzamalis A, Lamprogiannis L, Chalvatzis N, Symeonidis C, Dimitrakos S, Tsinopoulos I. Training of Resident Ophthalmologists in Cataract Surgery: A Comparative Study of Two Approaches. J Ophthalmol. 2015:1–7. DOI: 10.1155/2015/932043
3. Hashemi H, Babamahmoodi A, Fotouhi A, Asgari S. Revisiting the cataract surgery curriculum for ophthalmology residents: A narrative review. Iran J Ophthalmol. 2015;26(4):178–82.
4. Justin GA, Custer BL, Ward JB, Colyer MH, Waller SG, Legault GL. Global health outreach by United States ophthalmology residency programs: Understanding of host country systemsbased practice. Mil Med. 2019;184(11–12):e642–6. DOI: 10.1093/milmed/usz100
5. Pandey S, Sharma V. Cataract surgery training during ophthalmology residency in India: Challenges and how to overcome them? Indian J Ophthalmol. 2017;65(12):1279. DOI: 10.4103/ijo.ijo_1032_17
6. Kanellopoulos AJ. Why I Chose to Practice Ophthalmology in Europe. 2013:70–1.
7. Al Saedi NG, Al-Sharif EM, Mousa A, Alsuhaibani AH. The impact of surgical training on the practice of recently graduated ophthalmologists at Riyadh's ophthalmology residency program. Saudi J Ophthalmol. 2019;33(4):319–25. DOI: 10.1016/j.sjopt.2019.08.001
8. Gupta S, Haripriya A, Vardhan S A, Ravilla T, Ravindran RD, Shekhar M. Visual Acuity Outcomes in Resident-Performed Manual Small-Incision Cataract Surgery. Ophthalmology. 2019;126(5):764–5. DOI: 10.1016/j.ophtha.2018.12.036
9. Keeffe MO. Congenital cataract surgery. J Clin Exp Ophthalmol. 2016;7(4):1504–5. DOI: 10.4172/2155-9570.c1.036
10. Rumerung G, Rares LM, Saerang JSM. Perbandingan prevalensi katarak senilis di daerah pantai dengan di daerah pegunungan. e-CliniC. 2016; 12:4(1). DOI: 10.35790/ecl.4.1.2016.12290