

Original Article

Training Needs Assessment for a Bachelor of Science Program in Eye Care at the University of Rwanda

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Abstract

Background

The University of Rwanda, established the Ophthalmology Department in 2004 to train Ophthalmic Clinical Officers (OCO). A proposal was developed towards upgrading the qualification level of the OCOs training at the University of Rwanda.

Aim

This study aimed to assess the need to upgrade the qualification of ophthalmic clinical officers to improve eye health services in Rwanda.

Methodology

A descriptive cross-sectional study was conducted among 87 participants comprised of ophthalmic clinical officers, eye health development stakeholders, and employers in Rwanda selected purposively. Data analysis was performed using SPSS version 16.

Results

The results showed that 77% of participants in the stakeholders group and 51.4% in the OCOs group were males. About 97% (n= 34) of the OCO responded “Yes” to the questions “Do you think some of the weaknesses related to quality practice are related to the level of training?” and “Does your qualification have any effect to your professional development?” Furthermore, 85% had never been promoted at any employment position, 100 % (n=35) alumni and 84 % (n=22) stakeholders agreed that there is a need for bachelor’s degree program.

Conclusion

The need for developing new programs in ophthalmology including a Bachelor of Science degree program for OCOs was evident.

Rwanda J Med Health Sci 2021;4(3):357-365

Keywords: Rwanda, Allied Eye Health professional, Ophthalmic Clinical Officers, Ophthalmology, Optometry

Background

Rwanda is a country of nearly 13 million people.[1] The prevalence of blindness is 1.8% and about 0.6% of the population is blind in both eyes and 12% have a correctable refractive error.[2,3] Despite substantial growth in its economy, approximately 50% of the population still lives below the poverty line with the majority residing in the rural areas.[1]

Currently, there are 16 Ophthalmologists, all of whom were trained abroad, 65 Ophthalmic Clinical Officers (OCO) trained locally, four optometrists, and ophthalmic nurses whose number could not be ascertained.[4] This implies that there is one (1) ophthalmologist for every 750,000 people, one (1) optometrist for every 2,400,000 people, and one (1) OCO for every 184,615 people.

The VISION 2020 “the right to sight” targets one (1) ophthalmologist to 250,000 people, one (1) optometrist per 600,000 people and one (1) OCO per 100,000 people. Rwanda is yet to meet 50% of the required standard[5] The same applies to the optometrists, for which there is still a wide gap in the available number compared to the standard. With the improved district hospital infrastructure to incorporate visual centres,[6] the work of the optometrist is currently handled by the ophthalmologists and OCOs, bringing a challenge in the collegiality of the eye professionals and the delivery of quality eye care services.

The World Health Organization (WHO) and the International Agency for Prevention of Blindness (IAPB) declared in 1999 a joint program to eliminate avoidable blindness called “Vision 2020—the right to sight”.[7] Among its strategies was to ensure an adequate number of eye health personnel at all levels of care to tackle major blinding diseases. OCOs are allied eye health personnel with an advanced diploma qualification (minimum one year) in ophthalmology, including ‘Techniciens Supérieurs en Ophthalmologie’ in Francophone countries.[5]

With the vision 2020 the right to sight target of 1 OCO per 100.000 people in 2020 [8], the University of Rwanda, College of Medicine and Health Sciences (UR-CMHS) established the Ophthalmology Department in 2004 to train OCOs.[9] A total of 120 OCOs have been trained until 2020 and only 65 of those trained are in the eye care service.[9] The job description of OCOs is in prevention, treatment and rehabilitation of avoidable blindness and other eye diseases.[10] This cadre works with Ophthalmologists in the delivery of eye care services and is part of task shifting to meet the Vision 2020 goals.[11]

With the above deficiency for eye care human resource, the majority of ophthalmologists are based in the referral hospitals and some in private institutions which are mostly based in cities and towns leaving the rural and semi-urban settings with severe deficit.[12] The Rwanda Ministry of Health (MoH) has placed vision centres in provincial hospitals. After successfully piloting the sustainable vision centres project at Ruhengeri hospital, the service is currently being rolled out to all provincial hospitals in Rwanda[6] and at the UR-CMHS through public-private partnership policy that brought in One-Sight, a Non-Governmental organization.

In addition, the MoH Strategic Plan for Eye Health (2018-2024)[13] that was partly informed by the results from this study (OCO qualification upgrade) clarified that there was actual need for qualified and competent OCOs through the upgrading of the current advanced level to the bachelor’s degree which would close the gap in practice. The aim of this study was to assess the need for upgrading the qualification of ophthalmic clinical officers as well as exploring possible programs that could be introduced in the future in the perspective of eye health delivery stakeholders and practitioners to improve eye health services in Rwanda.

Methodology

This was a cross-sectional descriptive study utilizing self-administered questionnaires to gather in-depth information. This study consisted of two categories of participants: OCOs and stakeholders. Data collection was carried out among OCO alumni currently working in various Districts, Referral and Private hospitals, Non-governmental organizations, and stakeholders supporting the eye care system in Rwanda. Purposive/judgmental sampling was used to invite 57 OCO alumni to participate in the survey to identify the needs for the proposed program, these alumni were selected from the register of the Rwanda Ophthalmic Clinical Officers and Cataract Surgeons (ROCOCS). In addition, about 30 employers and other stakeholders working in the eye care system in Rwanda were included in this study. OCOs not practicing in Rwanda or the East African Region were excluded from this survey due to the challenges related to communication and data collection.

Data collection was done from July to November 2016, using self-administered questionnaires (paper-based and online) that were in both English and Kinyarwanda. Questionnaires for the OCO alumni were developed and verbatim back and forward translation of the questionnaire from English to Kinyarwanda was performed. The questionnaire was developed by researchers and piloted on ophthalmology department student before being approved for data collection. The questionnaires were distributed via emails to the respondents, while those of the stakeholders were delivered by hand. The descriptive data analysis to obtain frequencies and percentages, was performed using SPSS version 16.

Ethical Considerations

Ethical clearance from Institutional Review Board (IRB, CMHS) (NO: 015/CMHS IRB) was obtained before the start of data collection. For anonymity and confidentiality purposes, identification numbers were coded to each questionnaire excluding the name of the participants and their participation was voluntary. Data were kept in an encrypted password-protected computer in the ophthalmology department.

Results

A total of 57 questionnaires were distributed to OCOs, of which about 35 were received back from the OCOs representing a response rate of 61.4% and 27 (90%) out of 30 for stakeholders. Male participants comprised 51.4% of the OCOs and 77% of the stakeholders (Table 1 and Figure 1). Most of the stakeholders were hospital directors or head of departments aged between 30 to 59 years, based predominantly in urban settings. (Figure 1)

77% of the respondents felt they were confident in their day-to-day work activities, even though 88% of them were confronted with technical challenges related to their background training (OCOs) (Table 1). At least 62% of OCOs claimed that their level of knowledge and skills did not match the task assigned to them after graduation. Most (65.7%) of the respondents were not satisfied with their current position, and only 14% of the respondents had been promoted from one employment position rank to another and most of them were planning to upgrade academic level (88.6%) (Table 1). All (100%) of the respondents agreed that the BSc program was needed in the ophthalmology department.

Table 1. Needs for OCOs to upgrade to BSc qualification (n=35)

Gender of participants	N°	(%)
Male	18	51.4
Female	16	45.7
Prefer not to say	1	2.9
Total	35	100
Respondent's questions regarding the need for upgrading to the BSc program	No N(%)	Yes N(%)
Do you feel confident when executing daily work activities?	8(22.9)	27(77.1)
Do you face any technical challenges related to your training during your daily work?	4(11.4)	31(88.6)
Does your level of knowledge and skills match with the task you are assigned?	22(62.8)	13(37.2)
Do you think some of the weaknesses related to quality practice are related to the level of training?	1(2.9)	34(97.1)
Are you satisfied with your current position?	23(65.7)	12(34.3)
Have you ever been promoted from one rank to another?	30(85.7)	5(14.3)
Does your qualification have any effect to your professional development?	1(2.9)	34(97.1)
Do you have plans to upgrade your qualification?	4(11.4)	31(88.6)
Do you think BSc program is needed in Ophthalmology department?	0(0)	35(100)
Most Required Skills	N(%)	
Pharmacology	7(26)	
Pathology	12(44)	
Refraction and Low Vision	19(70)	
Minor Surgeries	8(30)	



Figure 1. Social demographic information of stakeholders, participants reported their gender, age, residential and position. Percentages (%) of response from stakeholders in eye care in Rwanda (n=27 participants).

The majority, 26 (74.2%), of OCOs reported that they had not yet been promoted due to their level of qualification. On top of that, 19 (54.2%) reported the intention to change their career, while 12 (34.2%) just awaited the opportunity to upgrade their qualification, (Table 2).

The preferred mode of study was the weekend program as mentioned by 22 (62.8%) of the respondents, and most 24 (68.5) of the OCOs were interested in upgrading their skills to optometry and refraction (Table 2).

Table 2. Reasons why OCOs were not promoted, recommended field of study and program delivery mechanism; (n = 35).

Gender	Reasons for OCOs not being promoted					
	Lack of qualification	Skills	Government Policy	Prefer not to answer		
Male	13	2	2	1		
Female	12	1	0	3		
Prefer not to say	1	0	0	0		
Total (%)	26 (74.2)	3 (8.7)	2 (5.7)	4 (11.4)		
Consequence of lack of career advancement options for OCOs						
Gender	Change of Career	Expectant of BSc Program	Join the Private sector	Prefer not to answer		
Male	12	3	0	2		
Female	7	9	1	0		
Prefer not to say	0	0	0	1		
Total (%)	19 (54.3)	12 (34.3)	1 (2.8)	3 (8.6)		
Preferred career advancement as determined by the market needs						
Gender	Optometry Refraction	Cataract and Minor surgeries	Community Ophthalmology	Low Vision	Others	Prefer not to answer
Male	12	9	11	2	2	1
female	12	7	4	4	2	1
Total (%)	24 (68.5)	16 (45.7)	15 (42.8)	6 (17.1)	4 (11.4)	2 (5.7)
Opinions for the delivery method of the Program to in-service OCOs						
Gender	Categories					
	Bridging	Weekend Program	E-Learning	Full Time	Prefer not to answer	
Male	5	11	1	3	0	
Female	3	10	7	1	1	
Prefer not to say	0	1	0	0	0	
Total (%)	8 (22.8)	22 (62.8)	8 (22.8)	4 (11.4)	1 (2.8)	

Results for Stakeholders

Approximately 90% (27/30) of distributed self-administered questionnaires were returned from stakeholders consisting of administrators, managers, departmental heads and country administrators of various non-governmental organizations (NGOs) collaborating with the Rwandan MoH on blindness prevention. The views of stakeholders working with OCOs with advanced diplomas currently employed in various hospitals, institutions and organizations quite relevant. Out of the 27 respondents, 26%(n=7) were female and 74%(n=20) were male. Participants were predominantly within the age bracket of 40 years & above (70%), with the majority residing in the Urban setting (68%, n=18). (Figure 1). Several of the stakeholders including Hospital Directors (37%, n=10),

Heads of Departments (25%, n=8), Managers (22%, n=7) and Country Directors (15%, n=4) expressed some concerns related to the deficiencies of OCOs in eye health care delivery within their institutions, (see Figure 1 and Table 3).

Most of the stakeholders agreed with the statement related to limited professional skills (61%, n=14) and management skills (57%, n=12) weakness among the OCOs. The majority of stakeholders agreed that there was a need to upgrade the qualification level of OCOs (84 %, n=22) and the preferred options were bachelors in ophthalmic clinical officers' program (88%, n=23) and optometry (89%, n=24). (Table 3)

Table 3. Stakeholder’s view on Strength, weakness, opportunities, and challenges of OCOs in eye care services delivery

Frequency distribution on the responses on the strength of OCOs					
	Very satisfied N(%)	S o m e w h a t Satisfied N(%)	Neither Satis- fied nor Dis- satisfied N(%)	S o m e - what Dis- satisfied N(%)	Very Dissat- isfied N(%)
Strength in Profession- al Skills (n=26)	7(26.9)	17(65.3)	1(3.8)	1(3.8)	0(0)
Strength in Profession- al management (n=26)	6(23.0)	14(53.8)	5(19.2)	1(3.8)	0(0)
Eye Health Workforce (n=25)	6(24.0)	13(52.0)	1(4)	4(16.0)	1(4)
Frequency distribution about weakness in Professional Skills and Management of OCOs as well as need for BSc program					
	S t r o n g l y Agree N(%)	Agree N(%)	Undecided N(%)	Disagree N(%)	Strongly Dis- agree N(%)
Weakness in Profes- sional Skills (n=23)	2(8.7)	12(52.2)	6(26.1)	3(13.0)	0(0)
Weakness in Profes- sional Management (n=21)	2(9.5)	10(47.6)	7(33.3)	2(9.7)	0(0)
Need for BSc qualifica- tion (n=26)	18(69.2)	4(15.3)	4(15.3)	0(0)	0(0)
Distribution of Prioritized Specializations					
Community Ophthal- mology (n=27)	12(44.4)	6(22.2)	6(22.2)	3(11.1)	0(0)
Optometry (n=27)	16(59.2)	8(29.6)	1(3.7)	2(7.4)	0(0)
Ophthalmic Clinical Officer (n=26)	19(73.1)	4(15.4)	1(3.8)	2(7.7)	0(0)
Distribution of the preferred Mode of Delivery of the BSc Program					
	Full Time N(%)	Part Time N(%)	Bridging N(%)	Bridging and Full Time N(%)	Weekend N(%)
Mode of delivery (n=27)	8(29.6)	5(18.5)	2(7.4)	4(14.8)	8(29.6)

Discussion

OCO Alumni

The results of the needs assessment revealed that the majority of the OCOs were not confident when executing their daily professional duties and many of them (88.6%) were facing technical challenges in the process. This shows that there are many OCOs providing services with difficulty owing to their limited skills. A study conducted in the United State of America (USA) showed that confidence is an important characteristic in a health care workforce and it is recognized as one of the most important factor to affect performance, and therefore confidence gaps should be addressed-especially among those with the most significant obligations of caregiving.[14]

All the OCOs expressed that their knowledge and skills were not matching with their daily work. This is a key issue, and it indicates that they are operating in a market that requires more knowledge and skills. This view reflects the findings in a European study, showing that qualification mismatch affects about 29% of their adult working population.[15,16] In the absence of ophthalmologists in their working stations, OCOs are obliged to manage severe cases since patient referral to the ophthalmologist may sometimes take a long time. One of the consequences of this situation is the provision of inadequate care to the patients that seek help from OCOs, as revealed by the national health statistics reported by the Ministry of Health, Rwanda, where eye diseases were ranked second in hospitals.[17]

More than half of the OCOs (65.7%) were not satisfied with the current position they are holding and about 85.7% reported that they had never been promoted due to their level of qualification, a diploma level. The above findings were consistent with the report of the Rwanda Higher Education Council (HEC).[18] Moreover, this is similar to a study where the overall work satisfaction level was poor among health care professionals in Ethiopia and China, and lack of promotion, low salary, poor leadership style and lack of supportive supervision were found as the significant determinant to job dissatisfaction. [21-22] Contrary to these views health care workers at a public hospital in India showed that they were generally satisfied with their job except for salary.[21] Conflict resolution at work, promotion, relationships with other co-workers and organizational structure were the key factors that correlated with their overall job satisfaction.[21] While OCOs were determined to advance their skills, there were no such opportunities for them. This was made clear by 97.1% of the OCOs that their level of qualification was not making it easier for them to have professional development.

The consequence of this situation is that many of the respondents were planning to change their career (54.2%), and only one third (34.2%) of them was hoping that one-day upgrading to a bachelor's degree level would be a reality. According to Weldegebriel [22] powerful predictors of health worker motivation are non-financial motivators such as staff growth and promotion, performance appraisal and management, personnel and work schedule, the availability of required resources and ease of communication. If there is the potential to get a higher degree, the advancement at work would naturally follow. This could be another attractive way for more OCOs to be interested in the type of work they usually do.

The optometry was the other specialty most selected by the respondents at 85.7% in general. However, for immediate upgrading to bachelors degree, participants showed interest in other programs as well and the following were their preferences Optometry and Refraction: 68.5% (n=24), Cataract and Minor Surgery: 45.7% (n=15), and Community Ophthalmology: 42.8% (n=14). According to a recent study on the pattern of ocular morbidity in a rural community in Rwanda, refractive error was a leading condition.[3] Hence, this could be the reason for the preference of optometry and refraction.

In Africa, there are 17 established higher learning institutions offering optometry degree programs, out of which 14 are fully accredited and certified by the World Council of Optometry. Considering the steady increase in the burden of visual impairment with refractive errors being the leading cause, optometrists are needed on the continent and more optometry institutions need to be established.[23] This highlights the need for having a BSc program at the University of Rwanda for an improvement in the quality of eye care.

Stakeholders

The majority of the respondents revealed that there was a degree of weakness in the professional skills of the current OCOs alumni. Also, most of the Stakeholders agreed that OCOs with Advanced Diploma did not have adequate managerial skills to lead their organizations; a deficiency that can lead to poor patient satisfaction and care.[24] It was also learnt from the Stakeholders that it may not be possible to promote advanced diploma OCOs to any position of healthcare leadership because of inadequate managerial skills which might be linked to their low level of training.

The needs assessment identified Optometry, Ophthalmic Clinical Officer (OCO) and Community Ophthalmology as the specializations which would be able to fill up the gap and weakness in the current Advanced diploma program and add value to eye health services in Rwanda. Examples of countries in Africa that have upgraded OCOs to a degree in Optometry include Tanzania, Kenya, Uganda, Ethiopia, Eritrea and Malawi,[23] suggesting that it is a current practice in the Region to emulate.

In transmitting these proposed academic and clinical skills, the mode of delivery is quite significant; and the following were proposed by respondents: full-time, part-time, bridging, bridging and full time and weekend. Full-time and weekend delivery of the training were the preferred mode of delivery. Some findings from this study informed the national strategic plan for eye health (2018-2024) that recommended the development of a BSc program in ophthalmic clinical sciences to upgrade the existing advanced diploma and it is in the final stage of approval the start of its implementation.

Conclusion

Different programs including a bachelor's degree in ophthalmic clinical sciences need to be established for future development of eye health in Rwanda and to reverse the existing desperation among the OCOs who are at the verge of changing their career, with direct consequences in eye care delivery in Rwanda. Finally, there is hope that more programs in ophthalmology will be designed to advance eye care services delivery in Rwanda and Africa in general based on the initial findings from this study.

Study limitations

Though this study informed steps towards developing ophthalmology teaching at the University of Rwanda, this was a descriptive study and did not test or verify the research problem using statistical methods, which made it somehow subjective.

Acknowledgement

Special acknowledgement to the Fred Hollows Foundation that Funded this project, the Rwanda Ophthalmic Clinical Officers and Cataract Surgeons society (ROCOCS) and all the stakeholders who facilitated data collection.

Author's contributions

J.N.K (overall project supervisor) together with D.N and C.H.M worked on the idea conception proposal writing and overall supervision. K.E, D.K.T contributed to the study protocol writing, data collection supervision and manuscript writing. M.J.U, F.R.T and G.F.K study protocol writing, data collection and manuscript writing. D.F.U, S.U, and R.D paper writing, and final proofreading.

Conflict of interest declaration

No conflict of interests to declare.

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