

## Sub-specialization preferences among ophthalmology masters students in Eastern Africa

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### ABSTRACT

**Objective:** To determine the sub-specialization preferences among masters of medicine in ophthalmology in selected universities in Eastern Africa and barriers to sub-specialization.

**Design:** This was a cross-sectional study.

**Method:** An analysis of data obtained from 35 masters of medicine students in ophthalmology from six universities/teaching hospitals in three countries within Eastern Africa was done.

**Results:** Approximately 69% of the respondents preferred to sub-specialize of whom 25% preferred anterior segment. Approximately 25% of those who were not willing to sub-specialize advanced inability to identify an appropriate sub-specialty area and wish to practice first as the major reasons in each case. Major benefits identified for sub-specialization were; increase their knowledge and skills (31.6%), better patient care (21.1%) and marketability of their services (26.4%). Approximately 27.8% of the respondents cited lack of support after practice(38.9%) as the major sub-specialization challenge. Over 33(94%) of the respondents said they were not aware of sponsorship opportunities. Majority of the respondents (58.3%) preferred training institutions with hands-on-training and demonstrated experience in the sub-specializations offered.

**Conclusion:** Majority of the respondents were willing to sub-specialize and most of them preferred anterior segment. The main barrier to sub-specialization was inability to choose an area of sub-specialty. Lack of support after practice and opportunities for sub-specialization, were the major challenges to sub-specialization. Consequently, awareness and information on sub-specialization and sub-specialization opportunities need to be increased as most of these students have no adequate information on sub-specialization opportunities available.

### INTRODUCTION

The incidence of adult as well as pediatric ocular diseases requiring sub-specialist attention has increased dramatically in sub-Saharan African countries and so have their serious complications<sup>1-4</sup>. Many of these diseases could be managed and complications be avoided by better clinical care at specialized point of service<sup>5-7</sup>. However, despite this alarming trend, most of sub-Saharan African countries continue to experience inadequate human resources for various sub-specialties<sup>8,9</sup>. Among the practising ophthalmologists, reviews have indicated that the rate of sub-specialization remains unknown with all of the regional countries having less than the recommended number of 300 general ophthalmologists per 10,000 populations<sup>10,11</sup>. Many of the eye health cases emerging now are those that increasingly require sub-specialists to address especially in cases that come with increased cases of diabetes, cancer and other non-communicable diseases<sup>7,12</sup>. This underpins the need to increase the number of sub-specialist available to handle the increasing burden of eye diseases and problem at both the country and regional level.

However, reviews have established that there is inadequate documentation and research on sub-specialization, barriers to sub-specialization and the associated subjects in the region and whole of sub-Saharan Africa. As a result, basic information on the actual sub-specialization preferences and barriers

to sub-specialization in ophthalmology is lacking. All these constraints will require an effective and coordinated approach with an effective institutional, resource and technical fit to be put in place in order to address these pertinent issues facing sub-specialization preferences in ophthalmology and raise its profile within the Eastern African region.

As a result, the aim of the present study was to obtain information on the sub-specialization preferences in ophthalmology among Masters of Medicine in ophthalmology students across Eastern African region and understand barriers to sub-specialization in ophthalmology so as to form a base for effective intervention and approach for raising the profile of sub-specialization in the region.

### MATERIALS AND METHODS

This study used a cross-sectional study design to help provide a snapshot of the phenomena of study. Data was collected using pre-tested online questionnaire to ensure that all the students across the entire region are capable of participating in the study and providing their insight, views and opinions on the preferences and barriers to sub-specializations. The main focus of the study was in three countries; Kenya, Uganda and Tanzania. Census approach was used to enlist all the 35 Master of medicine in ophthalmology students in all the years of study in the list provided by EACO from six training institutions in the region namely: MUST,

Makerere, CCBRT, KCMC, Muhimbili and UON. Content analysis was used to explore themes emerging from the dataset in-order to have in-depth understanding of the study variables. The major limitation of the study was the small number of the respondents as the study didn't take into account students who were not in the list of EACO. However, the study adopted online survey method to ensure that all the students in the list provided by EACO participated in the study.

**RESULTS**

A total of 35 Masters of medicine in ophthalmology students were identified from six universities/training institutions to participate in the study of whom 17 (48.6%) were in third year of study.

Out of the 35 respondents, 24 (69%) preferred sub-specializing whereas 6 (17%) were undecided and 5 (14%) were not ready to sub-specialize (Figure 1). More than 62% of the respondents admitted that unidentified area of sub-specialization due to inadequate information and experience is the main reason for not sub-specializing (Figure 1.1).

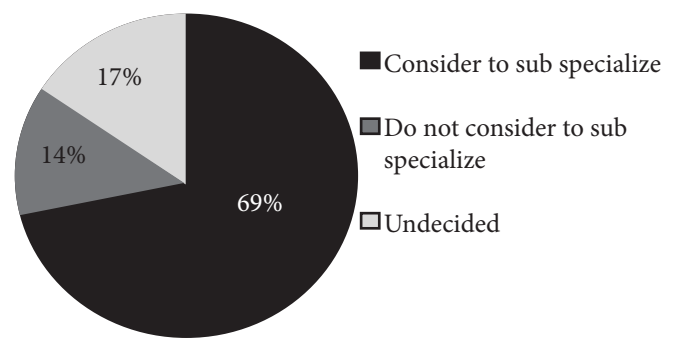
Out of the decided respondents, 29 (62.5%) only 1(4.2%) preferred sub-specializing in paediatric ophthalmology. However, 25% of all decided respondents preferred anterior segment(Figure 2).

More than 38% of all the respondents admitted that lack of support (financial and infrastructural) after sub-specialization is the major barrier to sub-specialization.

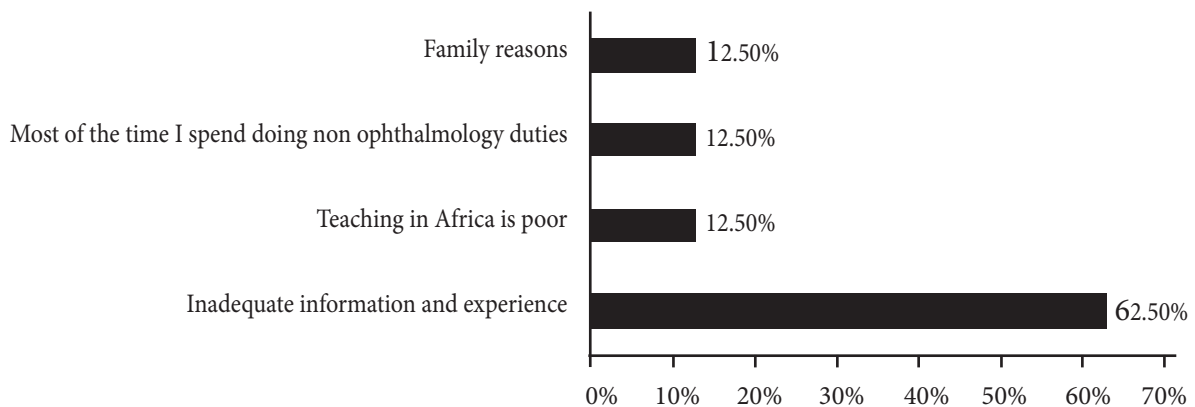
More than 16% of the respondents also noted that lack of adequate opportunities especially scholarships and sponsorships is a key challenge foreseen in their quest for sub-specialization (Figure 3). Nineteen (29%) of the respondents preferred Indian institutions compared to training institutions within Eastern Africa and other countries due to opportunities for hands-on-experience. The main benefits that respondents saw accruing from sub-specialty training were added knowledge and skills (31.6%), making them more marketable (21.1%), and enabling them to provide better sub-specialized services to the patients (26.4%) (Figure 4).

Over 33(94%) of the respondents said they were not aware of sponsorship opportunities available (Figure 5).

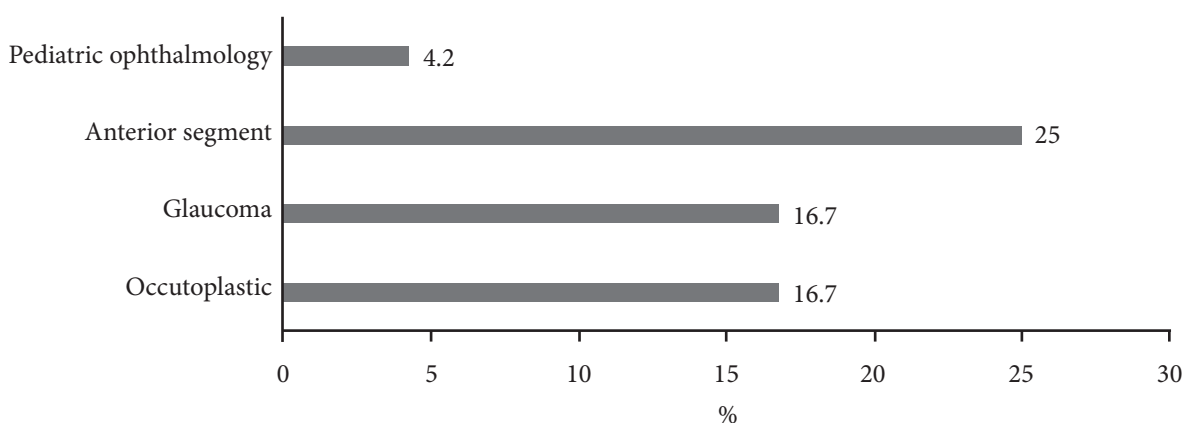
**Figure 1:** Whether they consider sub-specialization after training



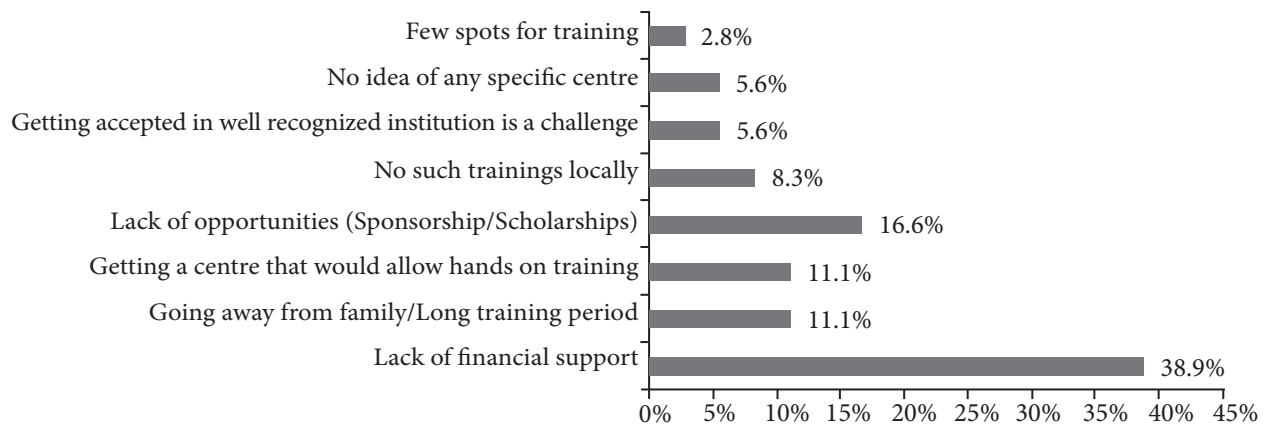
**Figure 1.1:** Reasons for not willing to sub-specialize



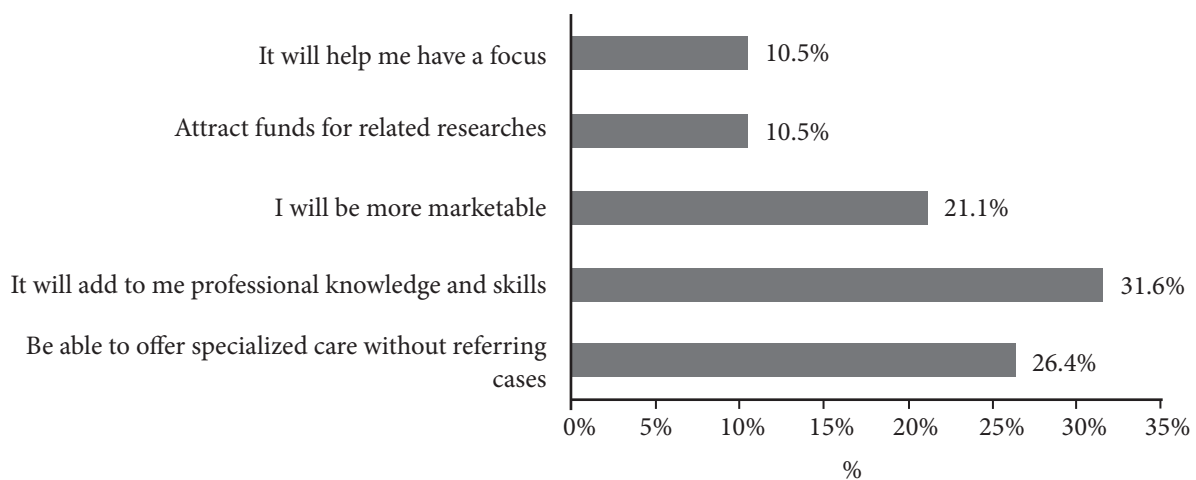
**Figure 2:** Preferred areas of sub-specialization



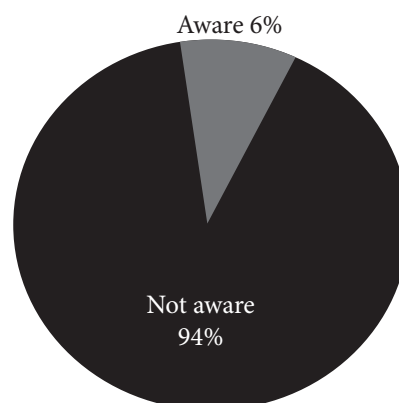
**Figure 3:** Challenges forseen for sub-specialization



**Figure 4:** Benefits of sub-specialization



**Figure 5:** Awareness for opportunities for sub-specialization



**DISCUSSION**

The study aimed at determining the preferences and barriers of sub-specialization among the Masters of Medicine in ophthalmology students. Although the incidence of eye health diseases requiring sub-specialist attention has increased dramatically in sub Saharan African countries and so have their serious complications<sup>1,3,4,13</sup>, the results have revealed that the region has no adequate pool of sub-specialized personnel to meet the increasing demand of these services owing to the small number of Masters of

Medicine in ophthalmology students enrolled in the regional training institutions.

Despite of the fact that many of these diseases could be managed and complications be avoided by better clinical care at specialized point of service<sup>5,7,14</sup>, the low rate of sub-specialization preferences among the respondents continues to pose major challenges in the achievement of the Vision 2020. Unless adequate measures are put in place to address this problem, the region and whole of the sub-Saharan Africa will continue to experience inadequate human resources for various sub-specialties. This supports another study

done to establish status of human resources for eye health<sup>8-10</sup>.

According to the study findings, majority of the Masters of Medicine in ophthalmology students have a quest to sub-specialization. Sub-specialization preferences tend to be greatly influenced mainly by demand<sup>15</sup> of the sub-specialty services. In addition, the level of awareness and knowledge possessed remains a key factor influencing sub-specialization choices among these students. This is further confirmed by the findings that majority of masters of medicine in ophthalmology students are unwilling to sub-specialize and or are undecided on their area of sub-specialization due to lack of adequate knowledge and experience to base their decisions and choices on. Therefore, the need to create more awareness and provide adequate information<sup>1,12</sup> on sub-specialization will remain a confounding factor influencing sub-specialization preferences among masters of Medicine in ophthalmology students.

Studies have cited the benefits of academic advancement and professional advancement as linked to acquisition of better skills, knowledge and expertise so as to enhance provision of quality products and services to enhance client satisfaction<sup>10,16</sup>. In line with the findings of this review, the study has revealed that the key benefit associated with sub-specialization was acquisition of better skills and knowledge to enable increase demand for the services through better service provision.

However, the quest for sub-specialization was shown to be challenged by lack of adequate infrastructural and financial support and capacity to facilitate practice and delivery of quality services. Effective policy and strategies ought to be in-place after training to facilitate practice. A more critical appraisal of reviews indicated that even available training institutions/universities lacks appropriate infrastructure/facilities for offering some of the sub-specialties<sup>9,17,18</sup>. This is in line with the study findings that the region lacks a coordinated approach of supporting the sub-specialist after training. As a result, lack of financial and material support is shown as key impediment to quest for sub-specialization. This has contributed to a great extent to the low rates of preferences for sub-specialization among the masters of Medicine in ophthalmology students.

Lack of adequate opportunities to sub-specialize is also revealed as a major impediment to sub-specialization preferences. Awareness of scholarship and sponsorship opportunities are cited as limited in the region. This is an indicator of lack of effective mechanisms in both the national governments and training institutions on raising the profile of the sub-specialization in the respective countries and whole of Eastern African region. This is in concordance with the finding that adequate information and awareness on sub-specialization and available opportunities is often lacking in the region.

According to reviews, improving the technical and infrastructural capacity of universities/training hospitals can play a key role in determining the sub-specialization preferences and the pool available sub-specialization<sup>9,17-19</sup>. This is supported by the study findings that training institutions preferences and choices are associated with the capacity of the institution to offer hands-on-training and the demonstrated experience in the sub-specialty of interest. Training institutions/hospitals in Eastern African region emerged as the least preferred owing to low perception on their capacity to offer the preferred sub-specialties. This is further supported by the fact that training institutions with hand-on-experience were most preferred for sub-specialization.

### Limitations of the study

There was limited publication on sub-specialization and sub-specialization preferences to provide a strong background of the study and base the discussions of the findings. Although this review found some articles about eye health in Africa, they were not addressing ophthalmology sub-specialization but rather general eye health situation. However, the information provided important inputs and insight in the study.

One of the limitations of the study was that qualitative analysis of data does not provide objective evidence and the findings may not be objectively generalised to the wider Eastern Africa region. Further, provision of narrative account of data is open to different interpretations hence different conclusions<sup>20,21</sup>.

### CONCLUSIONS

Majority of the Masters of Medicine in ophthalmology students were willing to sub-specialize of whom most of them preferred anterior segment. The major reason advanced for unwillingness to sub-specialize was inability to choose an appropriate sub-specialty area. The main barrier to sub-specialization was lack of both financial and infrastructural support after practice. Long duration of training was also a major challenge to sub-specialization. Awareness and information on sub-specialization and sub-specialization opportunities need to be increased as most of these students have no adequate information on sub-specialization opportunities available.

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