

Exploring the availability of specialist health workforce education in East and Southern Africa: a document analysis

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ABSTRACT

Background Specialist health professionals improve health outcomes. Most low-income and middle-income countries do not have the capacity to educate and retain all types of specialists across various health professions. This study sought to explore and describe the opportunities available for specialist health professions education and the pathways to becoming a specialist health professional in East and Southern Africa (ESA). Understanding the regional capacity for specialist education provides opportunities for countries to apply transnational education models to create prospects for specialist education.

Methods A document analysis on specialist training programmes for health professionals was conducted in twenty countries in ESA to establish the capacity of specialist education for health professionals. Data were collected from policy documents, grey literature and websites at the country and institution levels.

Findings We found 288 specialist health professions education programmes across ten professional categories in 157 health professions education institutions from 18 countries in the ESA are reported. Medical and Nursing specialist programmes dominate the list of available specialist programmes in the region, while Kenya, South Africa and Ethiopia have the highest number of specialist programmes. Most included specialist programmes were offered at the Master's level or as postgraduate diplomas. There is a general uneven distribution of specialist health professions education programmes within the ESA region despite sharing almost similar sociogeographical context and disease patterns. Current national priorities may be antecedent to the diversity and skewed distribution of specialist health professions programmes.

Conclusion Attention must be paid to countries with limited capacity for specialist education and to professions that are severely under-represented. Establishing regional policies and platforms that nurture collaborations towards specialist health professions education may be a proximal solution for increased regional capacity for specialist education.

BACKGROUND

Every health system's strength revolves around the adequacy and quality of its health workers as they design and manage the system,

WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Because of the critical shortage of health workforce, most countries tend to focus on training more generalist health workers for essential primary health services.
- ⇒ Most countries in the East and Southern Africa (ESA) have the capacity to train generalist and lower-to-mid-level health workforce cadres, but the capacity for specialist health workforce training is limited.

WHAT THIS STUDY ADDS

- ⇒ This study has brought to the fore an often-muted area of health professions education, especially in the ESA region where the need for health professions education is perceived to only align with generalist training.
- ⇒ We found that almost 80% of specialist health professions education programmes in the ESA are either in medicine or nursing, with medicine being the majority (77%).
- ⇒ We discovered that the nomenclature of specialist programmes varied across the ESA countries and within the same country and could be misleading to potential specialist candidates who may eventually engage in advanced qualifications that may not necessarily lead to specialist recognition.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ Consolidated effort must be made to develop strategic regional collaborations among countries in ESA to strengthen specialist training.
- ⇒ Countries such as Kenya, Uganda, Tanzania and South Africa that have a higher capacity to train specialists could be strategically engaged in developing the capacity of other countries to provide specialist training in the region.
- ⇒ An assessment of the needed competencies of various specialists field in health should be conducted to serve as the conduit for the development of competency-based curricula to train specialists with the requisite competencies to need for the region.



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including providing direct services that improve the population's health outcomes. The health workforce's centrality has been

underscored in several policy documents, such as the Declaration of Astana on Primary Healthcare (PHC)¹ and the Global Strategy on Human Resources for Health (HRH): Workforce 2030,² among others. In particular, the conclusion of the Third Global Forum on Human Resources for Health in Recife, Brazil³ pointed out the essentiality of the health workforce for health systems, noting that there is ‘A universal truth: no health without a workforce’.⁴

However, many countries and researchers have reported critical shortages of the health workforce, especially in the Africa Region of the WHO.⁵ Consequently, nearly all HRH strategic plans and policies of countries recommend scaling up health professions education to meet the needs of the population. However, limited infrastructural, fiscal constraints and inadequate human resources capacity to train have been cited as the main constraints for scaling up training.⁶

Generally, most countries in the Eastern and Southern Africa (ESA) subregion of the WHO Africa region have the capacity to train generalist and lower-to-mid-level health workforce cadres, but the capacity for specialist health workforce training is limited. Consequently, many health workers from the subregion seek specialist training outside their home countries, where they sometimes settle (and never return), resulting in brain drain.⁷ Also, because of the acute shortage of health workforce, most countries tend to focus on training more generalist health workers for essential primary health services⁸ at the expense of specialist training. The COVID-19 pandemic further exposed the reality of limited specialists and sophisticated patient care capacity in many countries, including those in the ESA subregion.⁹

Specialist health professionals are largely associated with improved health outcomes for patients or populations requiring sophisticated healthcare.^{10,11} For instance, mortality rates among cancer patients¹⁰ and cardiac outcomes in cardiology patients¹² have been shown to be sensitive to access to specialist health professionals. Thus, while increasing the capacity for generalist health workforce education and training remain important for PHC, it is also necessary for specialist health workers’ training capacity to be assessed and improved to produce the needed specialists for the health systems, especially identifying opportunities for countries without local training capacity.¹³ This is even more paramount when related to the universal health coverage commitment made by countries which emphasise access to a full complement of health services in line with need.

Although there are specialist training opportunities within the ESA subregion, there is a dearth of literature comprehensively mapping the specialist health workforce training capacity in the subregion. If evidence of specialist health professions education in the ESA region is made available, it will add to the evidence base for sustained advocacy and dialogue to invest in specialist health workforce education and training.

Against this backdrop, this paper sought to, as much as data was available to map: (1) countries and institutions and the respective post-graduate specialist training programmes available for health professionals and (2) the pathways through which each category of health professionals could become specialist in the ESA region.

METHODS

The READ approach to document analysis was used to guide the data generation, collection and analysis.¹⁴ The READ approach to document analysis, which represents *Reading materials, Extraction of data, Analysing data and Distilling the findings*, was followed to allow for a step-by-step examination of key policy documents, grey literature and websites regarding specialist health professions education in the ESA region.

Readying the materials

Readying the materials involves setting out the specific parameters in terms of the; topic and keywords, type of documents, the time frame and potential sources of documents to be included in this study.¹⁴ The aim of this document analysis—is to comprehensively map specialist health workforce training capacity within the ESA subregion, and the keywords: specialist health workforce (professions); education and ESA were considered in the search for materials and documents.

Literature search

A simultaneous four-phased process for searching for documents was applied, namely, a computer-based document search, hand search, key informant sources and ancestry search. First, a preliminary computer-based document search was conducted through EbscoHost, PubMed, Scopus, CINHALL and ProQuest databases using keywords outlined in [table 1](#). However, this yielded only six empirical studies which do not contain comprehensive information relating to the aim of this study. Second, a handsearch with specific focus on regulatory bodies’ websites, non-academic websites such as ‘google’, institutional repositories and ministries/governments websites were accessed for additional documents and information. There was a direct engagement with websites of health professions education institutions, regardless of their accreditation status, within each country in ESA subregion for documents and pages related to specialist training for the health workforce. Third, some experts identified through institutional websites and publications were contacted to provide details of programmes that the researchers could not access. Last, ancestry search which involved examining the reference lists of documents included in a review for eligibility.¹⁵ Eligible documents from the reference lists were sought and examined for inclusion in this study. Consensus between the authors researchers based on the data extraction sheet guided the document inclusion process.

Table 1 Readyng the documents

Parameter	Application in this study
Topic Keywords	Assessment of specialist health workforce training capacity in ESA 'Specialist education' AND 'Health workforce' AND 'Eastern and Southern Africa.(Boolean logic was used to expand on the keywords)'
Type of documents	Policies or policy directives; Strategies for health professions education subsector; Official statements and declarations; Statistical surveys or publications; Financial analyses; Operational plans; Funding requests; Laws; Regulations; Memorandum of Understanding; Meeting reports or minutes; Draft documents; Scientific or peer-reviewed publications; Master or Doctoral dissertations and Newsletters, bulletins, listservs, blogs and webpages.
Timelines	2011–2021
Sources of documents	Publicly available sources including electronic databases using EbscoHost interface; Ministries of Health archives and webpages; Ministries of Higher Education archives and webpages; Regulatory Bodies databases; WHO regional office archives and databases; Institutional websites
ESA, East and Southern Africa.	

The timelines for our document search were between 2011 and 2021. The search was completed on 10 December 2021.

Inclusion and exclusion criteria

We included a specialist health professions education programme if it met the criteria based on the information obtained:

- ▶ The programme is accredited by the national accreditation authority/board.
- ▶ The programme is recognised by the national professional regulatory authority/council as a specialisation programme, and those who will complete the programme will be entitled to register as specialists in their respective fields.
- ▶ The programme is being implemented by a recognised institution in the country or region.

The inclusion of a programme as 'specialist' was, basically, dependent on its recognition by the regulatory bodies that license health professionals to practice in a specific jurisdiction.

Extracting data

Extracting the data, which is also referred to as charting the data, is a process of identifying specific components of the documents included in this study that respond to the research or policy question.¹⁶ A custom-made Microsoft Excel template was used to extract and document specific data from the included documents that relate to the objectives of the analysis being undertaken. The focus of the data extraction is presented in online supplemental annex 1.

Analysis of the data

The data analysis was through an iterative process underpinned by an emergent design. Specific countries, professions and available specialist training programmes were mapped in this report. Specific issues within the programmes, such as the purposes of the programmes, the setting, the institutions where they are offered, and the background, were analysed. Other issues included the specific numbers enrolled, the cost of training and the relevance of the specialist to the national health systems. Data analysis also focused on approaches to the recognition of the specialist within the national health workforce environments.

Distilling the findings

The last phase of the READ approach requires refining the findings. This step was carried out in two phases. The first was to share the country-level results with five experts who had good knowledge of the health professions education systems and context of the countries to review. They also provided some data to fill in gaps that available documents could not cover.

Rigor of this review

Document analysis is a powerful method of engaging health policies.¹⁴ However, it is essential that such analysis and reviews are rigorously conducted to enhance the believability and defensibility of the findings and enhance the study's reproducibility. To enhance rigour in this study, a priori protocol was developed to outline the research methodology. Input from subject matter experts in the WHO Africa region was sought to strengthen and focus the analysis. The decisions made at all the stages within this review were consensus based, where the authors would discuss their findings. An audit trail of the entire research process, including reflection notes by the authors, was kept.

RESULTS

General overview of programmes included

Based on the publicly available data accessed, South Africa, Kenya, Tanzania, Ethiopia and Uganda have most of the specialist training opportunities and capacity for training. Specialists are recognised in-country through salaries, registration, titles and working in specialised areas, while in some instances, lack of role clarity may influence the value of specialisation. The subregion has limited opportunities for career progression, with only Kenya, South Africa and Botswana reportedly having subspecialist training opportunities.

Synthesis of the pathway(s) to become a specialist health professional

Generally, it was an acceptable norm in all countries and professions that a specialist must first be trained as a generalist in the basic professional programmes. After qualifying and registering with a professional body as a professional, the health practitioner must gain at

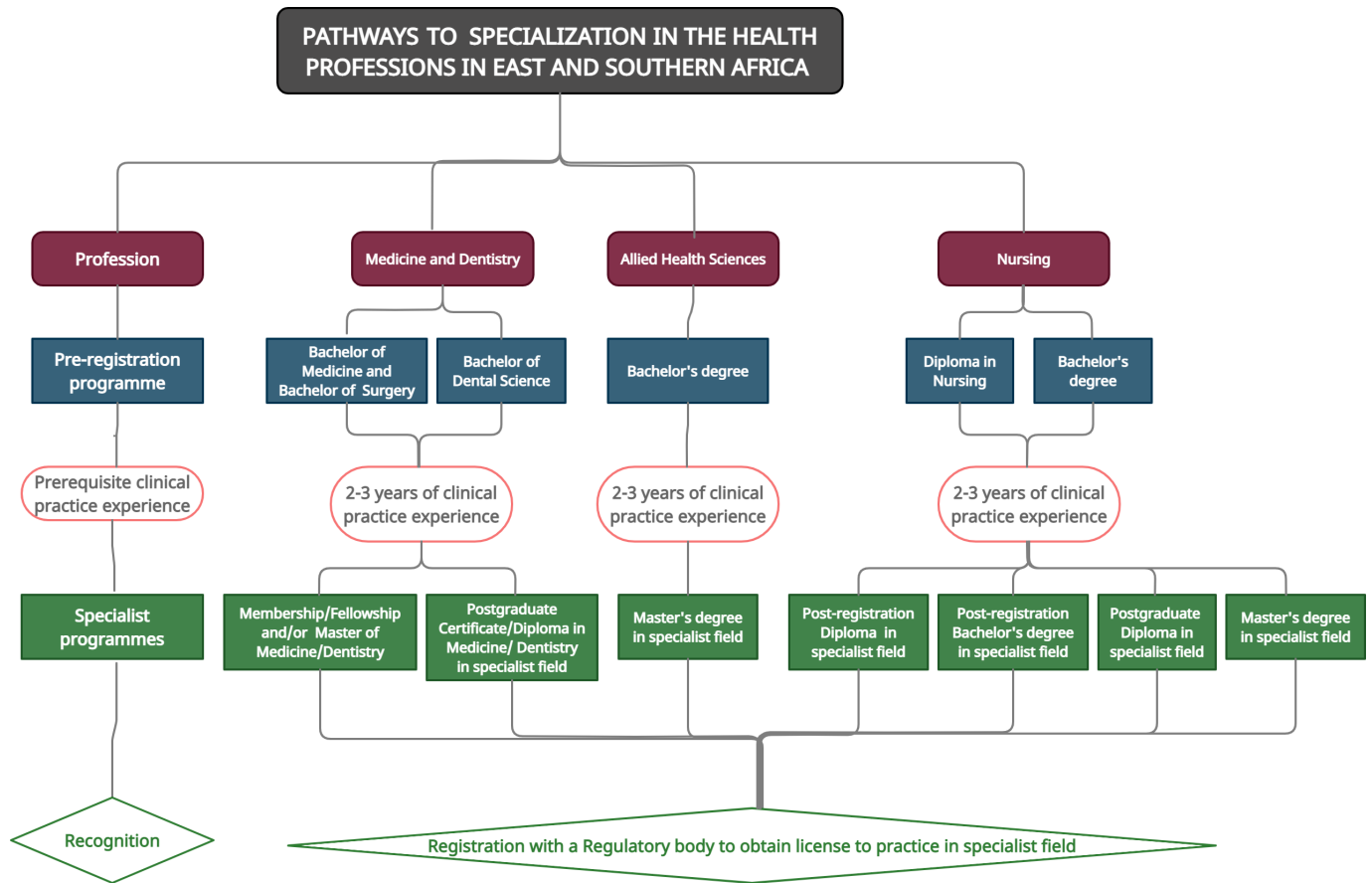


Figure 1 Pathways to specialization in the health professions in East and Southern Africa.

least 2 years of clinical experience before applying for specialist training. These specialist programmes are either at diploma, postgraduate diploma or master’s degree level, depending on the profession. After successfully completing the qualifications, candidates are registered as a specialist within their professional bodies. Some registration processes involve passing College or board examinations. Opportunities for subspecialisation exist for some specialist programmes in some countries (see [figure 1](#)).

Programmes, institutions and enrolment capacity

Across professions, we found 288 specialist health professions education programmes across ten professional categories in 157 health professions education institutions (universities and colleges) from 18 countries in the ESA subregion. As shown in [table 2](#), Medical specialist programmes were the most prominent in the subregion (193 in 36 institutions)—representing 67% of the specialist programmes available in the subregion. Specialist Nursing programmes followed with 37 programmes in 46 institutions across 15 countries and represented 12% of all the specialist professionals’ training programmes available in the subregion. Public Health, Dentistry and Medical Laboratory Sciences recorded 17, 15 and 13 specialist programmes, respectively. Thus, Public Health, Dentistry and Medical Laboratory Sciences constituted 15.6% of all the available

specialist training programmes. Occupational therapy, physiotherapy and biokinetics were the least available specialist training programmes in only three countries (Kenya, South Africa and Zambia). Individual specialist programmes and the countries in which they are offered are detailed in online supplemental material.

Medicine

We found 193 medical specialisation programmes in 36 institutions, notably in Kenya (n=159), South Africa (n=74), Tanzania (n=15), Uganda (n=15), Ethiopia (n=13), Rwanda (n=12), Malawi (n=11), Zambia (n=11) and Zimbabwe (n=9). Among these, there are two postgraduate medical specialisation pathways in ESA—the Medical Fellowship programmes and Master of Medicine (MMed), each of which takes a minimum of 3 years and a maximum of 7 years to complete. In general, neurosurgery seems to be the programme with the longest duration of specialisation, with a minimum of six (6) years, but others offered as a postgraduate certificate, or diploma (and some subspecialisation) had a duration between 6 months and 2 years.

Across the countries, MMed in general surgery (11 countries) is the most widely available, followed by (MMed) Anaesthesia and Critical care (9 countries), MMed Internal Medicine (9 countries), MMed Paediatrics (9 countries), MMed in Ophthalmology (9 countries) and MMed Obstetrics and Gynaecology (9 countries)

Table 2 Summary of the number of programmes by profession per country

Profession	Specialist health workforce education programmes available in Eastern and Southern Africa																No of institutions					
	Botswana	Comoros	Eritrea	Ethiopia	Kenya	Lesotho	Madagascar	Malawi	Mauritius	Mozambique	Namibia	Rwanda	Seychelles	South Africa	South Sudan	Swaziland	Tanzania	Uganda	Zambia	Zimbabwe	Total	
Medicine	7			13	159	1		11	5		1	12		74	2		15	15	11	9	193	34
Nursing	6		4	5	12	7		8		2		7		14	3		4	5	8	13	37	43
Public health				9	8			1										4	4	10	17	29
Dentistry			4	4										14			5	1		4	15	10
Medical laboratory science			7								1						3	2	2	4	13	11
Pharmacy			2	1							1			4			2		1	1	7	9
Nutrition and dietetics			1	3										2					1		3	7
Clinical psychology											1										1	1
Physiotherapy and biokinetics			1	1										2					1		1	8
Occupational therapy												1									1	3
Total	13	4	42	188	8	20	5	2	12	22	111	2	3	29	27	28	37	288	157			

The total number of programmes available represents the unique programmes available and not the sum of programmes available in each country. Our search shows that there exist medical specialist programmes in Mozambique, but the information was vague and difficult to report hence the exclusion from this table. Our search did not yield useful information on Comoros and Madagascar. There could be specialist programmes in the countries but are not included in this table because we did not find them in the search. Bold values represent total values.

and MMed Pathology (8 countries) are the most popular medical specialisation programmes in the ESA region.

Nursing

Nursing (42 programmes) is the second most populous specialist programme in ESA, with 37 specialist programmes in 43 nursing education institutions in ESA. South Africa (14), Zimbabwe (13), Kenya (12), Namibia (10), Malawi (8) and Zambia (8) are the countries with more specialist programmes. Specialisations in midwifery and women's health (11 countries), community health/public health nursing (6 countries), paediatric nursing (6 countries), psychiatric nursing (11) as well as critical care nursing/intensive care nursing (5 countries) are the most available specialisation programmes in ESA.

The nursing profession appears to have a dual pathway to specialist education. The countries have specialist programmes either at the postgraduate level (postgraduate diploma or master) or as advanced diplomas or advanced certificate levels. South Africa, Kenya, Zimbabwe, Malawi and Namibia have more programmes than the rest of the countries. The entry requirements to these programmes differ, where a degree in nursing is relevant for specialisation at the master's level and a diploma in nursing for specialisation at the advanced diploma level. Nursing specialisation programmes were offered at postgraduate diploma and master's degree levels with a minimum of 1-year course of study and a maximum of 2 years full-time.

Dentistry

We found a total of 28 dental specialist programmes in only five out of the 20 countries. These are South Africa (14), Tanzania (5), Ethiopia (4), Kenya (4) and Uganda (1). The most common programmes among these five countries are Master of Dentistry in Endodontic and Operative Dentistry; Master of Dentistry in Prosthodontics; Master of Dentistry in Oral and Maxillofacial Surgery. Dentistry specialisation has a duration of training similar to that of the medical specialist programmes, both at the specialised programme and subspecialist level.

Pharmacy

Seven out of the 20 countries, namely South Africa (4), Ethiopia (2), Tanzania (2), Kenya (1), Rwanda (1), Zambia (1) and Zimbabwe (1), provide specialist pharmacy education. Master of Clinical Pharmacy (found in four countries) and Master of Pharmaceutical Analysis and Quality Assurance (found in three countries) appeared to be the most common programmes.

Medical laboratory sciences

Medical Laboratory Sciences, also termed Biomedical Sciences, is one of the allied health Sciences programmes with very few specialisation opportunities. Only six countries, Ethiopia (seven), Zimbabwe (four), Tanzania (three), Uganda (two), Zambia (two) and Rwanda (one), have specialisation opportunities for Biomedical Scientists. There exist research programmes that do not lead

to practice specialisation in some countries like South Africa and, therefore, are not included in this analysis. It is worth noting that there exist medical specialisation programmes (medicine with subspecialisation) in many biomedical laboratory areas, such as chemical pathology, microbiology, virology and haematology, in most countries.

Public health

Public health programmes leading to the award of academic degrees such as Master of Public Health or PhD in Public Health (or related qualification) are prevalent in countries where postgraduate education is offered. However, public health specialisation for non-physicians leading to recognition as a specialist are only implemented in six countries: Zimbabwe (10), Ethiopia (9), Kenya (8), Uganda (4), and Zambia (4), Malawi (1) and Namibia (1). Similar to biomedical sciences, there exist medical specialisation programmes in public health medicine in Botswana and South Africa.

Cost of specialist training

It was difficult to synthesise the cost of the specialist programmes in ESA due to the large variations from one country to the other and also among local and international students. Many institutions have not published their tuition fees which created data limitations. For example, in South Africa, it will cost a medical doctor between US\$9300 and US\$12700 per annum in specialist programmes. The upper limit is the cost of international students. In Uganda, a local student pays US\$1300 and an international paying US\$5100 at Makerere University. The University of Botswana also provides medical specialist training to the local students at the cost of US\$1200 compared with US\$6100 in Rwanda. Similar trends were observed in nursing and other professions. For example, at the University of Eswatini, local Master of Nursing students spend about US\$3707 on tuition for the 2-year programme compared with international students who spend about US\$17593, while in Malawi, the cost of the Master of Nursing programme is US\$2000 for locals and US\$8000 for international students.

DISCUSSION

This study sought to explore and describe the opportunities available for specialist health professions education and the pathways to becoming a specialist health professional in the ESA.

We discovered that the nomenclature of specialist programmes varied across the ESA countries and within the same country. By name only, programmes may be misleading to potential specialist candidates who may eventually engage in advanced qualifications that may not necessarily lead to specialist recognition by health professional regulatory bodies. A striking example is within the pharmacy profession, where established universities seem to have several advanced level pharmacy programmes, but such programmes are not recognised as specialist

programmes by respective pharmacy councils, thereby denying them the necessary recognition and remuneration. A regional approach to standardisation may be beneficial around the Regional Economic Communities, as is the case for ongoing standardisation of nursing and midwifery training curriculum.

We found that almost 80% of specialist health professions education programmes in the ESA are either in medicine or nursing, with medicine being the majority (77%). Availability of the specialist programmes is driven by the general health focus of the Ministries of Health, the disease profile within countries and the availability of local capacity. Also, the programmes are not evenly distributed across the region—Kenya, South Africa, Ethiopia, Zimbabwe, Zambia and Uganda provide more specialist programmes than other countries. Larger population sizes, stronger economies, educational resource availability and colonial legacies could be the explanation for the uneven distribution of the specialist programmes in the region.¹⁷ Countries such as Comoros, Eritrea and Eswatini have either newer medical schools or are in the process of establishing one hence focusing their efforts on strengthening their undergraduate programmes hence limited investments in specialist training. Citizens are sent to neighbouring countries or abroad for specialisation. At the same time, expatriate medical specialists are engaged to fill the gap related to specialist services, especially in the public health sector. Botswana has leveraged a partnership with the more established Colleges of Medicine of South Africa to establish its current specialist programmes. Candidates are enrolled at the local university but are supervised both in Botswana and South Africa and eventually are assessed for competence through South African assessment systems. The two neighbouring countries take advantage of strong political ties, similar context and disease burdens and a shared culture. Such a model may be replicated for other countries within the region, although several factors need to be considered. Also, Seychelles does not have specialist training opportunities locally and endeavouring to establish these may not be cost-effective; hence they rely on other countries for their specialist training.

A critical concern is the limited number of specialist programmes in allied health science professions and the skewed nature of government investment in increasing doctors and nursing specialists at the expense of the allied health professions. Lack of faculty to train is a key contributory factor. The limited number of allied health workers with a specialist or advanced qualifications in each country in the ESA may also contribute to the limited specialist opportunities or specialist pathways for health professionals within allied health. Prioritising strategies to enhance opportunities for specialisation pathways for graduate allied health professionals is thus urgent. This may include specific national strategic objectives to establish programmes, recruit appropriate faculty and enrol potential candidates. Allied health professionals are critical part of the health workforce that supports the health

system in all its functions, countries need to pay critical attention to their categories to manage emigration.

Although all the professions start specialisation after a first degree, nursing specialisation was found at both post-graduate and diploma levels. This could be attributed to the historical legacies aligned with the establishment of nursing as a profession in Africa, including static policies, which have positioned the entry into the nursing profession still at the Diploma level several years after the many organisations have advocated for bachelor's degree as entry level into professional nursing.¹⁸ In addition, health service administration and public service remuneration are driven towards recognising and paying diploma-trained specialists as they are relatively cheaper than nurses with advanced qualifications. A 1-year training is usually more attractive to employers than a 2-year or 3 years of specialist training at the master level. Therefore, nurses may have a better chance at funding and study leave opportunities when they specialise through a year-long post-basic diploma programme. A challenge for the future is harmonising nursing qualifications to allow for regional integration and specialist recognition that sets apart master qualification and diploma specialisation. With the thrust towards professionalisation of nursing, a possibility of strengthening master's level qualification as the only route for specialisation arises through embedding competence-based education philosophy within such qualifications.

Generally, there was a paucity of public information on some specialist programmes in many ESA countries. Our data show that some countries namely the Comoros and Seychelles have no specialist programmes for health professionals. Our search also shows that there exist medical specialist programmes in Mozambique, but the information was vague and difficult to report; hence, we could not report on it. It was extremely difficult to retrieve information on Madagascar, where there is a possibility of specialist programmes. One of the possible explanations linked to the general limitation of this analysis is the partial availability of documented evidence in some of the countries included in this study.

In determining the available slots per institution for the training of individual specialities, reliance was made on available data presented through institutional websites, reports and discussions with key informants at the country level. Most of the data regarding institutional capacity for the training programmes appears unavailable and could not be reliably accessed, and the credibility of such sources could not be established or, in most cases, could not access such data. Some of the information presented is based on websites, graduation proceedings and old reports and may have changed with time. Institutional capacity was collated, which was reported per programme per institution within the narrative of this report.

The results generated in this report were based on the analysis of available documents and discussion with contacts at the country level. Although the authors

have made efforts to ensure the accuracy and representativeness of this report, the reliability of this data may need further verification as some websites used may be outdated and some information not available. Further research is essential in this field that would look at the quality of these programmes and the generation of evidence on the utility of specialist programmes in ESA. Further, empirical studies on the capacity of the programmes available, the career prospects in terms of recognition and income levels of the graduates of the various specialisation programmes should be conducted.

CONCLUSION

This study has brought to the fore an often-muted area of health professions education, especially in the ESA region where the need for health professions education is perceived to only align with generalist training. The synthesis of the evidence available in the ESA region on specialist health professions education shows interesting trends and potential collaboration and capacity building across the region. However, several issues may need to be enhanced in the near future to strengthen and improve the quality of specialist education within the region. Consolidated effort must be made to develop strategic regional collaborations among countries in ESA to strengthen specialist training. Countries with a higher capacity to train specialists, such as Kenya, Uganda, Tanzania and South Africa, maybe strategically engaged in developing local programmes and the capacity of other countries to provide context-specific specialist training in the region. To do that, further research on the needed competencies of various specialists in the region should be conducted to serve as the conduit for the development of competency-based specialists curricula.

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