

Somalia's Medical Education and Regulation: A Review of the Health Regulatory Landscape

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Abstract

Background: Medical education and regulations are pivotal to achieving universal health coverage and Sustainable Development Goals, contributing significantly to health outcomes and public trust in the healthcare workforce. However, low- and middle-income countries, especially in sub-Saharan Africa, face challenges, such as inadequate resources, outdated curricula, and weak governance. Somalia in particular grapples with a fragmented health system and a critical shortage of skilled health professionals, exacerbated by decades of civil war and political instability.

Methods: This study employed a mixed-method approach that incorporated both qualitative and quantitative data collection and analysis. A comprehensive literature review was conducted, along with semi-structured interviews with 44 key informants, including representatives from professional health schools and officials from the Ministry of Health. Additionally, five focus group discussions were held with young professionals and an online survey was administered to students enrolled in professional health courses. The data analysis employed descriptive for quantitative data, and thematic analysis for qualitative data, guided by the HRH maturity model framework.

Results: This study identified 94 medical schools across Somalia, with a significant concentration in urban areas, particularly in Benadir. However, only 25 of these schools are internationally accredited, raising concerns about the quality of medical education. The health workforce analysis revealed a pronounced urban-rural disparity and a density of health professionals below the WHO's recommended threshold. Focus group discussions and surveys highlighted the employment challenges faced by young physicians and students' perceptions of their training and future employment opportunities.

Conclusion: The proliferation of medical schools without adequate quality control, the critical shortage and maldistribution of skilled health professionals, and the absence of a comprehensive regulatory framework are significant challenges facing Somalia's healthcare system. The establishment of the National Health Professionals' Council (NHPC) Act in 2020 marks a step towards addressing these issues. This study emphasizes the need for accreditation of medical schools, capacity building of HRH teams, and collaboration among stakeholders to improve healthcare workforce development and regulation. Addressing urban-rural disparities and combating professional misconduct are also crucial for achieving universal health coverage and improving health outcomes in Somalia.

Introduction

Medical education and regulations play a crucial role in achieving universal health coverage (UHC) and Sustainable Development Goals (SDGs). They contribute to improving health outcomes and the well-being of the population by ensuring the availability and accessibility of qualified and competent health workers as well as promoting public trust and confidence in the health workforce (1). However, in many low- and middle-income countries (LMICs), particularly sub-Saharan Africa, medical education, and regulations face significant challenges. These challenges include inadequate resources, outdated curricula, limited infrastructure, poor quality assurance, weak governance, and a lack of coordination (2).

Sub-Saharan Africa has the highest burden of disease and lowest density of health workers globally (3). In 2018, the density of doctors, nurses, and midwives per 1,000 people in the African region was 1.3, which is significantly lower than the global average of 4.6 and falls short of the minimum threshold of 4.45 recommended by the World Health Organization (WHO). The needs-based shortage of health workers in Africa by 2030 is estimated at 6.1 million, the largest among all WHO regions. This shortage is partly attributed to the inadequate and inequitable production and distribution of health workers as well as the low retention and motivation of health workers in the region (4).

Somalia, a country affected by decades of civil war, political instability, and humanitarian crises, faces severe challenges in its health systems and human health resources (5). The existing health system is essentially privatized and confined to major towns, leaving the poor majority in rural areas without access to affordable healthcare (6). The national health system is fragmented, and the absence of unified health system governance has hindered national authorities' capacity to regulate the private sector and partner with federal states to deliver services to remote areas (7). Currently, only 35% of Somalia's population has access to essential health services (8). The neonatal mortality rate is 36 deaths per 1,000 live births, and the under-5 mortality rate is 111 deaths per 1,000 live births (9). The estimated maternal mortality rate is 692 per 100,000 live births (10). Moreover, the country faces a critical shortage of skilled health professionals, with only 2.5 physicians and 4.5 nurses and midwives for every 10,000 people, falling significantly short of WHO's minimum benchmark of 22.8 health personnel per 10,000 inhabitants (11).

Medical education in Somalia dates to the post-colonial period. The first nursing school was established in Hargeisa in 1966, followed by the Faculty of Medicine and Surgery at Mogadishu in 1973. These developments marked progress but were later impacted by economic downturns and political turmoil (12). During the Civil War, the Faculty of Medicine was looted and destroyed, and most medical staff and students fled the country or joined other sectors. The health system collapsed, and the provision of health services was taken over by various actors, including private providers, non-governmental organizations (NGOs), and religious groups (13). Despite these challenges, the resilience and determination of the Somali people have led to a significant resurgence in medical education in recent years. The number of medical schools has grown from just one in 1991 to over 25 by 2024, signifying a promising development in Somalia's healthcare system (14).

Many Somali students are highly motivated to pursue careers in the medical field due to their personal ambitions, social prestige, or religious duties. A survey conducted by the Iftiin Foundation in 2020 found that approximately 14% of the graduating students, totaling approximately 2,462

individuals, were from medical-related faculties. This number exceeds the combined number of graduates from education and arts faculties, totaling only 1,006. The survey also revealed rising enrollment in public health colleges, reflecting an increasing demand for preventive and health-promoting strategies in Somalia (15). However, the expansion of medical schools and student enrollment lacks effective quality control mechanisms and regulatory frameworks. The absence of regulations exposes patients to risks by enabling unqualified health professionals to practice without facing consequences, potentially leading to serious outcomes such as misdiagnosis, incorrect treatment, infection, disability, or death (16). The WHO has reported that Somalia has high rates of maternal and child mortality owing to poor quality healthcare and a lack of skilled birth attendants. Furthermore, the United Nations Population Fund (UNFPA) reported that over 98% of Somali women have experienced female genital mutilation, typically carried out by unqualified practitioners without proper licensing, resulting in severe health complications and risks for affected women and girls. These examples highlight the grave consequences of the lack of regulation and widespread presence of unlicensed healthcare practitioners in Somalia (17)

To address these challenges, a comprehensive understanding of the current state of medical education and the regulation in Somalia is essential. This study aimed to provide a critical analysis of the historical factors and current situation that have contributed to the unregulated landscape of medical education and practice in the country (10). By examining the proliferation of medical schools, assessing the health workforce, exploring the perspectives of young physicians and healthcare students, and analyzing the regulatory framework, this study seeks to identify the implications, challenges, and opportunities for strengthening medical education and regulation in Somalia. The findings of this study will inform policy recommendations and strategies to enhance the quality, accessibility, and equity of health care services, ultimately contributing to improved health outcomes in the Somali population.

Methods

Study Design

This study utilized a mixed-methods approach, integrating both qualitative and quantitative research methodologies to provide a comprehensive examination of the current state of medical education and regulation in Somalia. The mixed-methods design was chosen to capitalize on the strengths of both qualitative and quantitative approaches, allowing for a more comprehensive understanding of the complex issues surrounding medical education and regulation in the context of Somalia's unique challenges.

Data Collection

A comprehensive review of the existing literature was conducted between October 2023 to April 2024, focusing on healthcare regulations, educational training institutions, the employment and distribution of health workers, and national HRH policies and strategic plans. This review provides a foundational understanding of the current state of the health workforce and the existing regulatory frameworks in Somalia.

Semi-structured interviews were conducted with 44 key informants, including representatives from 15 professional health schools and officials from the Ministry of Health, at both federal and state levels. The distribution of interviewees was balanced across states, with each contributing approximately 11–16% of the total interviewees. These interviews aimed to gather insights from various stakeholders regarding the challenges and opportunities related to medical education and regulations.

Five focus group discussions were conducted with young professionals to explore their experiences and challenges regarding pre-service training and employment opportunities. These discussions provide valuable insights into the priorities and challenges faced by the healthcare workforce, and the role of the HRH regulatory framework in addressing these issues.

An online survey was administered to students enrolled in professional health courses to understand their experiences with academic training and perceptions of employment opportunities. A total of 388 responses were collected, and 35 were excluded owing to their non-health-related fields. The survey aimed to capture the perspectives of future healthcare professionals and to identify areas for improvement in medical education and employment.

Data Analysis

Quantitative data from the surveys were entered into Excel and exported to SPSS for descriptive. Qualitative data obtained from the interviews and focus group discussions were transcribed, coded, and thematically analyzed (18). The results from both data types were triangulated to identify the main findings, gaps, and recommendations regarding the HRH regulatory landscape in Somalia. The analysis was guided by the HRH maturity model framework, which assesses the performance of health workforce regulatory functions across five stages of maturity. Contextual factors, such as the political, economic, social, and security situations in Somalia, were also considered in the analysis, as they influence the HRH regulation process and outcomes.

Results

Proliferation of Medical Schools

This study identified 94 medical schools across Somalia, with varying distributions among different states. Approximately 66% of these institutions are in Benadir state, reflecting the concentration of educational resources in urban areas. However, medical schools have also been established in other states, such as Somaliland (12%), Puntland (12%), Southwest (6%), Jubaland (3%), and Hirshabelle (1%), indicating nationwide spread. Despite the large number of medical schools, only 25 (approximately 27%) were internationally accredited. The lack of international accreditation for most of these schools could potentially impact the quality of medical education and the recognition of the qualifications obtained from these institutions. Figure 1 shows the growth of medical schools in Somalia over time, with their years of establishment ranging from 1973 to 2022. A significant number of these schools have been established over the last decade, highlighting a recent surge in the proliferation of medical schools. Figure 2 provides a geographical representation of the distribution and accreditation status of the medical schools in Somalia. The map is marked with red dots representing 25 internationally accredited medical schools, and blue dots representing non-accredited institutions.

Health Workforce Assessment

This study evaluated the health workforce across the Benadir Regional Administration (BRA) and the states of Galmudug, Hirshabelle, Jubaland, Puntland, and Southwest. A total of 13,236 health professionals were identified, with 7,073 (53.4%) comprising of physicians, nurses, and midwives. This workforce density falls below the World Health Organization (WHO) lower threshold of 2.3 skilled health professionals per 1,000 people, estimated for a population of 13 million. The distribution exhibits a pronounced urban-rural disparity, with a notable shortage in larger urban centers at both the federal and state levels.

The physicians interviewed found their educational programs productive, especially through university partnerships with public and private hospitals in Mogadishu and month-long community medicine experience in rural areas. However, they noted the incoherence of existing healthcare rules and regulations, as well as the lack of recruitment and employment standards in these hospitals, both in the management of service providers and patients.

The urban-rural disparity in the distribution of health professionals highlights a pronounced shortage, particularly in larger urban centers at the federal and state levels. This scarcity encompasses all categories of skilled health workers such as physicians, nurses, and midwives. The ratio of physicians to nurses and midwives is 1:5, compared to many African countries where the ratio is similar and developed countries where it is closer to 1:3. This emphasizes the significant contribution of nurses and midwives to the health care system.

Figure 3 highlights the disparities in the distribution of health professionals, showing the Benadir Regional Administration (BRA) with a substantial concentration of health workers: 668 physicians, 401 midwives, and 1,438 nurses. By contrast, Galmudug, Hirshabelle, and Jubaland had markedly fewer health professionals, suggesting limited healthcare service accessibility. Puntland and Southwest are moderately staffed, with Puntland having 210 physicians and 425 midwives, and Southwest having 96 physicians and 398 midwives. The number of nurses was similar in both regions, with 775 in Puntland and 743 in the Southwest.

Table 1 illustrates the deficits of physicians, nurses, and midwives in various levels of the health system. According to the minimum WHO staffing threshold of 23 professionals per 10,000 people, there is a requirement of 30,000 such professionals, representing a shortfall of 20,793 individuals.

In the second scenario, adopting the WHO's preferred density rate of 44.5 professionals per 10,000 population, the need escalates to approximately 57,850 health workers, resulting in a gap of nearly 48,500. The inability of the health sector to employ all necessary graduate health workforce categories exacerbates this shortage. Despite the annual graduation of hundreds of physicians, nurses, and midwives, employment opportunities remain scarce in both the public and private sectors, indicating a pressing need for policy review in health sector financing by the public sector.

Table 1
The WHO Minimum Recommended Staffing Threshold to Support the Attainment of UHC

Key HRH Categories	Currently in Service	Estimated Yearly Production	Current Need as per WHO Minimum Density Rate of 23 per 10,000 Population	Current Need as per WHO Revised Density Rate Of 44.5 per 10,000 Population	HRH Gap as per WHO Indicated two Coverage Scenarios	Time Projected for Bridging the Current two Coverage Scenarios Gap in Years*
Physicians	1167	800	Current density: 5.4 per 10,000 population.	Current density: 5.4 per 10,000 population	22,827 & 50,777	8 and 17 years respectively.
Registered Nurses	4175	1400	Estimated need of the three categories as per 23 per 10,000 population is: 29,900.	Estimated need of the three categories to achieve 44.5 per 10,000 population is:		
Registered Midwives	1731	780	Attainable in 8 years with the higher production rate	57,850. Attainable in 25 years with the higher production rate		
Totals	7,073	3,000	29,900	57,850		

*The projected gap was measured against a population of approximately 13 million. These estimates did not factor in the additional health workforce need resulting from the 2.9% annual population growth rate in Somalia, reflecting an additional 12,000 to 24,000 of these three professional categories, depending on which of the two thresholds to consider.

Focus Group Discussion with Young Physicians

The interviewed physicians indicated that they eagerly awaited opportunities for decent employment upon graduation. They spoke of this subject with dissatisfaction, noting that the majority of those who secured employment had the right connections, with little adherence to fair practices, such as advertising posts, examinations, and other competitive selection processes.

Physicians indicate that the private sector is equally affected by the need for strong connections and family linkages for job offers. On many occasions, voluntary practice without financial compensation is the only opportunity offered, which many accept as advancing their professional skills, thus making the private sector less attractive.

One participant jointly established a small clinic with a fellow physician and said that they were managed reasonably. However, his colleagues indicated that this avenue of employment is only possible for a limited number of people who could afford the upfront tangible investment for establishing a clinic.

The physicians interviewed felt that the above reasons severely limited their professional opportunities, in many cases compelling graduates to change their profession and engage in non-health areas or opt for a life as a housewife, as is the case for many female health professionals.

Employment and Education Perception Survey

In less than two weeks, almost 400 students from across the country responded, demonstrating their interest in the regulations. Most responses were from students enrolled in priority courses, such as nursing (33%), Public Health (22%), Medicine and Surgery (15%), midwifery (14%), and medical laboratories (10%).

Approximately 80% of the respondents were satisfied with the quality of their training. However, 56% of all the students from the BRA who responded were dissatisfied. About 70% of students would prefer to study in Somalia, thus building the case for standardization of academic training experiences across the country.

In contrast with the practicing physicians interviewed, almost 90% of the students perceived their employment opportunities to be good, and 80% agreed to consider working in rural areas, if given a chance. Close to 30% of BRA and 15% of Jubaland do not consider their employment opportunities good.

However, all agreed with the existing workforce in demanding more opportunities for practical training, professional development, employment, and stricter regulations. Several challenges in working in rural areas, which were dominated by a lack of security and terrorism, were highlighted.

Insufficient HRH Team Capacity for Regulatory Functions

Interviewees described that the HRH team's capacity at both the federal and state levels was insufficient to carry out all the regulatory and non-regulatory activities required. At both the federal and state levels, there are not enough workers in the teams. Additionally, many HRH team members do not receive the necessary training to perform their work optimally. Most teams have little budget beyond their salaries, meaning that there is little or no budget for communication, printing, travel, IT, or training.

Absence of Regulatory Framework

Interviewees stated that the lack of a functional health regulatory framework was a challenge in establishing medical regulations. They described the institution of a health regulatory framework as an important milestone in standardizing health professional education in both pre-service and in-service training and practice.

The study found that the nationwide human resource for health regulatory framework, "The National Health Professionals' Council (NHPC) Act," was established by the government in 2020. The NHPC Act is expected to trigger a new momentum in the Somali health system, replacing the decade-long absence of a general regulatory HRH framework. The NHPC regulation will also impact health facilities and training institutions and create opportunities for continuing professional development.

Limitations of Self-Regulation in the Absence of Formal Frameworks

Interviewees described that in the absence of a formal regulatory framework during the past decades, loose self-regulation has been the norm. Several professional groups, including medical and dental associations, nursing and midwifery associations, pharmacists, and other professional groups, have organized their members to improve access to and quality of healthcare services, set standards of best practice, promote health, prevent diseases, and deliver curative and rehabilitative services following established health sector service delivery guidelines.

These associations were also formed to protect and guard their respective professional interests in terms of regulation, licensing, Continuing Medical Education (CME), continuing professional development (CPD), preserving ethical norms, setting practice standards, and representing their professions at national and international levels. In the absence of a binding national or state-level regulatory framework, professional associations sustained a voluntary registration system with weak licensing authorities while having little or no influence on the pre-service regulation of their respective educational institutions.

Lack of Licensing Exams

Interviewees stated that credentials obtained from educational institutions act as proxy licensing permits, enabling new graduates to seek employment opportunities in the healthcare system. Neither the educational institutions nor the health facilities that would potentially employ these newly graduated professionals are registered or licensed, although most educational institutions are voluntarily registered by the Ministries of Higher Education and/or by competent state-level government authorities where they formally operate.

Lack of Continuing Professional Development

This study found a significant gap in the professional development of health workers in Somalia, with no existing mandates for Continuing Professional Development (CPD). This lack of CPD requirements is further compounded by the general scarcity of training opportunities, which hinders the ongoing enhancement of skills and knowledge among health professionals. However, the introduction of the National Health Professionals' Council (NHPC) Act marks a pivotal change, acknowledging the importance of CPD for the entire health workforce. This recognition by the NHPC paves the way for implementing structured CPD programs essential for maintaining high standards of care and ensuring that proficient and up-to-date professionals deliver health services.

Lack of Accreditation of Pre-service Education (PSE)

School representatives and federal and state representatives generally agreed that the federal government, in close collaboration with the states, should accredit pre-service education for the five main cadres (physicians, nurses, midwives, pharmacists, and dentists) and that the states should accredit pre-service education for all other cadres. There was agreement on the need to harmonize all other cadres across the states to allow health worker movement and avoid confusion. The schools indicated that they were mainly self-regulating and tended to have little contact with either the Ministry of Health or Ministry of Education. The schools mentioned that regulatory uncertainty made it difficult to establish new schools and expand the existing programs. It was also stated that because there were no set standards for the length of training or competencies for each cadre, the competencies of graduates of a given profession differed greatly from school to school, creating uncertainty in the labor market.

Professional Misconduct and Disciplinary Powers

Interviews with key informants revealed a prevalent issue of misconduct involving individuals known as charlatans. Charlatans falsely present themselves as licensed health workers, particularly physicians and pharmacists, despite a lack of official credentials. Key informants generally recognized dual practices, wherein health workers employed in public institutions also operate private practices, as widespread and not considered problematic. In the Somali health system, dual practices help health workers supplement their low public salaries and keep them in public employment.

Discussion

The findings highlight Somalia's medical education and regulatory framework, which is crucial for achieving Sustainable Development Goals and universal health coverage. Despite a notable increase in the number of medical schools, regulatory mechanisms have struggled to keep pace,

resulting in concerns about quality and standardization. Alarming, only 25 of the 94 medical schools hold international accreditation, posing risks to patient safety and diminishing the recognition of qualifications obtained from Somali institutions. The concentration of medical schools in urban areas, particularly in Benadir, underscores the need for a more equitable distribution of educational resources to ensure access to high-quality medical education nationwide.

Assessment of the health workforce reveals a significant shortage of skilled health professionals, with the current density falling below the World Health Organization's minimum threshold. The pronounced urban-rural disparity in the distribution of health workers further exacerbates the challenges in healthcare service delivery. The ratio of physicians to nurses and midwives (1:5) emphasizes that nurses and midwives play a crucial role in the healthcare system. However, the overall shortage of healthcare providers, as evidenced by the gap analysis based on WHO's recommended density rates, calls for urgent policy interventions to address this critical issue.

These findings are consistent with those of studies conducted in other countries. A study in Kenya reported a similar shortage of healthcare workers, with a density of 1.5 physicians and 7.9 nurses and midwives per 10,000 population, falling short of the WHO's recommended threshold (19). Similarly, a study in Tanzania highlighted the uneven distribution of healthcare workers, with a higher concentration in urban areas and scarcity in rural regions (20). These studies underscore the common challenges faced by the healthcare systems in East Africa, emphasizing the need for collaborative efforts to address the shortage and maldistribution of healthcare professionals.

Focus group discussions with young physicians have shed light on employment challenges faced by medical graduates. The lack of fair and transparent recruitment processes, coupled with the need for strong connections and family linkages, hinders the entry of qualified professionals into the workforce. Limited employment opportunities in both the public and private sectors, along with financial constraints in establishing independent clinics, force many graduates to seek alternative careers or to remain unemployed. This brain drain and underutilization of medical expertise pose a significant threat to the healthcare system's sustainability and effectiveness.

Similar challenges have also been reported in other countries. A study in Uganda found that medical graduates faced difficulties securing employment due to limited job opportunities and nepotism during the recruitment process (21). The study also highlighted the financial barriers faced by young physicians in establishing private practices, leading to a significant proportion of graduates opting for non-medical careers. These findings emphasize the need for policy interventions to create an enabling environment for the absorption of medical graduates into the health care workforce.

The Employment and Education Perception Survey provided valuable insights into the perspectives of healthcare students. While most respondents expressed satisfaction with the quality of their training, dissatisfaction among students in the Benadir Regional Administration (BRA) warrants further investigation. The strong preference for studying within Somalia highlights the need for the standardization of academic training experiences across the country. The perceived employment opportunities among students contradict the experiences of practicing physicians, indicating a potential mismatch between expectations and reality. The willingness of students to work in rural areas, given the right conditions, presents an opportunity to address the urban-rural disparity in healthcare service provision.

Analysis of the Somali HRH regulation landscape revealed several critical challenges. The insufficient capacity of HRH teams at both the federal and state levels hinders the effective implementation of regulatory functions. The absence of a comprehensive regulatory framework has led to reliance on self-regulation by professional associations, which lack the necessary authority and influence to enforce standards and ensure their quality. The lack of licensing exams and continuing professional development opportunities further compromises the competence and skills of healthcare professionals.

However, these regulatory challenges are not unique to the Somalia. A study in Rwanda identified similar gaps in the regulatory framework, including the absence of a comprehensive licensing system and a limited capacity for regulatory oversight (22). The study emphasized the importance of strengthening regulatory bodies and developing clear guidelines for professional practice. These findings highlight the need for a robust regulatory framework to ensure the quality and safety of health care services.

The absence of accreditation for pre-service educational institutions creates inconsistencies in the quality and duration of training programmes, leading to variations in graduate competencies. A study in Ethiopia reported similar challenges, with a lack of standardization in medical education curricula and limited quality assurance mechanisms. This study recommends the establishment of a national accreditation system to ensure the quality and relevance of medical education programs (23). These findings underscore the importance of accreditation for ensuring the production of competent healthcare professionals.

The prevalence of professional misconduct, particularly involving charlatans, undermines public trust in the healthcare system and poses risks to patient safety. The widespread dual practice, which supplements low public salaries, requires careful monitoring and regulation to ensure the quality of care. Similar challenges have also been reported in other studies. A study in Kenya found that lack of regulation and oversight of private healthcare facilities contributed to the proliferation of unqualified practitioners and compromised patient safety (24). The study emphasized the need for strengthened regulatory mechanisms to curb professional misconduct and ensure the delivery of quality healthcare services.

Investment in capacity building of HRH teams at both the federal and state levels is crucial to enable effective regulatory oversight. The implementation of continuing professional development programs, as mandated by the NHPC Act, will help to maintain and enhance the skills and knowledge of healthcare professionals. Collaboration between the Ministry of Health, the Ministry of Education, and professional associations is essential to harmonize training standards and ensure the alignment of educational programs with the healthcare system's needs.

Efforts to address these challenges include enactment of the National Health Professionals' Council (NHPC) Act, which aims to support regulatory oversight and standardize health professional education and practice. However, capacity constraints, inadequate professional development opportunities, and absence of licensing examinations continue to hinder progress in this sector.

There is a significant lack of stakeholder engagement, which has resulted in outdated curricula failing to align with the country's healthcare needs and priorities. The lack of a structured approach involving key stakeholders, such as healthcare providers, policymakers, educators, and community representatives, has led to insufficient resources and a disconnect between educational content and the realities of healthcare delivery in Somalia.

Our findings are consistent with those of previous studies, which have highlighted the importance of stakeholder engagement in curriculum development. One study conducted in Namibia emphasized that curriculum development is an ongoing process involving a wide range of stakeholders, including professional educators, consultants, administrators, teachers, students, parents, politicians, and community members (25).

In contrast, a study conducted in Kenya found that Kenya successfully implemented stakeholder engagement models in its medical education system. A significant majority of institutional heads and faculty members in Kenya reported having written guidelines for curriculum review, ensuring that educational content remains responsive to national health needs and aligns with regulatory standard (26). This finding suggests that by adopting a stakeholder-driven approach like Kenya's, Somalia could rejuvenate its medical education system and ensure that curricula are consistently updated, relevant, and adequately prepare students to tackle healthcare challenges effectively.

The study acknowledges several limitations, including the potential for selection bias in the recruitment of key informants and the reliance on self-reported data in surveys and interviews, which may be subject to social desirability bias. Additionally, the generalizability of the findings may be limited due to the specific context of Somalia. Future research could address these limitations by employing random sampling techniques and triangulating self-reported data with objective measures where possible.

Conclusion

This study provides a comprehensive analysis of the current state of medical education and its regulations in Somalia. The findings highlight the significant challenges faced by the healthcare system, including the proliferation of medical schools without adequate quality control, critical shortage and maldistribution of skilled health professionals, absence of a comprehensive regulatory framework, and the prevalence of professional misconduct.

The rapid growth of medical schools in Somalia reflects a growing demand for medical education. However, the lack of international accreditation for most of these schools raises concerns regarding the quality and standardization of medical training. The concentration of medical schools in urban areas, particularly in Benadir, underscores the need for a more equitable distribution of educational resources to ensure access to high-quality medical education nationwide.

Assessment of the health workforce reveals a significant shortage of skilled health professionals, with the current density falling below the World Health Organization's minimum threshold. The pronounced urban-rural disparity in the distribution of health workers further exacerbates the challenges in healthcare service delivery. The establishment of the National Health Professionals' Council (NHPC) Act in 2020 marks a significant step towards a comprehensive regulatory framework. The NHPC should prioritize the accreditation of medical schools, ensuring that all institutions meet the required standards for quality education. Investment in capacity building of HRH teams at both the federal and state levels is crucial to enable effective regulatory oversight. Collaboration between the Ministry of Health, the Ministry of Education, and professional associations is essential to harmonize training standards and ensure the alignment of educational programs with the healthcare system's needs.

Strategies to address the urban-rural disparity in healthcare service provision should be developed, including incentives for healthcare professionals to work in underserved areas. The government should also explore innovative financing mechanisms to support the establishment of healthcare facilities and employment of healthcare professionals in rural regions.

Furthermore, public awareness campaigns should be launched to educate the population about the importance of seeking care from licensed healthcare professionals and combat the prevalence of charlatans. The regulation of dual practices should be strengthened to ensure that health care professionals maintain high standards of care in both public and private settings.

By addressing the challenges identified in this study and adopting a comprehensive approach to healthcare workforce development and regulation, Somalia can make significant strides towards achieving universal health coverage and improving the health outcomes of its

population.

Declarations

Conflict of Interest

The authors declare no conflicts of interest regarding the research, authorship, or publication of this article.

Ethical Approval and Consent to Participate

Ethical approval was received from the Ministry of Health & Human Services of the Somali Federal Republic. The study was conducted in adherence to the ethical standards and guidelines set forth by the approving body, under reference number MOHHS/DGO/1351/April/2024. In accordance with this approval, informed consent was obtained from all individual participants involved in the study. Participants were adequately informed about the study's objectives, their rights to confidentiality, and their right to withdraw consent at any time without repercussions.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used during the current study are available from the corresponding author upon reasonable request.

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Author Contributions

DELP conceptualized the idea and designed the study. IA drafted the original manuscript. MMH, HMA, and ANA were involved in data collection. MMA analyzed and interpreted the data. All other authors reviewed and edited the manuscript for its intellectual content and accuracy. All the authors have read and approved the final manuscript.

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Figures

Trend of Medical Schools Over the Years (1970 - 2020).

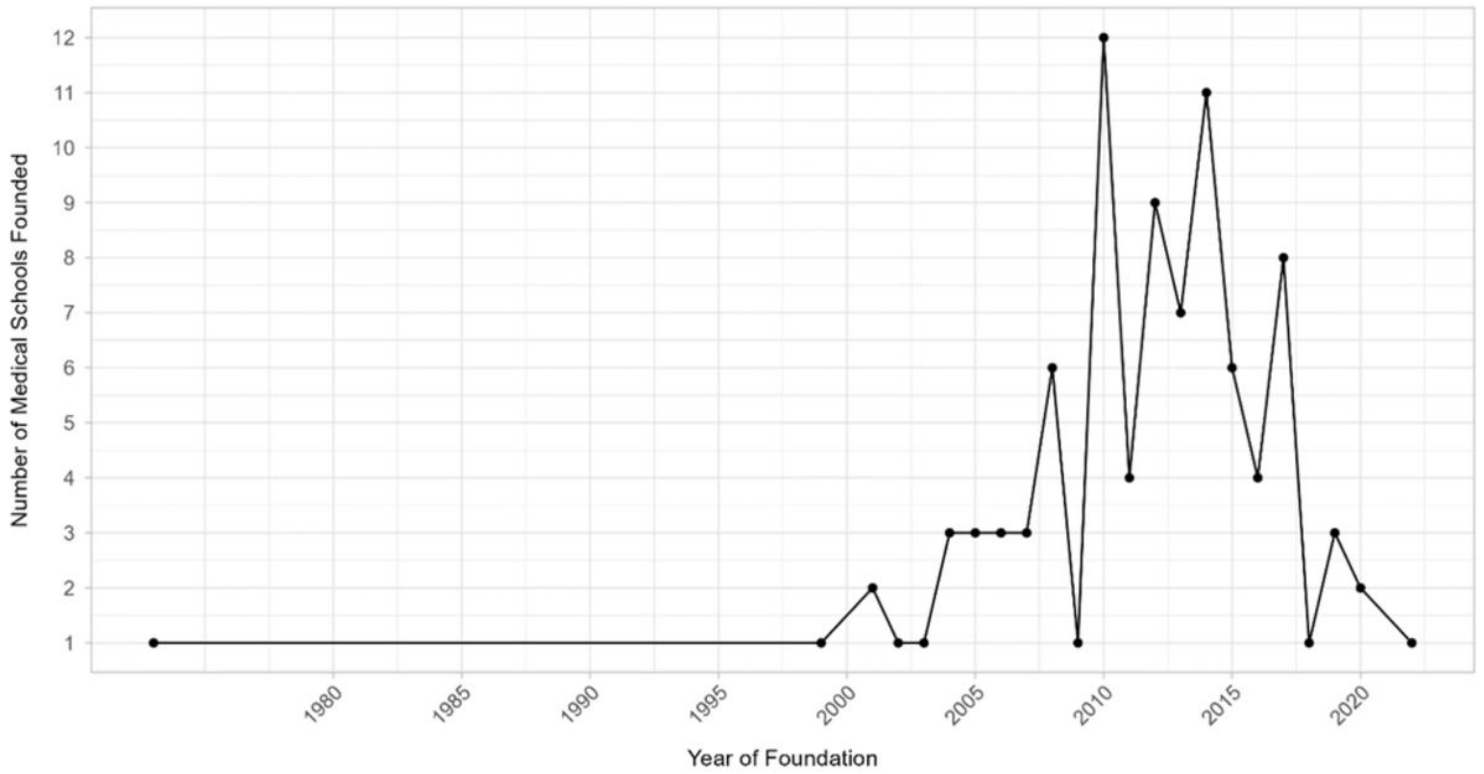


Figure 1

Trend of medical schools founded over the years (1970–2020).

Accreditation

- Accredited
- Not Accredited

States

- Somaliland (12 Medical Schools)
- Puntland (10 Medical Schools)
- Hirshabelle (1 Medical School)
- Jubaland (3 Medical Schools)
- South-West (6 Medical Schools)
- Galmudug (0)
- Benadir (61 Medical Schools)

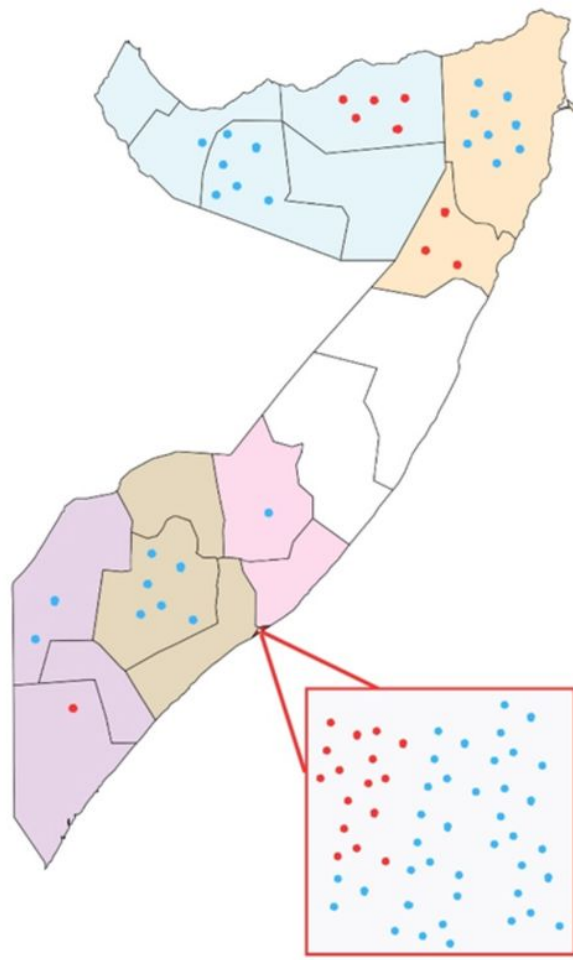


Figure 2

Distribution and Accreditation of Medical Schools Across Different States in Somalia.

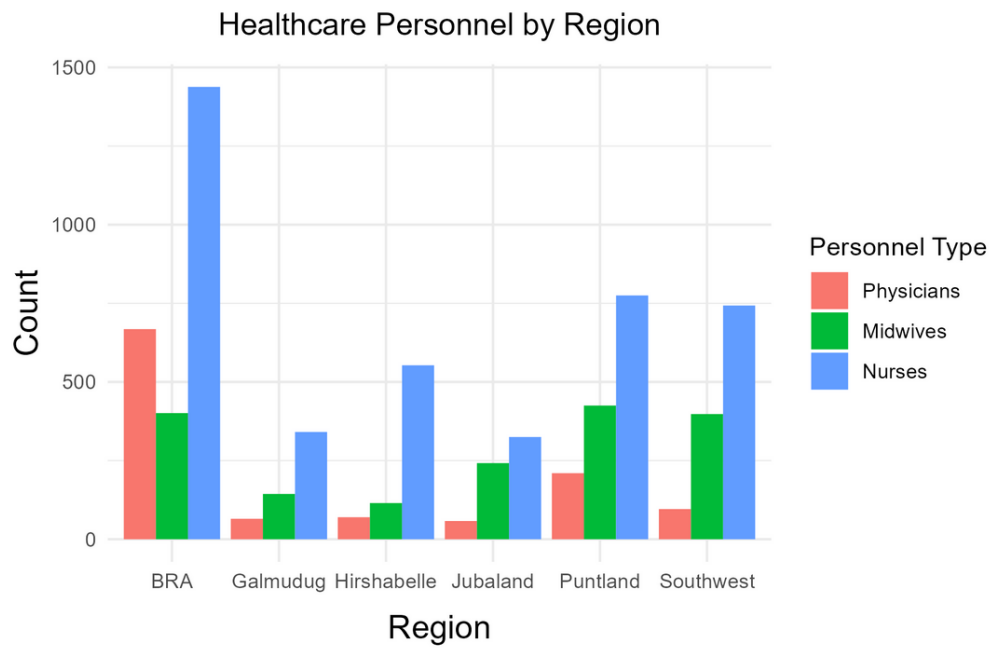


Figure 3

Regional Distribution of Health Professionals