



Strategic Workforce Planning and Data-Driven Analysis for The Ministry of Public Health In Afghanistan (2015-2020)

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KEY WORDS

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Human Resources
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Human Resources in Healthcare
Challenges
Geopolitical Instabilities

ABSTRACT

Substantiated human resource management is the foundation upon which the quality of health services is delivered in a resource-poor setting like Afghanistan. Since the past two decades, the Ministry of Public Health of Afghanistan has been engaged in developing and implementing human resource workforce plans in ensuring that the country's health care needs are met. However, the Afghan health care system still experiences considerable challenges in the recognition of its workforce goals.

Afghanis have always been facing numerous political, social, cultural, and economic crises throughout their history, from crises like security threats and lack of finances that have highly affected the health system of the country. The achievements made by the Ministry of Public Health in providing service and improving the health condition of the population are covered by the challenges such as a lack of specialists, weak infrastructure, geopolitical instability, and others [1].

Afghanistan's healthcare sector faces significant workforce planning challenges due to its socio-cultural landscape. Issues stemming from cultural norms, gender inequality, and societal attitudes toward healthcare professions impact recruitment and retention processes. Additionally, they influence the equitable distribution of healthcare workers. All these factors make it difficult for the Ministry of Public Health to establish and develop a sustainable workforce in the healthcare sector

This study considers the process of human resource workforce planning implemented within the Ministry of Public Health for 2015-2020. A key challenge to this is highlighted, along with data-based research in trying to clarify what would be the underlying factors for shaping human resource policies and practices, and suggestions on how to develop planning toward a well-distributed, skilled, and sustainable health-care workforce in Afghanistan.

Introduction

It is, therefore an important human resource management requirement for provision of quality health services especially in a country like Afghanistan which faces severe resource shortage. Over the past two decades, the Afghan Ministry of Public Health has been concerned with formulating and implementing human resource workforce plans in relation to the healthcare system in Afghanistan. All this despite, the Afghan health care system still remains challenged by meeting its workforce objectives in pursuit of a prospective health workforce.

Afghanistan has long faced significant security, political, and social crises, along with insufficient budget allocations for the healthcare sector. These challenges have directly impacted the Ministry of Public Health, hindering the full delivery of services to the population. Examples include a shortage of specialists, lack of necessary infrastructure, and gender inequalities among healthcare workers [2].

In addition, socio-cultural factors of Afghanistan also pose complexity to workforce planning in that cultural norms, gender disparities, and societal perceptions about healthcare professions affect the recruitment, retention, and deployment of healthcare workers. All these factors further exacerbate the challenges facing the Ministry of Public Health in creating a sustainable healthcare workforce.

This research revolves around the three most paramount challenges identified in implementing human resource workforce plans in Ministry of Public Health for the period under study from 2015 up to 2020. Such data-driven analysis could throw light on factors at play while shaping human resource policy and practices, and over time suggest possible improvements through workforce planning to achieve positive distribution, skill, and sustainability of a healthcare force in Afghanistan.

The Need for Strategic Workforce Planning in Afghanistan's Healthcare Sector

The health workforce in Afghanistan is facing significant challenges and it has shortages of health workers in specialized fields, a lack of fair spread in health professionals throughout the provinces, and slightly opportunities for training and capacity building. All these are compounded by the low development of healthcare infrastructure in particular areas, leading to a very low service coverage level. Developing a strategic plan to focus on targeted training, equitable deployment, and retention strategies for health workers will solve these problems [3].

Strategic workforce planning becomes necessary for equaling the Ministry of Public Health with healthcare delivery needs and organizationally set goals. That simply means analyzing the current state of the workforce, then establishing forecasts for upcoming needs so that skill and personnel gaps could be addressed. By encouraging collaboration and teamwork among key stakeholders from the Ministry of Public Health, NGOs, the private sector, and other public agencies such as Ministries of Defense, Interior Affairs, National Directorate of security, Afghan Red Crescent Society and Higher Education. Afghanistan can build a comprehensive and sustainable healthcare workforce.

Eventually, a well-planned and strategically deployed health workforce will be able to ensure that the healthcare system in Afghanistan will meet all the current and future public health needs, therefore fostering progress in service delivery and impartiality of access to care across the country.

Research Methodology

This study applies a mixed-methods approach, integrating qualitative and quantitative data collection for better understanding of efforts made in Afghanistan's Ministry of Public Health towards workforce planning. The methodology was designed to collect data from both the central and provincial sectors based on HRP format, which would provide wide representation of challenges and dynamics in HR planning at various levels of the healthcare system.

This method was clearly introduced through a workshop both central and provincial HR staffs of the ministry of public health.

Surveys were distributed electronically whenever possible, and telephone follow-ups were done to improve response rates, especially in more remote locations.

Hypothesis

H1: The geopolitical instability and socio-cultural factors that involve gender imbalances and how society perceives the health professions have greatly attributed to the failure of the Ministry of Public Health to effectively implement sustainable workforce plan in Afghanistan between 2015 and 2020.

H2: A data-driven, strategic workforce planning approach will be able to help the Afghan Ministry of Public Health manage critical healthcare staffing shortages despite the challenges presented by the conflict and the poor infrastructural setup by ensuring more equitable distribution of healthcare professionals, especially in remote area.

Ethical Considerations:

Informed Consent:

Information has been provided to all participants (HR managers) regarding data collection, interviews and needs assessments of the Ministry of Public Health at the central and provincial level.

Confidentiality:

To protect the privacy of respondents, all data were anonymized, and nameless. And data were securely stored and only accessible to the HRMIS and HRP staffs.

Limitations

Response Bias:

Some participants may not have provided accurate information during phone interviews due to security challenges, political issues or personal problems.

Data Availability:

Some of the information provided by security agencies, due to confidentiality and security considerations, does not include specific details and is limited to figures. Additionally, in this study, out of the total collected data of 57,015, there are 4,146 administrative staff who do not provide direct services, and 374 unspecified figures have been recorded in this article.

The Role of Data-Driven Analysis in Workforce Planning

Data-driven analysis is the core cornerstone of effective workforce planning as it empowers and encourages policymakers to gather, interpret, and act on information in regard to trends, shortages, and demands for healthcare. Using data in healthcare can enable the Ministry of Public Health to optimize evidence-based strategies regarding human resources.

Workforce Pipeline

Afghanistan's health workforce pipeline is the step-by-step process of taking an individual from basic education to appropriate specialized training that leads them into employment within the health care system. It encompasses several stages-from early schooling to career entry-is required to generate a skilled health care workforce capable of meeting national needs [4].

Education Pipeline

It forms the base layer that places individuals in a specific position before training in specialized health provision.

-Primary Education (Grades 1-6): "This stage covers the first years of schooling, providing general literacy and numeracy skills. This is rather crucial since it lays the foundation for later learning.

-Lower Secondary Education Grades 7-9 This is general education that expands more intensively and specializes in other subjects like mathematics, science, and language. It's targeted at transitions from basic to more focused learning.

-High School: Grades 10-12. It is at this level they are more educationally prepared for entry into tertiary institutions or vocational paths. It is the last stage before training in health careers, hence entry into health training institutes.

It ensures that students pass on general knowledge skills to enable them to access professional training in health sciences after basic education [5].

Health Training Institutions

When the students complete their fundamentals education, they can move on to more specialized training at health-oriented educational institutions. These can be broadly categorized into

-Government Health Training Institutes and Universities: These are public institutions offering training in various health professions such as medicine, nursing, pharmacy, midwifery, and public health.

-Privately Owned Health Training Institutes and Colleges: Privately operated entities also offer similar health educational and training services with yet more choices for the pupils. Training at these institutions covers both theoretical and practical aspects of healthcare, with a focus on preparing individuals for professional certification and entry into the healthcare workforce [6].

Qualified Health Workers

After completing their education and training, graduates from these institutions are classified as "qualified health workers." This group includes:

Doctors (general practitioners and specialists)

Nurses

Midwives

Pharmacists

Public health experts

Technicians: anesthetists, physiotherapists, pharmacy and other technicians.

At this stage, these qualified professionals are ready to contribute to the healthcare system.

Employment Path

Once individuals have obtained the necessary qualifications, they enter the labor market, where they can either:

-Health sector: Many qualified health workers will find jobs in hospitals, clinics, pharmacies, or government healthcare agencies. This is the ideal path to address Afghanistan's health needs.

-Non-health sectors: Some may take roles outside the health sector, either because of limited opportunities in the health field or due to personal preferences.

-Remain unemployed or out of the labor force: Due to various challenges, including a shortage of employment opportunities in the healthcare sector, some qualified workers may be unemployed or leave the labor market entirely.

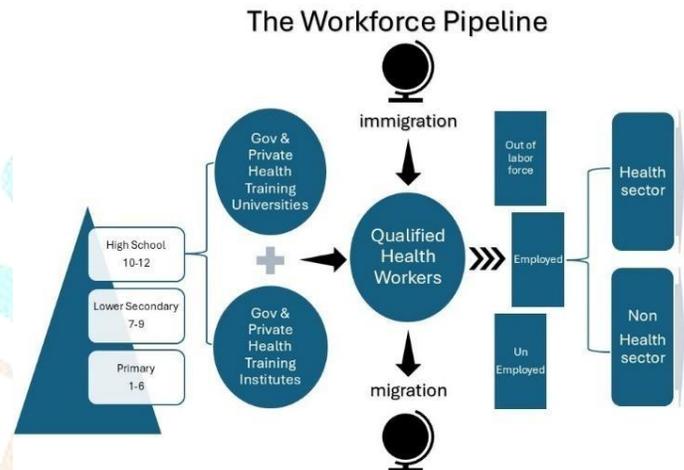


Figure1: The Workforce Pipeline for Health

Data Collection and Management

The data collection process begins precisely after identifying the problems and designing the research. The Ministry of Public Health must establish a reliable and unified system for data collection, which includes tracking healthcare professionals based on their specialties, equitable geographic distribution according to population, age, gender, and years of service. Additionally, the demand for healthcare services, population health indicators, and diverse diseases must be identified, with actions taken according to a unified human resource plan. A centralized health information system is essential for regularly updating data and ensuring its accessibility for analysis and identifying gaps in service delivery for the people of Afghanistan [7].

Forecasting Workforce Needs

The basis of any good staffing plan is an accurate workload forecast. Without a precise forecast of the work to be expected, the effort to calculate staff numbers and create detailed schedules could be wasted. The old saying "garbage in, garbage out" is especially true when applied to contact center workforce management. A precise and accurate forecast is a vital beginning step in the process [8].

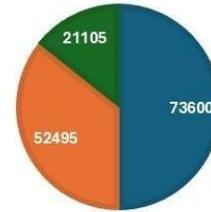
The Ministry of Public Health can take preventive actions based on data analysis, considering population growth, disease patterns, and various specialties for service delivery. This should be done by adhering to the principle of merit, organizing necessary training, and recruiting specialized personnel to improve the delivery of healthcare services in Afghanistan.

The current Employee's Data Analysis

Estimated Population in Afghanistan in 2019 32,000,000	
Health profession	Total number
Doctors (including specialists)	11061
Dentists	876
Dental health technicians	415
Midwives	5098
Nurses	11483
Public Health	4806
Pharmacists	1037
Pharmacy technician	1228
Anesthetists	276
Physiotherapist	312
Other technicians**	2963
Others ***	12940
Total	52495

WHO STANDARD PER 10000 POPULATION 10000/23

Needs Current Employees shortage of Employees



Comparison of current employees with WHO standard

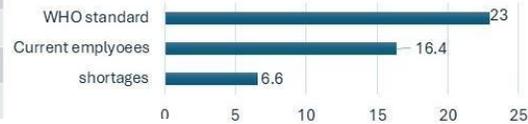


Figure2: The Current Employee Data Analysis

Calculation of the required number of Health staffs

WHO Standard: 23 health workers per 10000 population [9].

Afghanistan's Population: 32 million.

$$\text{Required Employees} = \frac{32,000,000 \times 23}{10,000} = 73,600,$$

- comparison of current workforce to WHO Standard

Current Employees: 52,495.

Deficit: 73600 (current) – 52495 (required) = 21,105.

Geospatial Analysis and Workforce Distribution

Healthcare workers in Afghanistan often congregate in urban centers due to security concerns, while rural and remote areas suffer from a lack of service delivery. A robust geographic management system can play a crucial role in analyzing and addressing this issue by mapping and ensuring the equitable distribution of the workforce. With the establishment of a competent committee and the introduction of mobile clinics, this disparity can be effectively mitigated [10]. This table provides data on the number of male and female health providers across different provinces in Afghanistan. Here's an analysis:

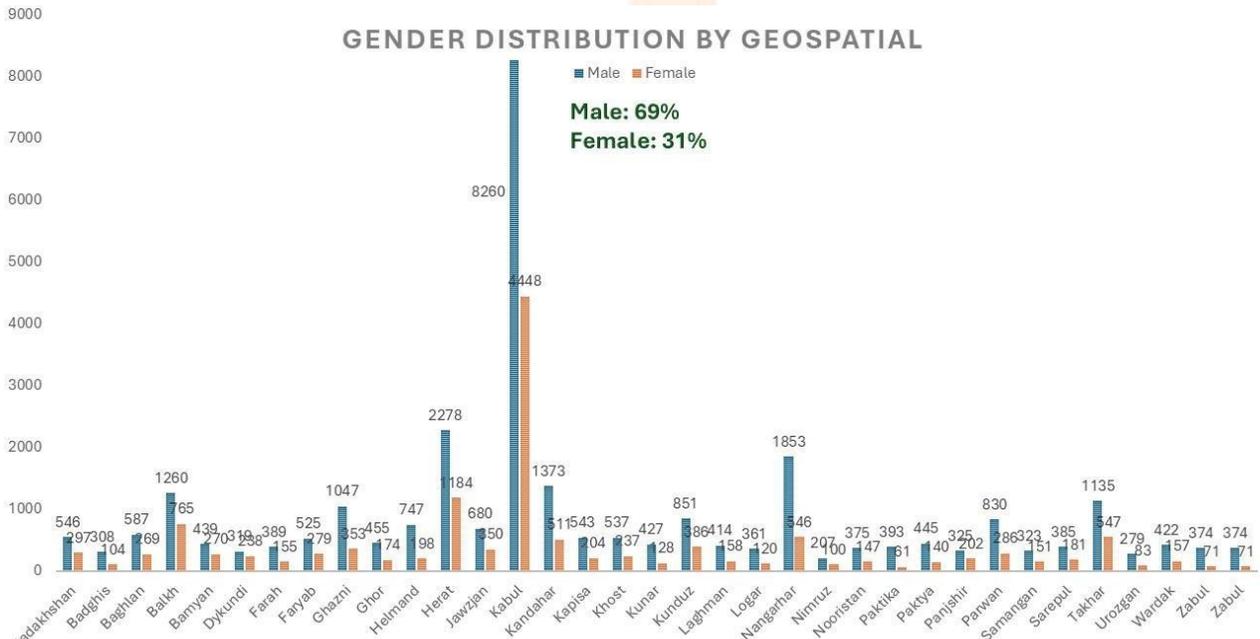


Figure3: Comparison with WHO Standard

General Observations

-Highest Representation:

Kabul has the largest number of health workers, with 8,260 males and 4,448 females.

Herat and Balkh also have significantly high numbers of health workers compared to other provinces.

-Lowest Representation:

Paktika and Zabul have very low counts, with Zabul having only 374 males and 71 females.

-Gender Gap:

Kabul has the largest absolute gap in gender, with 8,260 males and 4,448 females (gap: 3,812).

Provinces such as Paktika, Zabul, and Logar have minimal female representation compared to males.

-Provinces with Better Female Representation:

In Dykundi, females (238) are relatively close to males (319).

Panjshir also shows a smaller gap (325 males and 202 females).

Challenges and Opportunities

While data-driven workforce planning offers many opportunities for the improvement of healthcare delivery, it also poses challenges in Afghanistan's unique context.

Challenges

-Data Quality and Availability

Afghanistan's healthcare information infrastructure is still developing. Data collection can be inconsistent or incomplete. Many healthcare facilities lack digitization, making data management and reporting complicated, especially in remote regions.

-Human Resource Management Capacity

Many health care institutions in Afghanistan do not have technical skills to analyze the data and implement workforce planning models. There is a necessity for building capacity in human resource management, data science, and statistical analysis within the Ministry of Public Health.

-Political Instability and Security

Politically and security-wise, it is very hard to recruit and retain health workers, especially in regions that are conflicted. Security risks also deter people from collecting data in a sustainable manner across the country.

Opportunities

-Technological Advancements

The Ministry of Public Health can improve data collection and management of the workforce with electronic health records, mobile surveys, and cloud-based analytics through enhanced use of digital health platforms and mobile technology.

-International Partnerships

In collaborating with other international organizations such as WHO, in addition to NGOs, access is facilitated not only in technical

support but also financial to support workforce development initiatives. Sharing of knowledge as well as the best practices on planning a workforce are enabled.

-Capacity Building

Training and capacity building for data science as well as health informatics by administrators as well as policymakers may contribute immensely towards making it more effective at analyzing and determining decisions to do for its workforce.

Finding

This study puts across the critical role of data-driven analysis in strategic workforce planning in Afghanistan's healthcare system. Although it has an adverse geopolitical stability, infrastructural inadequacies, and societal differences, the Ministry of Public Health can still apply data analytics in decision-making processes for recruitment, training, and deployment of healthcare professionals. Data integration into broader health system reforms would help Afghanistan fill the gaps in critical shortages, ensure equitable distribution, and minimize workforce challenges that affect rural areas. This will allow the Ministry of Public Health to better navigate more complicated aspects of healthcare delivery, such as gender gaps, conflict-related instability, and shortages of skilled workers.

Recommendations

To address healthcare workforce issues in Afghanistan, the Ministry of Public Health can go for a comprehensive approach that merges technological innovation with human resource management. These should include steps to modernize health data infrastructure for data collection to ensure accuracy in real-time and to link workforce data with other systems of health information for more informed data-driven decision-making. And develop the central registry of health professionals and the analytical capacity of Ministry of Public Health to keep abreast of trends and resource allocation.

Regional disparities and workforce shortages need to be addressed through financial incentives such as bonuses and career opportunities for healthcare staffs in rural areas. Though, policies which boost working conditions and foster professional development will be required to address the turnover of workers and stabilize the workforce. There is a need to invest in education and training in primary and rural health and continuous professional development to decrease skill shortages and enhance capacity in the workforce.

Healthcare infrastructure will only become stronger with equitable distribution of resources, modernized infrastructure, and filling in conflict-affected areas. More stable conditions will arise as peacebuilding and governance reform are infused into the strategic workforce plan. Strong and diverse workforces, combined with gender equality and culturally-sensitive training, will lead to this stability. Better healthcare fund allocation and collaboration with international organizations will further drive these efforts toward a more equitable and sustainable healthcare system in Afghanistan, improving the delivery of healthcare and health outcomes for the public.

Conclusion

Eventually, it is clear that Afghanistan faces many challenges in health workforce development, including instability in geopolitical issues, socio-cultural and gender disparities, and limited infrastructure. However, the Ministry of Public Health has to develop strategic workforce planning to correct these problems, gaps remain, especially in the distribution and development of healthcare professionals. Therefore, the utilization of data analysis and forecasting in workforce planning is crucial in identifying and improving service delivery in hard-to-reach areas.

Enhancing the data infrastructure would be a key component of these efforts, as better planning and management of healthcare resources would be facilitated. Strong systems for data collection and strategic investments in training and capacity building can help massively improve workforce distribution and retention. Promoting international collaboration and technological advancements will also help to overcome some of the logistical and financial obstacles that the healthcare sector currently faces.

In addition, what Afghanistan needs is to grow health demands: a skilled and well-distributed workforce should, in the long term, ensure that a well-capable workforce meets these growing needs and supports Afghanistan in moving closer to developing a strong health system to deal both with the present and the challenges arising in the future, public and otherwise.

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