Research Article

Human Resources in Public Healthcare Settings in South Asia in the Last 10 Years

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Abstract

Background: Human resources are part and parcel of an effective healthcare system. They not only cater to clinical but non-clinical areas of the healthcare system too. Human resources aim to achieve a sustainable healthcare system globally which is a basic right of every living individual.

Objective: To review human resources densities and their input in the healthcare system. We also aim to look at the management of human resources and governmental policies and how this has affected patient care.

Methods: A search string was generated and databases used to search for articles included: Pubmed, Google Scholar, and Pakmednet. PRISMA guidelines were adopted to screen articles and select based on the inclusion and exclusion criteria proposed.

Results: Out of 922 compiled articles,16 were selected after screening and eligibility selection. These articles showed the availability and competency of human resources from Bangladesh, Afghanistan, Pakistan, and other South Asian countries. Various problems and issues were examined surrounding human resources for health and the impact this has on care in South Asia.

Conclusion: Necessary policies that aim to increase the availability of human resources and their competency by decreasing workload must be carried out so the density increase in South Asia can be seen for human resources in the healthcare system.

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Introduction

Healthcare access is a basic human right and it is a part of the WHO's SD Goals to achieve universal health care (UH) across the globe by 2030. To achieve such a UH system human resources are an absolutely vital option. Human resources within a healthcare setting are concerned with the work of both clinical and non-clinical staff in improving health outcomes. Public health systems can only function with an effective workforce, however for these systems to thrive it is not just a target number of personnel that needs to be achieved. Human resources should be adequately distributed as well as accessible to the population.[1] Human resources are vital for maintaining the sustainability of a health system, if certain policies lack HR there is a significant hindrance to the development of the system.[3]

According to recent estimates, South Asia is among the regions with the lowest HRH densities.[2] Previous literature has identified that human resources and its management is one of the biggest issues and challenges faced by healthcare systems in Pakistan.[4] This lack of adequate management has led to significant health inequalities within varying populations. It is notable that the distribution of human resources is skewed in favour of class disparities, with the 'richer' populations having easier access and more skilled workers available.[5]

It has also been highlighted that there has not been a recent analysis of the management of human resources within the last 5 years.[6] Recent research has not been completed to appropriately assess whether the above problems are still a

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concern or if there are any additional challenges to the public health care system. Therefore the rationale of this study is to give a retrospect into recent developments and changes within HRH in Pakistan and the wider South Asian region and to also identify current issues and challenges being faced (specified to the previous 5 years). Therefore the aim of the study is to call attention to the progress Pakistan has made as well as note areas that need improvement (more up-to-date information and research) to further help policymakers achieve the WHO SDG for 2030.

Methods

Study Design:

The study was conducted systematically to analyse and review previous literature on human health resources in the last ten years. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed and utilised for the systematic review.

Search Strategy:

Three appropriate databases were selected to use: Pubmed, Google Scholar, and Pakmedinet. Multiple search strings were curated by one investigator and then revised by a second editor. All results that initially came up were first added. Both grey literature and published work were included.

Study Selection:

i. **Inclusion criteria:** A filter of all articles from the last 10 years was included. We also only included articles that were based on research conducted within countries in South Asia, this includes; Pakistan, India, Nepal, Sri Lanka, Maldives, Bangladesh, Afghanistan, Bhutan, etc. Articles referencing any "job" or a human resource involved in the healthcare setting were included, as long as they included results regarding impacts on patient care. Grey literature was not excluded.

ii. **Exclusion criteria:** Articles that talked about human resources that were only available in countries not in South Asia were not utilised despite mentioning their effectiveness. We also did not include articles that only referenced global distribution without specific consideration of the South Asian distribution of human resources for health. Articles beyond the filter of the last 10 years were not included. Articles that include "new" schemes or resources that are being tested out in a small locale of the country without indication of their impact, management or effectiveness were discarded as they could not be generalised.

Screening Process

The articles selected were subjected to the next phase, and the Full text was read. Our initial search strategy compiled a total of 922 articles (excluding the 114 duplicates that were removed). After initial screening 823 articles were excluded, of these articles, 52 were retrieved. These 52 full text arcticles were then reviewed for their eligibility and ultimately 14 articles were selected. Refer to Figure 1 for the flowchart. Screening was completed by 2 reviewers.

Data Extraction:

Data collection and extraction while not being completed through a software tool was finished manually by a team of four investigators. Articles were randomly divided and assigned to two researchers who developed a data extraction table highlighting important outcomes from each selected article. The training investigator then reviewed each article and peer-reviewed the work.

Quality Assessment:

Each paper was initially screened and analysed separately by two authors before being included and excluded. Arcticles were further evaluated by the other two authors to see whether they met the inclusion and exclusion criteria. The titles and abstracts of each article were initially reviewed to see if the selection criteria were met. The complete text of any article that didn't fit the eligibility criteria was not included in the review regardless of their quality assessment.

Results

Initial search yielded 922 articles (excluding the 114 duplicates that were removed). After initial screening 823 articles were excluded based on their abstracts. of these articles, 52 full-text articles were retrieved. After full-text screening the selected 14 articles were broadly cataegorised into 2 components, those that assessed the availability of human resources and those which focused on assessing the competency of human resources. There was also considerable overlap with various articles mentioning the effect of governmental policies and management on HRH.

A study in Bangladesh, estimated the availability of HWF to be 49 per 10,000 population, and for doctors, nurses, and midwives combined this was 9.9 per 10,000 population[9]. The study done in Pakistan clearly estimated the declining availability of HRH in the provinces of KPK and Punjab[10]. A study conducted in Afghanistan showed a greater number of HRs in provinces with a large rural population. An estimation of 25506 HRs were made that work in NGOs. It also revealed that 75% budget allocated to HWF had 5% spent on capacity building of HR.[11] A case study of rural Afghanistan revealed that a total of 34 provinces and 6 out of them have attained 1 health post for 1250 population. Also, the statistics revealed a 7.43 per 10000 population ratio of trained CHWs.[13] A survey done on the anesthesia workforce in Sindh, Pakistan showed a rate of 0.26 per 100,000 population which was significantly low. The availability of full-time anaesthesiologists in 32 out of 54 hospitals is 1 and the remaining have

part-time anaesthesiologists. 23 out of 54 hospitals have availability of those anaesthesiologists who have not passed or undertaken certificate examination.[15] According to NHWA, 1.12 million allopathic doctors with 2.34 million nurses and 0.79 million traditional medicine professionals while NSSO reported a greater difference between doctors and midwives/ nurses that is 8.8 and 17.7 million respectively. The reports also showed that the public health sector is facing a shortage of active workers and specialists in the community health system.[16] An assessment was made to know the capacity of tertiary healthcare in KPK Pakistan. The statistics showed a shortage of 48 doctors at DI Khan THQ and 565 in emergency departments overall.2517 being the rate of working nurses showed a shortage of nurses in every hospital.[17] Public sector institutional capacity revealed by WHO for South Asian countries were as: Of the 10 asked to report, 7 reported HRH availability while 3 reported other units taking this function. However, every country prioritized government documents for HRH responsibilities. Every country reported taking on policy and operational challenges to improve availability.[20]

In a study done to examine the competency of mid-level workers providing primary health care facilities, the data showed that 50.1% of CHOs were competent in managing noncompetent diseases and malaria. And 80% of prescriptions for hypertension they wrote were correct.[8] A study on female multipurpose health workers gave stats that ANMs could not explain and perceive their domains of jobs. Out of 7 hr spent daily on the job, 60% was spent on direct program activities guideline allocated 30 hr for service delivery while only 16 hrs were being spent by ANMs. The services provided only focused on very few aspects while other aspects are being ignored.[8] A market analysis for Bangladesh's health workforce showed 33.2 per 10,000 qualified HWFs.[9] An evaluation of workload-based staffing norms in the public healthcare system revealed that 7 out of 20 staff categories had very high workload pressure which included consultants of anaesthesia, medicine, surgery, paediatrics, and obstetrics and gynaecology. The high workload gives rise to fatigue, burnout, and lack of individual care services to patients and the competency of staff is seriously compromised.[10] A cross-sectional study to assess the aptitude of health assistants in the prevention and management of chronic diseases showed the index of competency to be 19.1. Almost 96% of participants believed they were competent. However, results revealed various factors such as work environment, facilities, organization support, and workload were majorly involved in influencing competency in one way or another.[14] A longitudinal multilevel analysis in India on supportive supervision and performance of the healthcare community showed that CHWs who received supervision had higher odds of better performance, the rate being 70%.The above stats were not affected by any demographic factor or facility-related factor.[18] The retention of doctors in the rural health care system was assessed and the participants involved were 7 male and 1 female doctor with all 7 female nurses while positions for trained medical officers and nurses supervisors were vacant. The factors that played a key role in it were poor living conditions, lack of housing facilities, overwhelming workload, and unsafe drinking water. These factors affect work performance and lead to a lack of development in careers.[19]

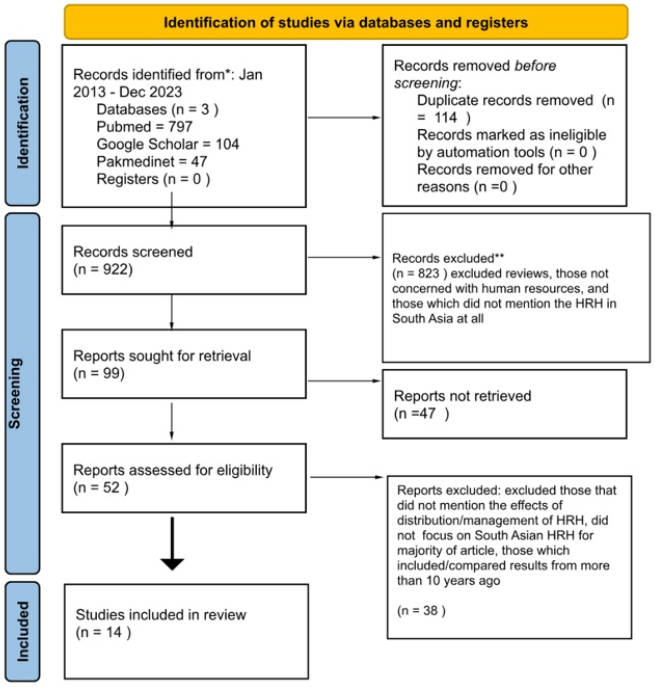

Figure 1: *PRISMA flow chart smmarising the screening process.*

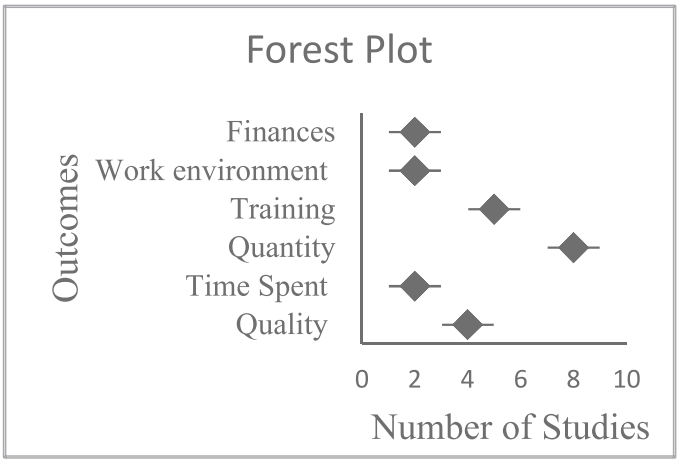

Figure 2: *Forest plot showing the relationship between all six outcomes; finances, work environment training, quantity, time spent and quality across all the studies reviewed.*

Discussion

The objective of this review was to assess changes, taking place within the last ten years, in the Human Resources (HR)

of Pakistan and other South Asian countries. Previous data, while accumulated around the South Asian region, has not been reviewed or analyzed, and currently, many published works are out of date or incomplete[2]. A systematic review assessing the effectiveness of different strategies to improve healthcare worker performance utilised data collected in 2010.[21] There are various variables that all contribute to this HRH inequality, these include population size (increasing populations create a much higher demand for HRH of which the production has not been increased proportionally), lack of tertiary care hospitals, involvement of political leadership, and certain managerial flaws.[11] Out of the fourteen articles we reviewed, insufficiency among human resources for health was an ongoing trend across all countries in the South Asian region. Irregular densities of employment in provincial areas suffering from a lack of healthcare professionals have a profound negative impact on the country's burden of disease. A report published that a one-unit increase in health workers per 1000 population will reduce the impact of disease (measured in terms of disability-adjusted life years, DALY) by 1 to 3%. 24 It is therefore imperative that the quantity of healthcare workers be adjusted for and management of HRH policies fulfil this requirement. It is not only the number of human resources available that impact health outcomes for patients but also the work performance of said workforce. With low performance, it is significantly more costly and destructive and so a focus needs to be highlighted not only on improving numbers and allocation but also on increasing the efficiency of the workers. A study looking at the antecedents of work performance highlighted that doctors can only perform their dusty if they are relaxed and undue stress is eradicated, therefore certain plans and ploys should be added into consideration to reduce the workload, thereby improving human resources.[29]

It had already been established that the imbalance and mismanagement of human resources for health is closely linked to health policies and it is through these policies substantial improvement will be made.[21] The numbers we came across from the reviewed articles show that the allocated budget is not substantial for human resources healthcare therefore affecting the thriving capacity of the healthcare systems in all the regions. According to Public Sector Institutional Capacity by WHO all ten countries evaluated, responded positively to having official government documents on Human resources healthcare responsibilities. This includes outlining work, data collection, regulation of services, and better training for health workers. But despite having these official HRH documents 3 out of 10 countries did not have a proper human resources department that handled all these responsibilities, rather these tasks were run by other departments. The data also reported the compliance of all ten countries to work on policy and operational challenges in order to improve availability. Implementation of these policies however was not clear. This is comparable to similar low-income countries, most notably South Africa, which after looking at a review through the years has demonstrated that new policies regarding HRH have been developed, however, there still are key major challenges being faced[23]. While policies and management strategies have been identified it is poor governance of rules and regulations that leads to an increasingly burdening system. This trend has been noted across multiple low-income countries. 24 Similarly poor adherence to rules and regulations, a lack of knowledge of the understanding of universal health care and the provision of vital health services (such as HRH) at lower levels of government also hinders the capacity of these countries to provide important health services. Nepal for example has policies that clearly define steps needed to achieve the SDG 2030 goals for health, however, despite these policies being present at federal levels the application of these at lower levels is hindered due to a lack of knowledge surrounding health and the services leading to insufficient services and resources.[25] It is important to note that weak health policies surrounding human resources for health are not only limited to low-income countries. The challenges however are not similar and policies therefore are moulded based on each country's needs. It is also important to note however that higher-income countries also have an

Table 1: *Characteristics of Included Studies*

Title	Author	Year	Country of Study	Study Design	Method	Outcome	Reference
Assessing competence of mid-level providers delivering primary health care in India: a clinical vignette-based study in Chhattisgarh state	Samir Gar, Narayan Tripathi, Jayathra Datla,Tomas Zapata, Dilip S. Mairembam, Kirtti K. Bebarta, C. Krishnendhu and Hilde de Graeve	2022	India	Clinical vignette-based study	Vignettes were used to measure the knowledge and clinical reasoning of providers in rural MAs, MOs and CHOs. Standardisation was achieved by consulting experts and using treatment guidelines which were available. 132 CHOs, 129 RMAs and 50 MOs were assessed.	The average competency scores of CHO (50.1%), RMAs (63.1%) and MOs(68.1%) were statistically different ($p<0.05$). CHOs scored well in non-communicable diseases as compared to the MOs and RMAs but they scored less for diseases like diarrhoea, vulvovaginal candidiasis and pre-eclampsia. In terms of clinical care, CHO scores were around 65% and 48% in the areas of diagnosis and prescription writing, respectively.	7

Functioning and time utilization by female multi-purpose health workers in South India: a time and motion study	Samiksha Singh, Neha Dwivedi, Amol Dongre, Pradeep Deshmukh, Deepak Dey, Vijay Kumar and Sanjeev Upadhyaya	2018	India	Mixed-methodd cross-sectional study (time and motion)	Study was conducted over 3 randomly selected districts, sampling was done over multi-stage stratified sampling. Both qualitative (interviews) and quantitative (in the form of checklists) data were collected	The median hours worked by an ANM were 7 hours a day. About 60% of their on-duty time was spent in catering programme activities like home visits, universal immunisation, antenatal care, seasonal diseases and school health. Around 518 minutes per week were spent by ANM on programme support activities like training programs, meetings/discussions with seniors and field-level survey activities. ANM spent 426 minutes/week on other work which included their lunch break and their personal time. The amount of services provided by ANM was primarily only in two areas maternal and child health and non-communicable diseases. The allotment of 2 ANM in Sc was not enough to provide efficient services in the whole area. As per guidelines from NHM, ANM on average was spending 16 hours per week on service delivery instead of 30 hours stated in the guidelines.	8
Informing investment in health workforce in Bangladesh: a health labor market analysis	Md Nuruzzaman, Tomas Zapata, Michelle McIsaac, Sangay Wangmo, Md Joynul Islam, Md Almamun, Sabina Alam, Md Humayun Kabir Talukder and Gilles Dussault	2022	Bangladesh	Health labour market analysis	Framework outlined in the global strategies used. Data from the MOHFW was used for the public sector and for private services a national survey was conducted to estimate the composition and characteristics of both the public, private and informal sectors providing healthcare.	Overall statistic of healthcare professionals (this includes midwives, nurses and physicians) in Bangladesh was 9.9 per 10,000 population. A total of 24% vacant positions out of which midwives had the highest number of 61.7% and doctors with 33.7% vacant seats. Among the occupied health workers, 50-75% work in urban areas which only constitutes 38% of Bangladesh's population. The qualified health professionals proportion constituted for33.2%.	9
Adopting workload-based staffing norms at public sector health facilities in Bangladesh: evidence from two districts	Md Nuruzzaman, Tomas Zapata, Valeria De Oliveira Cruz, Sabina Alam, Samiun Nazrin Bente Kamal Tune and Taufque Joarder	2022	Bangladesh	WISN ("Workload indicators of staffing need") method developed by the WHO An exploratory involving both qualitative and quantitative methods) and a, cross-sectional survey	the WISN manual was applied to 2 districts in Bangladesh between the months of July-November in 2017 Qualitative methods used document reviews, key informant interviews, in-depth interviews and observations Quantitative method was a time-motion study with each staff observed 2x for a 45 min time.	According to the measurement from WISN 7 out of 20 of the staff categories had a very high load pressure, 5 had extremely high, 2 had high, 3 had moderately high, 2 had normal and 1 had a low workload. Those with the highest workload were: consultants of medicine, paediatrics, anaesthesiology, obstetrics and gynaecology, and surgery. Staffing levels were found to be insufficient to provide a minimum variety of services. The increased workload also had severe outcomes including fatigue, burnout, lack of motivation, and compromised quality of care. Not responsive to actual health needs.	10
Income-related inequality in distribution of health human resource among districts of Pakistan	Rashed Nawaz, Zhongliang Zhou, Neelum Khalid, Dan Cao, Guanping Liu, Yangling Ren, Dantong Zhao, Yaxin Zhao and Yaru Chen	2021	Pakistan		Information on HRH was taken from statistical bureaus from all four provinces and then to measure inequality concentration curve (CC) and Concentration index (CI) were used,	CI index of doctors in 2016 was 0.60 (95% CI= 0.42, 0.78) and for nurses in 2016 was 0.67 (95% CI= 0.42, 0.9). It was found that population size was negatively linked to the number of HHR per 10,000 people. Both the provinces of KPK and Punjab were linked to declining numbers of HHR per 10,000 people. Decomposition analysis shows that the monetary status gives better details about the most accessible HHR inequality.	11

Analysis of human resources for health in Afghanistan	Saha Naseri,1 Merette Khalil,2 Sala Sabrah,3 Muhammad Homayoon Manochehr,4 Lakhwinder Singh Sidhu,1 Ahmad Rasekh,4 Mohammad Abi4 and Najibullah Safi1	2023	Afghanistan	Descriptive study with quantitative methodology.	Two questionnaires were developed for data collection, the 1st included demographic characteristics while the 2nd aimed at gaining information on NGOs and overall HRH investments/expendituresres.	There are 25,506 health workers working in the NGOs. Larger rural population areas were catered by greater densities of HR; mainly doctors, nurses, and midwives. And lowest proportions of healthforce was observed in large cities like Herat (1.9) and Kandahar (1.7). A large gap was also observed among gender where only a proportion of 35% of the 25,68 workers were females. In 2017-2020, the health workforce was given a budget of more than 75% of the NGOs. From this more than 70% of the budget was spent on staff salaries and other health workforce expenditures. Capacity building received less than 5% of this budget.	12
HRH dimensions of community health workers: a case study of rural Afghanistan	Said Ahmad Maisam Najafizada1* , Ronald Labonté2 and Ivy Lynn Bourgeault3	2019	Afghanistan	Descriptive qualitative analysis	Data was collected and interviews conducted with participants selected from stratified, purposive sampling.	CHWs comprise the greatest percentage of the health workforce in Afghanistan with 7.43 CHWs per 10,000 people compared to 1.9 per 10,000 population. 6 provinces out of the 34 that participated have reached the recommendation of having 1 position per 1250 people. CHWs were called “village doctors”, and were trained to hand out drugs, treat common paediatric ailments, provide counselling to patients, and refer patients to further health services. CHWs did not have a direct relation with other healthcare providers such as doctors and nurses but a lack of integration with the human resources of the health education pathway, obstructs their way to a more professional role.	13
Assessment of competencies in the prevention and control of chronic diseases and their influencing factors among health assistants in Bhutan: a cross-sectional study	Tshewang Lhadon1,2 and Nithra Kitreerawutiwong1*	2022	Bhutan	Cross-sectional study	Cross-sectional study was conducted in all 20 districts in Bhutan. The survey specifically focused on HAs (usually the first point of care in the country).All health facilities are units of analysis. Data was evaluated by “Statistical Package for social science version 20,0 software package”	Results showed that the mean total aptitude score was 19.1 (SD = 25.7). Approximately 96% of respondents thought they were capable of preventing and controlling chronic diseases. Results indicated that work environment, gender, location of workplace, and support from the organisation were significant factors that influenced the competency among the HAs. The coefficients for association with work environment and organizational support were 0.473 and 0.117, respectively, indicating a positive relationship between these variables and competency.	14
Assessment of anaesthesia workforce capacity in district and tehsil (taluka) hospitals in Sindh province of Pakistan: a survey	Amin Khuwaja,1 Rafia Tabassum,2 Ahmed Soomro,3 Raja Diloo,4 Kelash Kumar,5 Jamil Ahmed,6 Fauzia Khan 7	2023	Pakistan	Cross-sectional study	Survey’s main elements were taken from “Workforce section of Anaesthesia facility assessment tool of World federation of society of Anaestesiologists” but extra elements were added to adjust for local cultural norms and perspectives. Data was analyzed using descriptive statistics. All government owned DHQ and THQ hospitals of sindh were surveyed.	The anaesthesia physician workforce density in Sindh was found to be 0.26 (per 100,000 population). 18 of the 90 hospitals did not have an OR (20%). Only 54 hospitals had full-time qualified anaesthesiologists as well as part-time qualified anesthesiologists. Only 32 out of the 54 have one full-time anesthesiologist. 23 hospitals also provided additional services by full-time non-specialist physicians in anesthesiology (i.e. those who are completing training requirements for the diploma but had not yet undertaken or passed the certification exams).	15

Size, composition and distribution of health workforce in India: why, and where to invest?	Anup Karan1* , Himanshu Negandhi1 , Suhaib Hussain1 , Tomas Zapata2 , Dilip Mairembam3 , Hilde De Graeve3 , James Buchan4 and Sanjay Zodpey1	2021	India	Analysis Study	Data was collected from NAtional Health Workforce Accounts and Periodic Labour Force Survey. Additional information was also sourced from Central Bureau of Health Intelligence, Rural Health Statistics and population projection from Census of India.	The National Health Workforce Accounts in India report a total of 5.76 million health workers. an estimation of 1.16 million allopathic doctors, 2.34 million nurses/midwives (including ANM), 1.20 million pharmacists, 0,27 million dentists, and 0.79 million traditional medicine professionals. NSSO estimates were lower with the larger differences between the nurses/midwives category. Densities of doctors were calculated at 8.8 per 10,000 population and for nurses/midwives this was 17.7 per 10,000 population. However, those of active workers would be 6.1 and 10.6 adjust accordingly, further dripping to 5.0 and 6.0 for those with adequate qualifications. All results per 10,000 people. The public healthcare system is facing the vast challenge of having many vacancies in specialist positions. This is highlighted especially at community health centres where specialists are urgently needed	16
An assessment of existing surge capacity of tertiary healthcare system of Khyber Pakhtunkhwa Province of Pakistan using workload indicators for staffing need method	Muhammad Zeeshan Haroon1* and Inayat Hussain Thaver2	2022	Pakistan	Mixed-method cross-sectional survey	A survey was handed out all tertiary care hospitals in Khyber-Paktunprovince, Pakistan. WHO's WISN manual was used in the methodology	An excess of doctors was found in every THQ except for MTI DIKhan, this hospital displayed a shortage of 48. The surplus included 1215 doctors in the field of medicine and 861 doctors practising surgery and its allied specialities. However, the analysis showed that there was a deficit of 565 doctors in the A&E departments. 2517 nurses were at the time working in the THQ system, with results showing there is a shortage of nurses in every hospital. Assessing the capacity of the human resources in the THQ to adjust for a surge of patients only 4 hospitals had enough doctors to manage an increase of more than 20% of patients compared to the current capacity. None of the EDs at the hospitals has sufficient numbers of doctors to manage excess workload in case of a disaster.	17
Association between supportive supervision and performance of community health workers in India: a longitudinal multilevel analysis	Lakshmi Gopalakrishnan1* , Nadia Diamond-Smith2, Rasmi Avula3, Purnima Menon3, Lia Fernald1 Dilys Walker2 and Sumeet Patil4	2021	India	Multilevel Analysis, Impact evaluation	Study took place in 12 districts in North India. Data was collected through surveys of 1344 CHWs of whom 809 were interviews both at baseline and endline of the study. A conceptual model was designed to study theasociation between supportive supervision and CHW performance.	From the data collected the mean age of the CHWs was 49 years with a mean of 5 years of work experience. CHWs who received support from their supervisors had "70% higher odds" of performing better (adjusting for their previously assessed action). This association remained consistent even after changing for individual CHW components: motivation, number of people served in the demographic region, and promptly received salary.	18

A qualitative study of factors influencing retention of doctors and nurses at rural healthcare facilities in Bangladesh	Emmanuel Kwame Darkwa1*, M. Sophia Newman2 , Mahmud Kawkab3 and Mahbub Elahi Chowdhury4	2015	Bangladesh	Qualitative study	Extensive interviews were carried out to understand factors affecting availability. 21 respondents were chosen. These were doctors and nurses who had at least one year of work experience and volunteered.	Of 8 physicians who participated, 7 were male while the remaining female doctor was a gynaecologist at the district level. All nurses interviewed were female. Positions for specialised doctors and medical officers that were too broad were seen to be unfilled. Roles for nurse supervisors also were vacant. Participants have reported that poor living conditions, lack of adequate housing, unsafe drinking water as well and overwhelming workloads led to poor retention in rural areas. Insufficient equipment and lack of opportunity to develop their careers were also factors contributing to the problem.	19
Analyzing public sector institutional capacity for health workforce governance in the South-East Asia region of WHO	Giorgio Cometto1* , Esther Nartey1, Tomas Zapata2, Mikiko Kanda2, Yunus Md3, Kavita Narayan4, Kirana Pritasari5, Aishath Irufa6, Ramkrishna Lamichhane7, Dileep De Silva8 and Thinakorn Noree9	2019	South-East Asia	Cross-sectional Survey	A self-assessed questionnaire was handed out to various points in the government in each of the 11 south-east Asian region countries.	10 countries were asked and 7 reported that they had a department dedicated to HRH within the governmental health department. The other 3 countries had informed that other departments were carrying out the HRH functions. Across all of the 10 countries questioned, all of them responded that they had prioritised human resource planning and outlineing as well as developing the education and capacity building for HRH. All countries informed that they had a human resource identification scheme. Various policy and operational challenges were identified.	20

increasing need to change policies surrounding densities of HRH in rural areas. Incentives have been added to retain such health workers and their effectiveness was also measured. An increase in pay along with support and career development was a key factor in leading to more health workers staying in provincial areas.[30] Measuring the effectiveness of policies surrounding human health resources and how to measure the quantity will be key to regulating the progress of countries in South Asia.

The reviewed articles also highlighted the effect of human resources healthcare competency levels on the services provided. The factors that primarily played a role were workload, training under supervision, and provision of adequate resources for a suitable working environment. According to the obtained data, 7 out of 20 staff categories like anaesthesia, medicine, surgery, paediatrics, obstetrics, and gynaecology were under high workload pressure.[10] Consequently compromising their working efficiency due to fatigue, burnout, and lack of individual patient care services. The analysis also showed that supportive supervision had a positive effect on the competence levels of community health workers (CHW) as seen by the 70% performance rate as compared to those not supervised.[18] Last but not least, lack of adequate resources not only influences the competency of health care individuals but also results in a shortage of active workforce. These resources include poor living conditions, lack of housing facilities, overwhelming workload, and unsafe drinking water. These statistics are more prominent in rural areas where positions of specialist doctors, medical officers, and nurse supervisors are vacant.[19] It is observed that for low-income settings, the utilization of community-based health workers has a much larger impact on improving health in regions across South Asia and achieving universal health coverage as highlighted by the WHO[1]. Regulation of these services however is not sufficient and assessment of the competencies of such workers is not consistent. These studies were sporadic and few in between for countries across the board.

It is obvious that the imbalance in human resources for many low-income countries is that the need far exceeds the resources available. Therefore to maximise the efficiency of the health system overall a "value-based healthcare system" may need to be adopted. This aims to improve health outcomes based on the money spent. For Pakistan (and South Asian countries on a wider scale) to adopt such strategies it is crucial that the quality of education and skill training of human resources in the systems be improved. Modernising health education will help make human resources available more competent and reduce the current burden.[26] What is also becoming an increasing issue is not only the lack of a competent health workforce but the number of "quacks" or unqualified healthcare professionals which are present in the overall arcing concept of health services available has been highlighted in Pakistan that improving regulations of those who practise allopathic medicine will help improve health outcomes in

the country. Regulating and improving practitioners of allopathic medicine is a way to reduce the burden of human resources for an alternate route for health delivery. [27]

As discussed previously new initiatives to bring about new roles in the healthcare systems have been introduced to reduce however this has not yet been sufficient to reduce the load of patients. To tackle such a healthcare demand, additional models such as the "Sehat Ghar model" can be adopted. It is not the explicit lack of human resources that is failing to deliver services but also this "bottleneck" dilemma where there are more doctors than seats in Punjab yet very few are working at the primary healthcare level where seats are left empty. So programs like the "Sehat ghar model" will aim to incentivize more physicians and healthcare staff to eliminate this "bottleneck".[28] Similar models are being introduced also in higher-income countries for e.g. the UK.

The limitations of this review would be based on the fact that further research needs to be conducted in order to pinpoint the specific areas of human resources healthcare in South Asia that require the most attention. Also, there is a deficiency of comparable data between different regions of South Asia for stating the overall improvement trends in human resources healthcare observed within recent years.

Conclusion

Human Resources healthcare plays a vital role in the proper functioning of the healthcare system of a country. The obtained data shows that both the quantity and quality of human resources have a major impact on the services provided to the population. In this review, the challenges and issues straining the efficacy of human resources healthcare were highlighted which consequently affected the quality of care provided to masses of every South Asian region. These included the distribution of the budget spent on human resources development and maintenance of facilities that ensure the provision of quality care by healthcare professionals.

To conclude, in order to achieve the human resources healthcare standard set by WHO, a regulated and supervised allocation of budget by every country's government is essential. While focus on increasing HRH is a priority the skewed density of the workforce in urban areas should be adjusted for and fair allocation of workers across countries in South Asia must be a precedent for the UH goals. In addition, all the countries having official government documentation for human resources should ensure its proper working under WHO-recommended rules and regulations. Those countries that have their human resources healthcare departments under other units should make it a separate entity to ensure efficient implementation of all stated rules and regulations.

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All the authors contributed equally in accordance with ICMJE guidelines.

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