



Policy brief: addressing the shortage of human resources in the Iranian health system

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Keywords

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Summary

This policy brief highlights the critical shortage of healthcare workers in Iran, which hinders access, quality, and patient outcomes. The growing demand from population increases and chronic diseases, coupled with issues like geographic maldistribution, workforce migration, inadequate training, and limited support systems, exacerbates the crisis. Urban areas benefit disproportionately, leaving rural communities underserved and

healthcare quality compromised. Evidence-based recommendations include incentivizing rural placements, improving workforce management systems, enhancing salaries and working conditions, expanding education and training, and leveraging digital health tools and task-shifting models. A phased implementation strategy is proposed, combining short-term pilot projects with long-term reforms to build a resilient healthcare workforce.

Introduction

PROBLEM STATEMENT

The Iranian health system is grappling with a critical shortage of healthcare professionals, encompassing doctors, nurses, specialists, and other key healthcare workers [1]. This deficit in human resources has emerged as a significant barrier to the effective delivery of healthcare services across the country. The issue is multifaceted and stems from an imbalance between the supply of healthcare professionals and the growing demands of the population [2]. Rapid population growth, increased life expectancy, and the rising prevalence of chronic diseases are straining the healthcare system's capacity to meet these demands [3].

The current shortage of healthcare workers has led to several negative consequences. It has adversely affected the quality of care provided to patients; increased waiting times, and created an uneven distribution of health services, particularly in rural and underserved areas [4]. The rural-urban disparity in the distribution of healthcare professionals further complicates the situation. Major urban centers like Tehran, Isfahan, and Shiraz attract a disproportionate number of healthcare workers due to better working conditions, facilities, and career advancement opportunities [5]. In contrast, rural and underserved areas face significant challenges in recruiting and retaining qualified staff. As a result, healthcare access in these regions remains severely limited, causing inequalities in service delivery and patient outcomes [6].

In addition to geographic imbalances, Iran's health sector is also affected by the migration of skilled healthcare workers to other countries. Better financial incentives, professional development opportunities, and improved working conditions abroad have contributed to a steady outflow of healthcare professionals from Iran [7]. This "brain drain" further exacerbates the domestic shortage and poses a significant threat to the country's healthcare system [8]. Another factor contributing to the shortage is the insufficient capacity of the country's educational and training institutions [9]. The medical education system is unable to keep up with the growing demand for healthcare services. Limited seats in medical and nursing schools, inadequate training facilities, and insufficient opportunities for specialization have resulted in a lack of skilled personnel. Furthermore, there is a need for more robust residency and fellowship programs to address gaps in specialized care [10].

The current healthcare workforce is also experiencing high levels of burnout, partly due to an overwhelming workload [11]. The COVID-19 pandemic has only intensified these challenges, revealing the fragility of the healthcare system and highlighting the urgent need for reforms. Health professionals have faced increased mental and physical strain during the pandemic, leading to high turnover rates and exacerbating the existing workforce shortages [12]. Addressing this critical issue requires a holistic approach that targets both immediate and long-term challenges. The shortage of healthcare workers poses a threat not only to healthcare access but also to the overall sustainability of the health

system [13]. Without adequate and equitable human resource distribution, the health system's ability to deliver essential services and respond to future health crises remains compromised [14].

OBJECTIVE

The purpose of this policy brief is to provide an evidence-based analysis of the current shortage of healthcare professionals in Iran and propose actionable solutions to address this pressing issue. By examining the root causes, consequences, and key challenges related to the shortage, this policy brief aims to guide policymakers in formulating strategies to mitigate the impact of the human resource deficit on the health system. The primary objective of this policy brief is to highlight the need for a comprehensive and strategic approach to strengthen the healthcare workforce in Iran. This includes enhancing workforce planning, improving geographic distribution, reducing outmigration, and expanding training and development opportunities. The brief seeks to emphasize the importance of equitable access to healthcare services for all populations, particularly those in underserved areas. Furthermore, this policy brief aims to promote sustainable workforce policies that can address both immediate and long-term needs. Short-term measures such as providing incentives for rural placement, implementing retention strategies, and task-shifting initiatives can help mitigate the current shortage. At the same time, long-term strategies, including investments in education and training, workforce planning, and capacity building, are essential to ensure a stable and resilient healthcare system in the future. To achieve these goals, the policy brief outlines a series of recommendations that focus on addressing geographic imbalances, enhancing retention efforts, expanding education and training programs, promoting new workforce models, and utilizing digital health technologies. The solutions presented aim to build a more robust and equitable healthcare system that can effectively meet the evolving needs of Iran's population. By providing a detailed analysis of the current challenges and proposing evidence-based solutions, this policy brief aims to inform policymakers, stakeholders, and healthcare leaders about the urgent need for reform in the Iranian health system. Strengthening human resources for health is crucial to improving the quality, accessibility, and equity of healthcare services in Iran. Addressing the shortage of healthcare professionals is not only a matter of increasing workforce numbers but also ensuring that these professionals are adequately distributed, well-trained, and motivated to provide quality care. It is imperative to implement policies that create an enabling environment for healthcare workers, promote sustainable development of human resources, and improve the overall performance of the health system. Through these efforts, Iran can build a resilient and responsive healthcare workforce capable of delivering high-quality services to all citizens.

Background, context and current situation

The Iranian health system is currently facing a critical shortage in its healthcare workforce. This includes not only doctors and nurses but also specialists, paramedics, and support staff [15]. According to recent data, the number of healthcare professionals per capita in Iran remains below global standards, which presents a significant barrier to achieving equitable healthcare access. The country's health workforce is unevenly distributed, with a stark contrast between urban and rural areas [16]. While major cities such as Tehran, Isfahan, and Shiraz have a relatively higher concentration of healthcare workers, rural and underserved areas continue to struggle with acute shortages. This geographic imbalance is a key contributor to inequitable access to healthcare services across the country [17].

One of the prominent challenges is the outmigration of skilled healthcare professionals. In recent years, many Iranian doctors, nurses, and specialists have left the country in pursuit of better career prospects, higher salaries, and improved working conditions abroad [18]. This trend of "brain drain" has intensified the human resource crisis in the health sector. The lack of competitive compensation, limited career development opportunities, and political instability are among the main drivers of migration. This issue is further compounded by an aging workforce and insufficient numbers of new healthcare professionals entering the system [19].

Iran's educational and training capacity for healthcare professionals is another area of concern. Despite efforts to expand medical and nursing schools, the current training infrastructure is inadequate to meet the growing demand for healthcare services [20]. Medical and nursing schools face constraints in capacity, curriculum modernization, and training facilities, which has resulted in a limited output of well-trained healthcare professionals. Additionally, there are insufficient residency programs for medical graduates, leading to a shortage of specialists in key medical fields [21].

For instance, regarding the shortage of human resources in certain sectors, we refer to statements made by health system officials in Iran. Currently, approximately 200,000 individuals are providing nursing services across various levels in hospitals and healthcare centers affiliated with the Ministry of Health, the Social Security Organization, military hospitals, and the private sector. Of these, around 140,000 nurses are employed by the Ministry of Health. In the country, 2.5 nurses are needed per hospital bed, but there is currently a shortage of 100,000 nurses nationwide. The dentist-to-population ratio in Iran is approximately 3.29 dentists per 10,000 people. However, the distribution of physicians is uneven across the country, with some regions having more physicians than others. For example, 34% of the country's total physicians and 45% of the specialists practice in Tehran, which has only 11% of the national population. Additionally, about 21,000 midwives are currently working in the healthcare sector, both in public and private hospitals, and approximately 22,000

midwives are engaged in the health sector under the family physician program and health network system. However, there is a need for about 12,000 more midwives in the healthcare sector and around 8,000 additional midwives in the health sector.

Moreover, the Iranian health system has been slow to adopt innovative workforce models such as task shifting or the introduction of new healthcare roles like nurse practitioners or physician assistants [22]. This has further limited the ability of the system to address gaps in service delivery. As a result, the burden on the existing workforce continues to increase, exacerbating challenges related to high workloads and limited career pathways [23].

CONSEQUENCES OF HUMAN RESOURCES (HR) SHORTAGES

The shortage of healthcare professionals in Iran has had far-reaching consequences on the overall healthcare system. One of the most significant impacts is on the quality of care provided to patients [24]. The inadequate number of healthcare workers often leads to higher patient-to-staff ratios, which compromises the quality of care and increases the risk of medical errors. Overworked and understaffed healthcare facilities struggle to maintain the standards of patient safety and care that are crucial to achieving positive health outcomes [25].

Accessibility to healthcare services has also been severely impacted. The shortage of healthcare workers, combined with the geographic imbalances in their distribution, has resulted in longer waiting times and limited access to essential services, particularly in rural and underserved regions [26]. Patients in these areas often have to travel long distances to access specialized care, further widening disparities in healthcare access. Additionally, the lack of healthcare workers in primary care settings has weakened preventive and community health services, which are vital for managing chronic conditions and improving population health [27].

The shortage of human resources in the health sector has also affected patient outcomes. Delays in treatment, inadequate follow-up, and reduced access to specialized care contribute to higher morbidity and mortality rates, particularly for patients with chronic illnesses [28]. The limited availability of specialists has been particularly detrimental to the management of complex medical cases, impacting the quality of life and health outcomes of affected patients [29]. Furthermore, the ongoing shortage of healthcare professionals has led to increased levels of burnout and job dissatisfaction among the existing workforce. Healthcare workers in Iran often face heavy workloads, long hours, and limited opportunities for career development, which negatively affect their well-being and job satisfaction [30]. The Covid-19 pandemic has only exacerbated these issues, as healthcare professionals faced immense pressure and inadequate support during the health crisis. High levels of burnout among healthcare workers have contributed to increased turnover rates and the exodus of experienced staff, further worsening the shortage [31].

The combined impact of these issues poses a significant threat to the sustainability of Iran's health system. Without adequate measures to address the human resource shortage, the healthcare system will continue to face challenges in delivering accessible, equitable, and high-quality care to all segments of the population [32]. The current situation underscores the urgent need for comprehensive policy interventions to strengthen the healthcare workforce, improve workforce planning and distribution, enhance training and education, and develop innovative solutions to support and retain healthcare professionals [33]. The current shortage of human resources in the Iranian health system is a complex and multifaceted issue with serious consequences for healthcare quality, accessibility, patient outcomes, and staff well-being. Addressing these challenges is essential to building a resilient and equitable health system capable of meeting the needs of the population [34].

Key challenges: geographic maldistribution

One of the most pressing challenges facing the Iranian healthcare system is the unequal distribution of healthcare professionals between rural and urban areas. Large cities like Tehran, Isfahan, and Shiraz enjoy a concentration of healthcare resources and personnel due to better facilities, infrastructure, and career opportunities [4]. However, rural and underserved regions face an acute shortage of doctors, nurses, and specialists. This geographic maldistribution creates disparities in access to essential healthcare services, with rural populations often lacking basic healthcare infrastructure and skilled professionals [8]. The rural-urban divide stems from various factors, including inadequate working conditions in rural areas, limited access to professional development, and social amenities that are scarce compared to urban centers. Moreover, the healthcare system does not have effective policies or incentive structures in place to attract healthcare workers to remote and underserved regions. Consequently, this imbalance in distribution leaves rural populations vulnerable, creating gaps in service delivery, healthcare quality, and patient outcomes [11].

HEALTH PROFESSIONAL MIGRATION

The migration of healthcare professionals, often referred to as "brain drain," is a critical issue impacting Iran's health system. Over recent years, Iran has experienced an increasing outflow of doctors, nurses, and medical specialists seeking better job prospects and working conditions abroad. This trend is driven by factors such as low salaries, lack of job satisfaction, limited career growth, political instability, and the desire for better financial rewards [19].

Healthcare professionals in Iran often encounter systemic challenges, such as limited opportunities for advancement and poor working environments. These factors push many skilled workers to seek opportunities

in countries that offer higher wages, improved work environments, and more stable political climates [26]. The loss of experienced healthcare workers to other countries weakens the domestic healthcare system, further exacerbating the existing shortages. The impact of migration extends beyond numbers; it also results in a loss of expertise and mentorship, affecting the training and development of new healthcare professionals in Iran.

LACK OF TRAINING AND SKILL DEVELOPMENT

The Iranian healthcare system faces significant challenges related to training and skill development. The capacity of medical schools, nursing programs, and specialized training institutions is insufficient to meet the growing demands of the population [18]. This is compounded by outdated curricula and a lack of resources for hands-on training. Medical and nursing schools are often underfunded, leading to an inadequate number of graduates entering the workforce each year. The lack of well-structured training programs, particularly in specialized fields, limits the availability of skilled professionals such as surgeons, oncologists, and other specialists [22].

There is also a noticeable gap in continuous professional development for practicing healthcare workers. Inadequate opportunities for ongoing training and upskilling prevent healthcare professionals from staying updated with the latest medical advancements and best practices. This not only impacts the quality of care but also limits the potential for healthcare workers to specialize in fields that are crucial for addressing emerging healthcare challenges [31].

LIMITED INCENTIVES AND SUPPORT SYSTEMS

Low salaries, poor working conditions, and limited career advancement opportunities are major barriers to retaining healthcare workers in Iran. Many healthcare professionals face heavy workloads, long hours, and inadequate support systems, contributing to high levels of job dissatisfaction and burnout. The lack of financial incentives, combined with insufficient recognition and professional growth opportunities, creates a demotivating environment for healthcare workers [3, 6]. Iran's healthcare sector has not prioritized the development of robust incentive structures that reward healthcare workers for their dedication and service. In countries with stronger healthcare systems, financial incentives, performance-based pay, and well-defined career ladders play a crucial role in motivating staff and enhancing retention [19]. However, in Iran, healthcare workers often face stagnant salaries that do not reflect their workload or qualifications, resulting in a continuous outflow of skilled professionals to private sectors or other countries [14].

Moreover, the lack of support systems such as health and wellness programs, mental health services, and flexible work arrangements adds to the burden on healthcare workers [17]. The challenges faced by the healthcare workforce were further exposed during the COVID-19 pandemic, which placed additional strain on already overworked and under-resourced professionals.

Many workers reported feeling unsupported and overwhelmed, with inadequate protective measures and limited mental health support [22]. Addressing these challenges requires a multi-pronged approach focusing on improving workforce distribution, creating supportive working environments, enhancing training and skill development, and providing financial and non-financial incentives [28]. Policies should be designed to bridge the urban-rural divide, reduce the outflow of skilled workers, and build a well-trained, motivated, and adequately compensated healthcare workforce. Developing a resilient healthcare system that effectively meets the needs of the population hinges on addressing these key challenges and strengthening the country's human resources for health [30].

Policy options and recommendations

1. ENHANCE WORKFORCE PLANNING AND DISTRIBUTION

To address the geographic imbalances in the distribution of healthcare professionals, effective workforce planning is crucial. One key strategy is to incentivize the placement of healthcare workers in underserved areas. Rural placement programs can be implemented where newly trained doctors and nurses are required to serve in rural areas for a set period. These programs could be complemented with financial bonuses and additional benefits such as housing, educational support for children, and loan forgiveness, making rural placements more attractive [35].

Moreover, establishing centralized data systems for workforce planning and distribution is essential. A robust data system can help track and predict workforce needs and imbalances, ensuring that policy decisions are based on accurate and up-to-date information. By monitoring and forecasting trends in health service demands and healthcare workforce supply, policymakers can proactively implement measures to fill gaps and redistribute resources efficiently [36].

2. STRENGTHEN RETENTION STRATEGIES

One of the critical reasons behind the outmigration of healthcare workers from Iran is inadequate salary structures and poor working conditions. To counter this, it is vital to improve salary structures to make them more competitive and reflective of the workload and qualifications of healthcare professionals. Additionally, enhancing working conditions by providing necessary infrastructure, support systems, and job security would encourage retention and reduce outmigration [37]. Offering career development opportunities and continuous professional development programs can help healthcare workers advance in their careers while staying updated with the latest medical practices. Providing a clear career path, training opportunities, and recognition can boost morale and job satisfaction. Furthermore, developing policies that promote work-life balance and address burnout is crucial. This could

involve implementing flexible work schedules, mental health support programs, and stress management training, ensuring that healthcare workers are supported and motivated [38].

3. INVEST IN EDUCATION AND TRAINING PROGRAMS

The shortage of skilled healthcare professionals in Iran is partly due to inadequate investment in education and training. It is necessary to increase investment in medical and nursing schools, particularly in underserved regions, to boost local capacity. Establishing medical schools in rural areas can encourage students from those areas to pursue careers in healthcare and return to serve their communities [39]. Expanding specialized training programs and residency opportunities can address shortages in key specialties, ensuring that there are enough specialists to meet the growing needs of the population. Additionally, establishing continuing education frameworks can help healthcare professionals update their skills and adapt to advancements in medical knowledge and technology, improving the quality of care provided to patients [40].

4. PROMOTE TASK SHIFTING AND NEW WORKFORCE MODELS

To optimize the use of existing human resources, task shifting models should be explored. By enabling nurses and community health workers to perform certain tasks traditionally done by doctors, healthcare services can be delivered more efficiently, especially in underserved regions. For instance, trained nurses can handle routine follow-up care, immunization, and health education [41]. Introducing new roles like nurse practitioners, physician assistants, and community health workers can also fill gaps in the workforce. These roles can complement existing services and extend healthcare coverage, particularly in rural and remote areas. Task-shifting and new roles should be supported by appropriate training, certification, and regulation to ensure that these professionals are competent and their scope of practice is clearly defined [42].

5. ENHANCE PUBLIC-PRIVATE PARTNERSHIPS

The private sector has a crucial role to play in addressing healthcare workforce shortages. Encouraging private sector involvement in training and education can expand the capacity of medical and nursing schools, reducing the pressure on public institutions. For example, private hospitals and clinics can be incentivized to provide training slots for medical and nursing students, enhancing their practical skills and exposure [43]. Collaborating with non-governmental organizations (NGOs) can also help bridge gaps in healthcare delivery, particularly in underserved regions. NGOs can provide healthcare services, training, and support in areas where public resources are limited. Public-private partnerships can therefore help expand capacity and improve service delivery, ensuring that healthcare services reach all segments of the population [44].

6. UTILIZE DIGITAL HEALTH AND TELEMEDICINE

Digital health tools and telemedicine offer immense potential to extend healthcare access to remote areas with limited human resources. Promoting digital health tools such as electronic health records, mobile health applications, and health information systems can improve the efficiency of healthcare delivery and workforce management [45].

Telemedicine should be further developed and integrated into the healthcare system to enable healthcare professionals to provide remote consultations, diagnostics, and follow-up care to patients in underserved regions. This would reduce the need for patients to travel long distances for basic healthcare services. To ensure the effectiveness of telemedicine, it is essential to develop policies that regulate and support the adoption of telehealth services, ensuring patient safety, privacy, and quality standards [46]. These policy options offer a comprehensive approach to addressing the shortage of human resources in the Iranian healthcare system. By focusing on equitable workforce distribution, retention, education, innovative workforce models, partnerships, and digital health, Iran can build a resilient and well-equipped health system capable of meeting the needs of its population [47].

Implementation strategy

To effectively address the shortage of healthcare professionals in Iran, a structured implementation strategy is essential. This strategy should encompass both short-term and long-term actions that are phased to ensure sustainable improvements in the healthcare workforce. By focusing on pilot projects, capacity-building initiatives, and comprehensive structural reforms, this approach aims to create a more robust and equitable healthcare system.

SHORT-TERM ACTIONS

1. Pilot Projects

Initiating pilot projects in selected underserved regions can provide valuable insights into effective strategies for addressing healthcare workforce shortages. These projects may include:

- **Rural Placement Programs:** Launch pilot programs that incentivize newly graduated healthcare professionals to work in rural areas for a defined period. This could involve offering financial bonuses, housing assistance, and professional development opportunities. Success stories from these pilot projects can be used to advocate for broader implementation and attract more participants;
- **Task-Shifting Initiatives:** Implement pilot programs that explore task-shifting models, allowing trained nurses and community health workers to perform specific tasks traditionally handled by doctors. For instance, community health workers could conduct routine check-ups and health education, freeing up doctors to focus on more complex cases. Monitoring

and evaluating these pilots will provide critical data to inform future scaling.

2. Capacity-Building Initiatives

Short-term capacity-building initiatives are vital to ensuring that healthcare professionals are well-prepared to meet the needs of the population. These initiatives may include:

- **Training Workshops:** Conduct workshops for healthcare professionals in underserved regions to enhance their skills and knowledge. These workshops can focus on essential areas such as chronic disease management, primary care practices, and digital health tools;
- **Mentorship Programs:** Establish mentorship programs that pair experienced healthcare professionals with recent graduates, especially in rural areas. Mentors can provide guidance, support, and encouragement, helping new professionals adapt to their roles and the challenges of working in underserved settings.

3. Incentives for Rural Workforce Placement

Developing targeted incentives for healthcare workers to serve in rural areas is crucial for addressing geographic maldistribution. These incentives may include:

- **Financial Bonuses:** Introduce financial bonuses for healthcare workers who commit to a certain period of service in rural areas. This can serve as a significant motivator for recent graduates and existing professionals looking to transition to different roles;
- **Housing and Relocation Assistance:** Provide support for relocation and housing costs to ease the transition for healthcare workers moving to rural areas. Offering assistance with housing can make rural positions more attractive and help to mitigate the initial challenges of relocating.

LONG-TERM ACTIONS

1. Structural Reforms

Long-term structural reforms are essential to create a sustainable and effective healthcare workforce. Key reforms may include:

- **Revising Health Workforce Policies:** Develop comprehensive policies that focus on equitable distribution, retention, and ongoing professional development. This should involve stakeholder engagement to ensure that policies are responsive to the needs of healthcare workers and the communities they serve;
- **Establishing a Centralized Workforce Planning Body:** Create a centralized body responsible for workforce planning and distribution. This body should monitor healthcare workforce needs, collect and analyze data, and develop strategies to address imbalances.

2. Continuous Workforce Monitoring

Implementing a robust system for continuous workforce

monitoring is crucial for adapting to changing healthcare needs. This system may involve:

- **Regular Workforce Assessments:** Conduct regular assessments to evaluate the supply and demand of healthcare professionals across regions. This data will be invaluable for informing policy decisions and identifying areas that require intervention;
- **Feedback Mechanisms:** Establish mechanisms for healthcare workers to provide feedback on their experiences, working conditions, and challenges. This feedback will help policymakers understand the effectiveness of current strategies and make necessary adjustments.

3. Expansion of Education Programs

To ensure a steady pipeline of healthcare professionals, expanding education programs is vital. Long-term actions should include:

- **Investing in Medical and Nursing Schools:** Increase funding for medical and nursing schools, especially in rural areas, to boost the capacity of these institutions. This investment should prioritize creating new programs and expanding existing ones to accommodate more students;
- **Enhancing Specialized Training Opportunities:** Develop specialized training programs and residency opportunities in high-demand fields. Collaborating with private institutions and international partners can help improve the quality of training and broaden the range of specialties available to new healthcare professionals.

A phased implementation strategy that includes both short-term actions and long-term reforms is essential to addressing the human resource shortages in Iran's healthcare system. By prioritizing pilot projects, capacity-building initiatives, and targeted incentives, policymakers can create immediate improvements. At the same time, structural reforms, continuous monitoring, and investment in education programs will lay the groundwork for a sustainable and effective healthcare workforce capable of meeting the needs of the Iranian population.

Conclusions

Addressing the shortage of human resources in Iran's healthcare system is a critical public health priority that directly affects healthcare access, quality, and outcomes. Geographic maldistribution, inadequate numbers of trained professionals, and workforce burnout exacerbate health inequities, particularly in rural areas, while straining the system's effectiveness. Implementing strategies to improve workforce planning, retention, education, and innovative models is essential for creating a more equitable and sustainable healthcare environment. Policymakers must act urgently to enhance healthcare access and outcomes, ensuring a resilient system that meets the needs of both patients and professionals.

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Authors' contributions

Designed the study: MS, MB, and MM. Conceived the manuscript: FE, FS, and BDT. Drafted the manuscript: MS, MB, and FE. Revised the manuscript: MB, and MM. Performed a search of the literature: FE, BDT, and FS. Critically revised the manuscript: MS, and MB. Conceptualization, and methodology: MB. Investigation and data curation: MB, and MM. Original draft preparation: MB, MM, and FS. Final editing. All authors have read and approved the latest version of the paper for publication.

References

- [1] Lankarani KB, Alavian SM, Peymani P. Health in the Islamic Republic of Iran, challenges and progresses. *Med J Islam Repub Iran* 2013;27:42-9.
- [2] Tabrizi JS, Pourasghar F, Gholamzadeh Nikjoo R. Status of Iran's Primary Health Care System in Terms of Health Systems Control Knobs: a Review Article. *Iran J Public Health* 2017;46:1156-66.
- [3] Doshmangir L, Iezadi S, Gholipour K, Gordeev VS. The future of Iran's health workforce. *Lancet* 2022;400:883. [https://doi.org/10.1016/S0140-6736\(22\)01608-7](https://doi.org/10.1016/S0140-6736(22)01608-7).
- [4] Shamsi A, Peyravi H. Nursing shortage, a different challenge in Iran: a systematic review. *Med J Islam Repub Iran* 2020;34:8. <https://doi.org/10.34171/mjiri.34.8>.
- [5] Doshmangir L, Shirjang A, Assan A, Gordeev VS. Iranian primary health care network: challenges and ways forward. *Prim Health Care Res Dev* 2023;24:e1. <https://doi.org/10.1017/S1463423622000354>.
- [6] Shafaghat T, Zarchi MKR, Mousavi SM, Askari R, Ranjbar M, Ebadi F. Explaining the challenges of the Iranian Health System in fighting the COVID-19 pandemic: a Qualitative Study. *J Prev Med Hyg* 2022;62:E841-53. <https://doi.org/10.15167/2421-4248/jpmh2021.62.4.2230>.
- [7] Olyaeemanesh A, Behzadifar M, Mousavinejhad N, Behzadifar M, Heydarvand S, Azari S, Martini M, Bakhtiari A, Luigi Bragazzi N. Iran's Health System Transformation Plan: A SWOT analysis. *Med J Islam Repub Iran* 2018;32:39. <https://doi.org/10.14196/mjiri.32.39>.
- [8] Zarea K, Negarandeh R, Dehghan-Nayeri N, Rezaei-Adaryani M. Nursing staff shortages and job satisfaction in Iran: issues and challenges. *Nurs Health Sci* 2009;11:326-31. <https://doi.org/10.1111/j.1442-2018.2009.00466.x>.
- [9] Reza Khankeh H, Bagheri Lankarani K, Zarei N, Joulaei H. Three Decades of Healthcare System Reform in Iran from the Perspective of Universal Health Coverage: a Macro-Qualitative Study. *Iran J Med Sci* 2021;46:198-206. <https://doi.org/10.30476/ijms.2020.84023.1342>.
- [10] Keyvani H, Majdzadeh R, Khedmati Morasae E, Doshmangir L. Analysis of Iranian health workforce emigration based on a system dynamics approach: a study protocol. *Glob Health Action* 2024;17:2370095. <https://doi.org/10.1080/16549716.2024.2370095>.
- [11] Pourasghari H, Rezapour A, Tahernezhad A, Mazaheri E, Nikoo RM, Jabbari A, Hadian M. Iran's Struggling Health System in the Policy of Managing the COVID-19 Pandemic. *Int J Prev Med* 2022;13:131. https://doi.org/10.4103/ijpvm.ijpvm_291_21.
- [12] Keshavarzi A, Delavari S, Lotfi F, Goudarzi Z, Bashiri F, Bayati M. Nursing labor supply in Iran: a survey in Shiraz public hospitals in 2022. *Cost Eff Resour Alloc* 2024;22:31. <https://doi.org/10.1186/s12962-024-00542-3>.
- [13] Ezzati F, Mosadeghrad AM, Jaafari-poooyan E. Resiliency of the Iranian healthcare facilities against the COVID-19 pandemic: challenges and solutions. *BMC Health Serv Res* 2023;23:207. <https://doi.org/10.1186/s12913-023-09180-6>.
- [14] Jabbari A, Salahi S, Hadian M, Khakdel Z, Hosseini E, Sheikhsardisiri H. Exploring the challenges of Iranian government hospitals related to Covid-19 pandemic management: a qualitative content analysis research from the nurses perspective. *BMC Nurs* 2022;21:226. <https://doi.org/10.1186/s12912-022-01008-8>.
- [15] Emami M, Haghdoost AA, Yazdi-Feyzabadi V, Mehroliassani MH. Drivers, uncertainties, and future scenarios of the Iranian health system. *BMC Health Serv Res* 2022;22:1402. <https://doi.org/10.1186/s12913-022-08774-w>.
- [16] Barasteh S, Rassouli M, Karimirad MR, Ebadi A. Future Challenges of Nursing in Health System of Iran. *Front Public Health* 2021;9:676160. <https://doi.org/10.3389/fpubh.2021.676160>.
- [17] Yari A, Yousefi Khoshsabegheh H, Zarezadeh Y, Amraei M, Soufi Boubakran M, Motlagh ME. Iranian primary healthcare system's response to the COVID-19 pandemic using the healthcare incident command system. *PLoS One* 2023;18:e0290273. <https://doi.org/10.1371/journal.pone.0290273>.
- [18] Dodangeh M, Dodangeh M. Iranian healthcare system against COVID-19. *Germs* 2020;10:112-4. <https://doi.org/10.18683/germs.2020.1192>.
- [19] Gharebaghi R, Heidary F, Pourezzat AA. Lessons Learned from COVID-19 Pandemic Management in Iran; a Commentary. *Arch Acad Emerg Med* 2024;12:e24. <https://doi.org/10.22037/aaem.v12i1.2241>.
- [20] Džakula A, Relić D. Health workforce shortage - doing the right things or doing things right? *Croat Med J* 2022;63:107-9. <https://doi.org/10.3325/cmj.2022.63.107>.
- [21] Agyeman-Manu K, Ghebreyesus TA, Maait M, Rafila A, Tom L, Lima NT, Wangmo D. Prioritising the health and care workforce shortage: protect, invest, together. *Lancet Glob Health* 2023;11:e1162-4. [https://doi.org/10.1016/S2214-109X\(23\)00224-3](https://doi.org/10.1016/S2214-109X(23)00224-3).
- [22] Boniol M, Kunjumen T, Nair TS, Siyam A, Campbell J, Diallo K. The global health workforce stock and distribution in 2020 and 2030: a threat to equity and 'universal' health coverage? *BMJ Glob Health* 2022;7:e009316. <https://doi.org/10.1136/bmjgh-2022-009316>.

- [23] Aluttis C, Bishaw T, Frank MW. The workforce for health in a globalized context--global shortages and international migration. *Glob Health Action* 2014;7:23611. <https://doi.org/10.3402/gha.v7.23611>.
- [24] McNeill M. Extraordinary Impacts on the Healthcare Workforce: COVID-19 and Aging. *Dela J Public Health* 2022;8:164-7. <https://doi.org/10.32481/djph.2022.12.038>.
- [25] Tamata AT, Mohammadnezhad M. A systematic review study on the factors affecting shortage of nursing workforce in the hospitals. *Nurs Open* 2023;10:1247-57. <https://doi.org/10.1002/nop2.1434>.
- [26] Endalamaw A, Khatri RB, Erku D, Nigatu F, Zewdie A, Wolka E, Assefa Y. Successes and challenges towards improving quality of primary health care services: a scoping review. *BMC Health Serv Res* 2023;23:893. <https://doi.org/10.1186/s12913-023-09917-3>.
- [27] Endalamaw A, Khatri RB, Erku D, Zewdie A, Wolka E, Nigatu F, Assefa Y. Barriers and strategies for primary health care workforce development: synthesis of evidence. *BMC Prim Care* 2024;25:99. <https://doi.org/10.1186/s12875-024-02336-1>.
- [28] Shoib S, Saleem SM, Essar MY, Armiya'u AY. Challenges faced by healthcare workers in Afghanistan amidst the COVID-19 pandemic and political instability: a call for action. *Clin Epidemiol Glob Health* 2022;15:101050. <https://doi.org/10.1016/j.cegh.2022.101050>.
- [29] Jeleff M, Traugott M, Jirovsky-Platter E, Jordakieva G, Kutalek R. Occupational challenges of healthcare workers during the COVID-19 pandemic: a qualitative study. *BMJ Open* 2022;12:e054516. <https://doi.org/10.1136/bmjopen-2021-054516>.
- [30] Boniol M, Kunjumen T, Nair TS, Siyam A, Campbell J, Diallo K. The global health workforce stock and distribution in 2020 and 2030: a threat to equity and 'universal' health coverage? *BMJ Glob Health* 2022;7:e009316. <https://doi.org/10.1136/bmjgh-2022-009316>.
- [31] Walton-Roberts M, Bourgeault IL. Health workforce data needed to minimize inequities associated with health-worker migration. *Bull World Health Organ* 2024;102:117-22. <https://doi.org/10.2471/BLT.23.290028>.
- [32] McPake B, Dayal P, Zimmermann J, Williams GA. How can countries respond to the health and care workforce crisis? Insights from international evidence. *Int J Health Plann Manage* 2024;39:879-87. <https://doi.org/10.1002/hpm.3766>.
- [33] Zarei F, Dehghani A, Rezaei F, Kazemi A, Masoumi G. Knowledge, attitude, and practice of Iranian health care workers about infodemic management: a cross-sectional descriptive study. *BMC Health Serv Res* 2024;24:992. <https://doi.org/10.1186/s12913-024-11441-x>.
- [34] Doshmangir L, Iezadi S, Gholipour K, Gordeev VS. The future of Iran's health workforce. *Lancet* 2022;400:883. [https://doi.org/10.1016/S0140-6736\(22\)01608-7](https://doi.org/10.1016/S0140-6736(22)01608-7).
- [35] Ghiasvand H, Mohamadi E, Olyaeemanesh A, Kiani MM, Armoon B, Takian A. Health equity in Iran: A systematic review. *Med J Islam Repub Iran* 2021;35:51. <https://doi.org/10.47176/mjiri.35.51>.
- [36] Nezamoleslami D, Mohamadi E, Larijani B, Olyaeemanesh A, Ebrahimi Tavani M, Rashidpouraie R, Bathaei FS. Barriers of health equity in the Iranian health system from the medical ethics viewpoint. *J Med Ethics Hist Med* 2022;15:14. <https://doi.org/10.18502/jmehm.v15i14.11570>.
- [37] Doshmangir L, Bazyar M, Rashidian A, Gordeev VS. Iran health insurance system in transition: equity concerns and steps to achieve universal health coverage. *Int J Equity Health* 2021;20:37. <https://doi.org/10.1186/s12939-020-01372-4>.
- [38] Moradi-Lakeh M, Vosoogh-Moghaddam A. Health Sector Evolution Plan in Iran; Equity and Sustainability Concerns. *Int J Health Policy Manag* 2015;4:637-40. <https://doi.org/10.15171/ijhpm.2015.160>.
- [39] Moradi R, Olyaeemanesh A, Mosadeghrad AM, Harirchi I, Larijani B. Measuring Equity of Geographical Distribution of Specialist Physicians in Iran's Health System. *Int J Prev Med* 2023;14:60. https://doi.org/10.4103/ijpvm.ijpvm_542_21.
- [40] Shams L, Yazdani S, Nasiri T. The Value Framework Governing Iran's Health System Policy: a Practical Gap. *Int J Prev Med* 2022;13:96. https://doi.org/10.4103/ijpvm.IJPVM_446_20.
- [41] Mobaraki H, Hassani A, Kashkalani T, Khalilnejad R, Chimeh EE. Equality in Distribution of Human Resources: the Case of Iran's Ministry of Health and Medical Education. *Iran J Public Health* 2013;42(Suppl 1):161-5.
- [42] Aboutorabi A, Darvishi Teli B, Rezapour A, Ehsanzadeh SJ, Martini M, Behzadifar M. History of primary health care in Iran. *J Prev Med Hyg* 2023;64:E367-74. <https://doi.org/10.15167/2421-4248/jpmh2023.64.3.3081>.
- [43] Behzadifar M, Behzadifar M, Saran M, Shahabi S, Bakhtiari A, Azari S, Bragazzi NL. The role of Iran's context for the development of health technology assessment: challenges and solutions. *Health Econ Rev* 2023;13:23. <https://doi.org/10.1186/s13561-023-00438-7>.
- [44] Ghanbari MK, Behzadifar M, Bakhtiari A, Behzadifar M, Azari S, Abolghasem Gorji H, Shahabi S, Martini M, Bragazzi NL. Assessing Iran's health system according to the COVID-19 strategic preparedness and response plan of the World Health Organization: health policy and historical implications. *J Prev Med Hyg* 2021;61:E508-19. <https://doi.org/10.15167/2421-4248/jpmh2020.61.4.1613>.
- [45] Hamidi Y, Mohammadibakhsh R, Soltanian A, Behzadifar M. Relationship between organizational culture and commitment of employees in health care centers in west of Iran. *Electron Physician* 2017;9:3646-3652. <https://doi.org/10.19082/3646>.
- [46] Behzadifar M, Bragazzi NL, Arab-Zozani M, Bakhtiari A, Behzadifar M, Beyranvand T, Yousefzadeh N, Azari S, Sajadi HS, Saki M, Saran M, Gorji HA. The challenges of implementation of clinical governance in Iran: a meta-synthesis of qualitative studies. *Health Res Policy Syst* 2019;17:3. <https://doi.org/10.1186/s12961-018-0399-5>.
- [47] Aryankhesal A, Behzadifar M, Bakhtiari A, Azari S, Behzadifar M. Unleashing the potential: the imperative of political support for health technology assessment in Iran. *Health Econ Rev* 2024;14:84. <https://doi.org/10.1186/s13561-024-00563-x>.

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