


Unveiling Global Healthcare Economics and Worker Migration Post-COVID-19: A Bibliometric Approach

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Abstract

*This article examines the evolving dynamics of global healthcare migration by identifying key topics, gaps, and economic frameworks that shape current debates on labour mobility. A bibliometric analysis of 933 manuscripts from Google Scholar, including 471 indexed in Scopus and Web of Science, published between 2020 and 2024, captures both the COVID-19 and post-pandemic periods. Using VOSviewer, five thematic clusters emerge across 79 keywords: (1) labour market inefficiencies in the Gulf Cooperation Council, (2) healthcare technology and dynamic labour markets, (3) efficiency and equity in migrant healthcare labour markets, (4) costs of employing expatriate healthcare workers, and (5) economics of digital transformation in healthcare work. The study highlights how labor market structures, economic incentives, and transaction costs shape the mobility of healthcare workers. Broader frameworks (i.e., systems theory, migration and labour market theories, human capital theory, technology acceptance, and digital economy perspectives) inform the analysis. **As a novel contribution**, this study provides a post-pandemic data-driven mapping of healthcare labour migration that integrates bibliometric analysis with economic theory to uncover underexplored digital and systemic drivers of global healthcare mobility. The findings call for policies that reduce wage inequities, lower the costs of migrant employment, strengthen the integration of human capital, and foster a resilient, future-ready healthcare workforce.*

Keywords: International Migration, Healthcare Workers, Digital Technology, and Bibliometrics

JEL Classifications: J61 and I11

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Introduction

Despite the growing body of literature on global healthcare worker migration, prior studies have concentrated on social and public health dimensions, such as cultural integration, ethical recruitment, and healthcare access, while largely overlooking the

economic implications and impact of technological change (McPake et al., 2020; Walton-Roberts, 2023). This narrow focus limits our understanding of how healthcare worker mobility affects labor market dynamics, human capital flows, and the economic sustainability of health systems across borders.

Rapid economic growth after WWII often led to delayed but sharper fertility declines due to slower social value changes, causing generational and gender conflicts (Goldin, 2025). As healthcare systems grapple with workforce shortages, demographic pressures, and increasing healthcare complexity, Ung et al. (2024) show that the field of healthcare migration research has become fragmented into specialized silos, often failing to synthesize insights across economics, digital innovation, and migration policy. Toyin-Thomas et al. (2023) explored facilitators and barriers to mobility by isolating specific themes and calling for a comprehensive systemic view of how migration contributes to the evolution of economic and technological landscapes.

Furthermore, the role of digital transformation and technological disruption (e.g., the integration of electronic medical records (EMRs), telemedicine, and artificial intelligence (AI) in healthcare delivery) has been insufficiently addressed in relation to healthcare worker mobility. This issue represents a critical economic oversight, as digitalization not only reshapes labor demand structures and skill requirements but also influences wage dynamics, employment stability, and cross-border workforce flows. As digital technologies automate administrative and clinical tasks, they introduce capital-labor substitution, potentially displacing specific healthcare roles while increasing the demand for digitally skilled professionals. This shift creates skill mismatches and exacerbates existing inequalities between countries that invest in digital health infrastructure and those that cannot, thereby influencing migration decisions, destination preferences, and remittance patterns.

This study examines the evolving economic and structural landscape of global healthcare migration by analyzing scholarly trends and identifying key research themes. A bibliometric approach is used to uncover significant topics, persistent gaps, and relevant theoretical frameworks, including labor economics, human capital theory, and digital economy theory. The objective was to provide a comprehensive, economic, and policy-oriented overview of the field, guiding future research, particularly in the context of digital transformation and its impact on global healthcare systems. The findings offer actionable insights for scholars, policymakers, and healthcare organizations seeking to manage the economic consequences of healthcare worker migration in an increasingly digitalized global labor market.

Research Method

Research Design

This analysis examines the existing body of research on health worker migration by adopting a bibliometric approach that shows cutting-edge research topics in this area. Bibliographic techniques use classification by visualizing the relationships between studies and knowledge, providing insights that may not be immediately obvious from reading the texts alone. Block and Fisch (2020) highlight that the bibliographic method applies to the output of all types of literature reviews (LRs), although it is useful for systematic literature reviews (SLRs). Hence, we followed the workflow to map the study using a bibliometric approach (Zupic and Čater, 2015).

This study employed a bibliometric analysis to explore the research landscape of global healthcare migration, providing a comprehensive view of the current state of research between 2020 and 2024. Bibliometric analysis is a well-established quantitative method for evaluating and mapping academic literature that allows researchers to identify trends, key topics, and patterns within a field. This method is beneficial for synthesizing vast amounts of data, revealing connections between research themes, and visualizing scholarly networks. In this study, we used bibliometric tools to analyze 933 manuscripts collected from Google Scholar, focusing on academic research related to global healthcare migration.

This study utilizes Google Scholar as the primary source for data collection because of its broad coverage of academic literature across multiple disciplines, languages, and publication types, making it particularly suitable for exploring the interdisciplinary and globally diverse fields of healthcare worker migration. Unlike Scopus and Web of Science, which prioritize high-impact and often Western-centric publications, Google Scholar indexes a broader range of sources, including regional journals, working papers, policy reports, and grey literature, which are crucial for capturing emerging and context-specific insights, especially in a rapidly evolving post-COVID landscape. Starting with Google Scholar and cross-validating with Scopus and WoS-indexed articles, this approach ensures both comprehensiveness and quality, enabling a more representative and nuanced bibliometric analysis of global healthcare migration research.

Data Collection

This research uses Harzing's Publish or Perish software to extract citation data from Google Scholar, focusing on academic manuscripts published between 2020 and 2024. We selected this timeframe to ensure the inclusion of studies relevant to the field following the onset of COVID-19 and capture the most up-to-date research after the pandemic. The justification for selecting manuscripts published between 2020 and 2024 was based on the profound impact of the pandemic on global health systems, migration patterns, and workforce dynamics. By utilizing Harzing's Publish or Perish software, this study ensures a comprehensive analysis of recent academic contributions, facilitating a deeper understanding of how the pandemic has reshaped health systems and migration patterns. This relevance enhances the study's contribution to the field, offering insights that inform policy and practice in managing healthcare workforce mobility.

The initial search yielded 933 academic manuscripts covering a wide range of topics related to health care migration. To ensure the inclusion of high-quality academic sources, we identified and extracted 471 manuscripts indexed in two primary academic databases, Scopus and Web of Science (WOS), to ensure that the analyzed literature on healthcare migration is credible and impactful, enhancing the validity of the findings. Narrowing the dataset to these indexed manuscripts allows research to draw more reliable conclusions about trends, patterns, and dynamics in healthcare migration, providing a solid foundation for further research and policy recommendations.

Data Analysis

Data analysis, which seeks to understand the bibliographic integration and synthesize the existing knowledge on global healthcare staff mobility following Block and Fisch (2020), is a key part of the research. Once the data were collected, we employed VOSviewer, a software tool that plays a crucial role in constructing and visualizing the bibliometric networks. This application generates a map that displays the relationships between keywords, with five distinct clusters of research, each representing a different aspect of global healthcare migration. Using this tool, we conducted a co-occurrence analysis of keywords by examining the network of keywords that frequently appeared together in the dataset, revealing the thematic structure of the research landscape to pinpoint emerging trends and knowledge gaps within the literature.

This study identified clusters through keyword co-occurrence analysis, highlighting the most frequently used terms in the literature and their relationships. These clusters revealed distinct but interconnected research focus areas in the field, with 79 critical terms spread across five primary clusters. This study seeks to map out prominent topics and their interrelations by analyzing how frequently specific terms appear together. Hence, we explain the clusters by referring to the citation at the top rank in the Harzing application, following guidelines from previous studies (Block and Fisch, 2020; Burger et al., 2023; Singh and Singh, 2023). This methodological approach not only aids in identifying prominent themes, but also supports more nuanced analyses, leading to richer insights and informed recommendations for future research and policy.

Interpretation of Clusters

After generating the bibliometric map, we adopted a multistep approach to interpret the visualized clusters, incorporating insights from a thorough literature review. We interpreted the cluster map and corresponding table following the approach outlined by Sing and Sing (2023) to enhance the understanding of keyword patterns and trends in research data. Bibliometrics reveals the dominant themes in global healthcare migration and explores how different topics, such as healthcare worker expatriation, digitalization, and remittances, are interconnected.

To further enrich our analysis, we conducted an in-depth review of selected articles within each cluster, validating and contextualizing the findings of the keyword co-occurrence analysis. This approach seeks to compare Atkinson's (2023) method, which leverages Artificial Intelligence (AI) and Machine Learning Techniques (MLTs) to automate the synthesis and abstraction phases of a systematic literature review (SLR). By doing so, we ensured that our findings from the AI-driven keyword analysis were grounded in actual research, thus providing a more nuanced understanding of the current research landscape. This combination of automated and manual analyses strengthens the validity of our conclusions and allows for a comprehensive view of the trends and gaps in global healthcare migration research.

Results and Discussion

Table 1 summarizes the influential research studies on global healthcare worker migration, a topic of direct relevance to authors, publication titles, journals, and annual citation rates. For example, the first entry is a 2024 paper by Leitão et al. on “Drivers

of global healthcare worker migration” published in the Journal of the American College of Radiology. The table includes a variety of topics, such as healthcare financing, expatriates, labor logistics, and entrepreneurial opportunities in digital healthcare. Variations in citation rates reflect the impact and relevance of each study within the ongoing discourse on global healthcare workforce mobility.

This compilation highlights the diversity of topics, including healthcare financing, expatriate experiences, and migration dynamics, and provides a valuable reference for understanding the academic landscape surrounding this increasingly critical field. The manuscripts do not exclusively focus on healthcare workers; some address broader migration aspects related to healthcare. This discussion includes themes such as social protection policies for migrant workers, the economic implications of expatriation, and the challenges that migrants face in various contexts. Thus, while they contribute to the understanding of healthcare migration, they also encompass broader issues.

Table I lists the research articles related to global healthcare worker migration from Harzing’s Publish or Perish application, which includes the top-ranked articles by authors, titles, journals, and citations per annum. The thematic clusters illustrate the diverse factors and various dimensions influencing this phenomenon, such as the roles of citizens and foreigners in healthcare systems, integration of electronic medical records, and implications of migration for health service delivery in the Gulf Cooperation Council (GCC) region. Each cluster captures distinct elements from quality of care, healthcare worker perceptions, and government strategies to highlight the complexities and interconnections within the global healthcare migration landscape, ultimately informing policies and practices.

Table 1. Overview of Key Research on Global Healthcare Migration

Rank	Authors	Title	Journal	Annual citation
1	Leitão, CA, Salvador, GL de Oliveira, Idowu, BM, and Dako (2024).	Divers of global healthcare worker migration	<i>Journal of the American College of Radiology</i>	0.00
2	Loganathan, T. et al. (2020)	Healthcare financing and social protection policies for migrant workers in Malaysia.	<i>PLOS ONE</i>	3.75
3	Holtbrügge, D (2021).	Expatriates at the base of the pyramid. Precarious employment or fortune in a foreign land?	<i>Journal of Global Mobility</i>	4.00
4	Krifors (2021)	Logistics of migrant labour: Rethinking how workers 'fit' transnational economies	<i>Journal of Ethnic and Migration Studies</i>	11.00
5	Goštautaitė, B, Mayrhofer, W, Bučiūnienė, I, and Jankauskienė, D. (2024)	Mitigating medical brain drain: the role of developmental HRM and the focus on opportunities in reducing the self-initiated expatriation of young professionals	<i>The International Journal of Human Resource Management</i>	3.00
6	Walton-Roberts, M (2023).	<i>Global Health Worker Migration: Problems and Solutions</i> , Cambridge University Press.	Cambridge University Press	1.00

Rank	Authors	Title	Journal	Annual citation
7	Ung, DSK, Goh, YS, Poon, RYS, Lin, YP, Seah, B, & Lopez, V. (2024).	Global migration and factors influencing retention of Asian internationally educated nurses: a systematic review	<i>Human Resources for Health</i>	2.00
8	Hack-Polay, D, & Mahmoud, AB (2021).	Homesickness in developing world expatriates and coping strategies	<i>German Journal of Human Resource Management</i>	6.67
9	Thirlwall, A, Kuzemski, D, Baghestani, M, Brunton, M., and Brownie, S. (2021)	Every day is a challenge: Expatriate acculturation in the United Arab Emirates	<i>International Journal of Cross Cultural Management</i>	4.00
10	Khandelwal, R, Kolte, A, & Rossi, M (2022).	A study on entrepreneurial opportunities in digital health-care post-COVID-19 from the perspective of developing countries.	<i>Foresight</i>	7.50
11	Alabdulkarim, Y, Alameer, A, Almukaynizi, M et al. (2023).	Managing expatriate employment contracts with blockchain	<i>Electronics</i>	1.00
12	Holleran, M (2022)	Pandemics and geoarbitrage: Digital nomadism before and after COVID-19	<i>City: Analysis of Urban Change, Theory and Action</i>	9.50
13	McNulty, Y. and Brewster, C. (2020)	'From 'elites' to 'everyone': re-framing international mobility scholarship to be all-encompassing'	<i>International Studies of Management & Organization</i>	3.5
14	Menon, LV (2023).	Gulf's Migrant Workers Amidst Covid-19 and Workforce Nationalization: A Focus on Qatar's Social Protection Systems.	Palgrave Macmillan, Singapore.	1.00
13	Albejaidi, F, & Nair, KS (2021).	Nationalisation of health workforce in Saudi Arabia's public and private sectors: A review of issues and challenges	<i>Journal of Health Management</i>	1.00
14	Elo, M, Aman, R, and Täube, F (2020)	Female migrants and brain waste—A conceptual challenge with societal implications	<i>International Migration,</i>	1.00
15	Katoue, MG, Cerda, AA, García, LY, and Jakovljevic, M. (2022),	Healthcare system development in the Middle East and North Africa region	<i>Frontiers in Public Health</i>	2.00

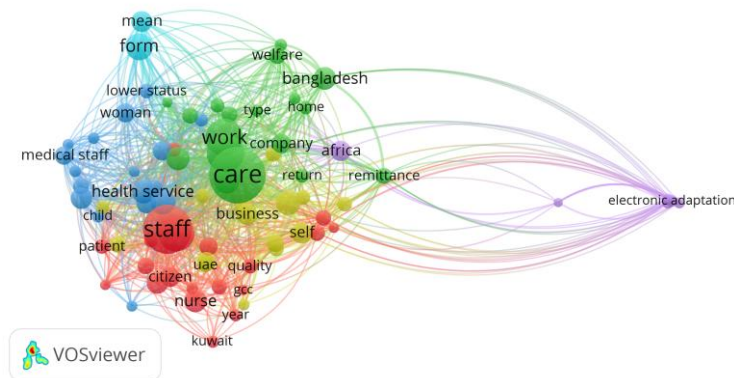


Figure 1. Bibliometrics with Five Clusters in Global Healthcare Migration

Cluster 1. Labor Market Inefficiencies in the Gulf Cooperation Council

This cluster highlights the economic complexities and labor market dependencies associated with the expatriate workforce in the Gulf region, drawing attention to the need for economically grounded, context-specific policies and institutional frameworks (Table II). From the perspective of labor economics, Gulf Cooperation Council (GCC) countries exemplify highly segmented labor markets, heavily reliant on low- and medium-skilled expatriates to fill critical workforce gaps. Albejaidi and Nair (2021) illustrated this through Saudi Arabia's dependence on foreign health professionals, advocating for a workforce policy that aligns with human capital theory. By investing in the education and training of local workers, particularly in the healthcare sector, such policies aim to internalize skills, reduce reliance on imported labor, and retain more economic value domestically, thus addressing issues of capital outflow and labor market externalities.

Holtbrügge (2021) contributes to this analysis by examining low-skilled, self-initiated expatriates in the UAE through the lens of the dual labor market theory. These workers typically occupy insecure, low-paying jobs with limited mobility and operate outside the benefits and protection of the formal expatriate system. Their marginalization reflects structural segmentation in the labor market, where access to job security, wages, and social mobility is determined less by productivity and more by national origin, skill level, and migration status, which leads to inefficiencies and underutilization of labor potential.

Consunji et al. (2020) provided an example of cost-benefit optimization in Qatar, where a model aimed at improving workplace safety for expatriate workers was presented as a tool to reduce injury-related healthcare and productivity costs. Their approach combined stakeholder theory and economic efficiency principles, suggesting that investment in regulation and enforcement yields long-term savings and improves workforce sustainability.

Thiollet (2022) offers a political economy perspective on migration management, showing how Saudi rulers have historically used migrant populations as both economic assets and political scapegoats during times of crises. This strategy reflects the instrumentalist view of migration, where states leverage migration policy not only for economic utility but also to reinforce political control and legitimacy, often at the expense of migrants' economic rights and security.

From a transnational economic governance standpoint, Walton-Roberts and Khadria (2023) highlight the absence of formal bilateral frameworks regulating nurse mobility between India and the UAE. Their analysis suggests that without harmonized standards and mutual recognition agreements, the global healthcare labor market operates inefficiently, with mismatches in training, credentialing, and worker protection. These inefficiencies raise transaction costs and hinder the formation of a stable healthcare workforce, particularly in the post-COVID context.

In a related vein, Hameed (2021) advocates for contract theory-based reforms to formalize labor arrangements between the GCC and India, particularly in the domestic work sector. By instituting transparent, multilingual contracts and basic labor protections such as minimum wage and healthcare benefits, such measures reduce information asymmetries, mitigate principal-agent problems, and increase economic predictability for employers and workers alike—ultimately contributing to more efficient and equitable labor markets.

Cluster 2. Healthcare Technology and Dynamic Labor Market

Cluster 2 shows the economic underpinnings of technology integration in healthcare, particularly the adoption of electronic medical records (EMR) and digital healthcare systems across the Middle East, including Gulf Cooperation Council (GCC) countries (Table II). From the perspective of the technological change theory, this shift represents a structural transformation aimed at increasing productivity, reducing transaction costs, and enhancing the optimization of healthcare delivery. The integration of digital platforms is critical for managing the health of expatriate populations, who often navigate fragmented and resource-constrained healthcare systems. These technological advancements serve as both an economic necessity and a strategic response to the rising cost of healthcare provision, reflecting efforts to enhance efficiency, improve outcomes, and manage the health of transient labor forces.

Leitão et al. (2024) analyzed healthcare worker migration through the lens of the push-pull migration theory, where economic disparities, substandard working conditions, and limited career advancement in home countries serve as push factors, while higher wages, improved quality of life, and better-resourced health systems in destination countries act as pull factors. This global redistribution of healthcare labor reinforces the human capital theory, as skilled healthcare workers migrate in search of greater returns on their training and expertise. These dynamics are particularly consequential for the Middle East and North Africa (MENA) region, where reliance on foreign health professionals is often a stopgap for systemic inefficiency.

Katoue et al. (2022) highlight the market failure in the regional healthcare labor market, pointing to inconsistent service quality, weak training pipelines, and a lack of data-driven policy interventions. Such structural inefficiencies hinder labor market optimization and compromise the long-term sustainability of healthcare systems. The nursing sector in Saudi Arabia, as discussed by Alsadaan et al. (2021), illustrates the challenges of labor market segmentation, where expatriate nurses often occupy lower-tier roles, face higher attrition, and encounter barriers due to language and cultural disconnects, which diminish productivity and increase turnover-related costs.

Finally, Alyani (2023) emphasized the importance of retraining and upgrading the healthcare workforce to meet emerging demands driven by digital transformation. From an economic standpoint, this reflects the need to invest in human capital

development to avoid skill mismatches and to ensure that the healthcare sector can absorb and adapt to technological advancements. These investments are crucial for enhancing the marginal productivity of labor and maintaining economic returns in a digitally evolving healthcare landscape.

Cluster 3. Efficiency and Equity in Migrant Healthcare Labor Markets

This cluster primarily addresses the economic and labor market challenges faced by foreign healthcare workers, especially those providing care to refugees and expatriate communities across various countries. Central to this discussion are the human capital and labor market integration theories, which emphasize how language barriers, cultural differences, and acculturation difficulties hinder the full utilization of expatriate healthcare workers' skills within local health systems. Thirlwall et al. (2021) highlighted the decreasing productivity and effectiveness of foreign nurses following increasing transaction costs related to communication and adaptation, thereby impacting overall care quality.

Saquid et al. (2020) showed that job insecurity and fear of litigation are significant stressors contributing to mental health challenges, such as anxiety and depression, among expatriate nurses in regions such as Saudi Arabia. These findings resonate with psychological contract theory, which posits that unmet expectations between employers and employees can lead to decreased job satisfaction and higher turnover rates, ultimately reducing labor market efficiency. The importance of technical training and the provision of adequate living and working conditions, such as workload management, housing, and hospital infrastructure (Alreshidi et al., 2022), demonstrates the efficiency wage theory, where better conditions enhance worker productivity and retention, thus lowering recruitment and replacement costs.

From a broader economic migration perspective, Zhan and Zhou (2019) illustrated how Chinese and Indian healthcare workers in Singapore leverage Information and Communication Technologies (ICTs) to reduce transaction costs associated with professional isolation and cultural adjustment. This use of digital tools aligns with digital economy frameworks, which suggests that technology can facilitate more efficient labor market integration and improve migrant welfare. Similarly, Low (2021) shows how digitalization in Malaysia enhances migrant protections by combating unethical recruitment practices, improving wage delivery, and addressing gaps in labor laws—mechanisms that reduce information asymmetries and market failures in migrant labor markets.

Olanrewaju et al. (2024) emphasize that the long-term integration of Internationally Educated Nurses (IENs) demands comprehensive investments in human capital development, including professional upskilling, language and cultural training, and improved working environments, to maximize labor market returns. Meanwhile, Nolan and Liang (2022) highlighted that perceived fair treatment and language proficiency are critical to the successful cross-cultural adjustment of self-initiated expatriate medical doctors in Ireland, reflecting the economic importance of social capital and non-monetary job attributes in enhancing labor productivity and retention, while demographic factors, such as age and marital status, have comparatively less economic impact.

Cluster 4. Costs Associated with Employing Expatriate Healthcare Workers

This cluster explores the economic dynamics underlying healthcare migration, focusing on how expatriation shapes healthcare professionals' livelihoods and the associated costs for both the sending and receiving countries. Drawing from labor migration theory, it highlights the dual role of migration as both an economic opportunity and a source of structural challenges. Macabasag and Ortiga (2023) illustrate how the Philippines' complex emigration policies, governed by multiple state agencies, reflect competing national economic priorities: balancing domestic healthcare workforce retention with promoting labor exports as a significant source of foreign exchange. This dual strategy aligns with the push-pull framework of migration, where economic incentives in destination countries "pull" healthcare workers abroad, while limited opportunities at home "push" them to emigrate.

Ung et al. (2024) addressed the challenges faced by Asia-educated nurses, including occupational downward mobility and barriers to career progression, which can be interpreted through the lens of dual labor market theory. This theory posits segmented labor markets in host countries, where migrants often occupy secondary, lower-wage positions with limited upward mobility despite their human capital investments. These dynamics highlight inefficiencies in the global allocation of healthcare skills and the economic costs of underemployment.

At the individual level, Goštautaitė et al. (2024) emphasized the role of financial stability and developmental human resource management (HRM) practices in influencing decisions around self-initiated expatriation. This underscores the economic principle of expected utility maximization, in which healthcare workers weigh potential financial returns against personal costs, including social and emotional challenges. Hack-Polay et al. (2020) further illustrate that expatriates from developing countries employ coping mechanisms to mitigate psychological transaction costs, such as homesickness and social isolation, which affect productivity and well-being.

Holleran (2022) highlighted the economic vulnerabilities revealed by the COVID-19 pandemic, showing how travel restrictions and border closures disrupted the lives of expatriates and digital nomads from the Global South. This disruption exemplifies the risk and uncertainty theory in migration economics, where external shocks to global labor mobility can precipitate economic losses for both migrants and host countries reliant on their labor. The pandemic exposed the precariousness of healthcare expatriation and the interconnectedness of global health labor markets with broader economic and social systems.

Cluster 5. The Economics of Digital Transformation in Healthcare Work

Cluster 5 focuses on the future of healthcare work, highlighting the intersection of digitalization and healthcare migration, especially in the wake of the COVID-19 pandemic. Central to this cluster are themes related to how digital technologies as blockchain and digital nomadism transforming healthcare labor markets by reducing transaction costs, increasing transparency, and creating new economic opportunities for healthcare professionals. For example, Abdulkarim et al. (2023) proposed a blockchain-based framework for managing expatriate employment contracts, exemplifying transaction cost economics by minimizing information asymmetries and reducing enforcement costs through decentralized, tamper-proof recordkeeping. This innovation builds trust and enhances contract audibility between employers and

expatriate healthcare workers, particularly in the Gulf region, where labor mobility and contract enforcement challenges have significant economic implications.

The cluster also highlights the critical role of digital learning and upskilling in sustaining human capital in the rapidly evolving health care sector. Alyani (2023) emphasizes hybrid corporate academies and targeted interventions such as the ADE2 heuristic model, which combines digital and traditional training to bridge skill gaps among healthcare workers in the UAE. These approaches align with human capital theory, positing that continuous investment in skill development increases labor productivity and adaptability, which is essential for economic resilience in a digitally transforming healthcare market.

Moreover, Krifors (2021) provides an economic lens on the commodification of mobility and the logistics of healthcare migration, framing migration as a market-driven process in which labor mobility itself becomes a tradable asset. This commodification reflects broader digital economy theories, in which the virtualization of work and mobility reshapes global labor markets, influencing wage structures, labor demand, and migration flows. Understanding these dynamics is crucial for anticipating shifts in the healthcare labor supply and economic sustainability of healthcare systems worldwide.

Table 2. Key Themes in Global Healthcare Migration

Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Citizen	Bangladesh	Child	Business	Africa
Electronic medical record	Care	Destination	Cost	Computer software
Example	Company	Government	Expatriate employee	Electronic adaptation
Foreigner	Digital nomad	Health service	Expatriates	International migration
GCC	Future	Malaysia	Expatriation	Retrieval
Gulf	Healthcare worker	Medical staff	Foreign country	Storage
Health	Home	Problem	Home country	
Healthcare system	Implication	Qualitative study	Interview	
Kuwait	Lack	Refugee	Medical insurance	
Lesson	Ministry	Response	Risk	
Life	Pandemic	Singapore	Self	
Middle East	Remittance	Social medium	Strategy	
Nurse	Research	Student	Systematic review	
Patient	Return	Thailand	UAE	
Perception	Type	Use	United Arab Emirates	
Qatar	Welfare	Woman		
Quality	Work			
Staff				
Term				
Year				

Figure I show the bibliometric analysis, which highlights several primary keywords such as “care,” “staff,” “medical staff,” “nurse,” “welfare,” “woman,” and “lower status,” indicating a strong focus on the human resource aspects of healthcare, particularly concerning the roles and challenges faced by healthcare workers, especially women and nurses, in various settings. The presence of terms like “welfare” and “lower status” suggests an exploration of the socio-economic factors impacting these workers, potentially reflecting issues related to job satisfaction, support systems, and disparities within the healthcare workforce. Additionally, the keyword “electronic

adaptation” appears to stand apart from the other keywords, indicating a distinct area of focus that may address the integration of digital technologies in healthcare practices, highlighting the need for further exploration into how these adaptations improve care delivery and worker conditions in the healthcare sector.

Conclusion

Theoretical Contribution

In global healthcare migration, the economic perspective plays a central role in understanding the structural forces driving migration patterns, workforce distribution, and healthcare system capacity. Economic factors (e.g., wage differentials, labor market demand, the cost of education and training, and national healthcare expenditures) directly influence both the supply and mobility of healthcare workers. Moreover, remittances from migrant healthcare professionals contribute significantly to the economies of source countries, while destination countries benefit from the cost-effective importation of skilled labor, often without bearing the costs of education and professional development. Despite the importance of these dynamics, the existing literature remains fragmented owing to the diversity of disciplinary approaches, theoretical frameworks, and research methodologies. This fragmentation limits the ability to form a cohesive understanding of how economic incentives, institutional structures, and global market forces interact to shape healthcare migration at both macro and micro levels.

This study identifies five main clusters within the fragmented literature, each grounded in a distinct theoretical perspective. Cluster one focuses on systems economics, which emphasizes the interdependence of components within healthcare systems. This perspective highlights how policy decisions, institutional practices, and external forces, such as labor shortages or international agreements, interact to shape healthcare delivery and system efficiency (Chirot & Hall, 1982; McPake, 2020). Economic migration theory shows that policymakers consistently favor more permissive immigration policies, highlighting their unique economic and social influence (Feigenbaum et al., 2025).

Cluster two is associated with dynamic labor market theory, which explains how digital transformation in healthcare shifts labor demand, requires new skills, and introduces structural inefficiencies that policy and training must address (David & Granic, 2024). This model helps to elucidate how healthcare workers engage with technologies such as telemedicine, electronic health records, and mobile health applications. These technologies are becoming increasingly critical in regions affected by healthcare migration and serve as tools to bridge gaps in service delivery. However, challenges persist, particularly in digital literacy, user resistance, and data security, which influence both technology uptake and integration of migrant healthcare professionals into new systems. Economically, this cluster highlights the role of technological infrastructure and investment as key enablers of labor mobility and productivity.

Cluster three is grounded in labor market integration theories. According to neoclassical economic theory, migration is a response to wage differentials, particularly the push-pull model, which examines the factors that drive healthcare workers to migrate and the structural barriers they face in their host countries (Brettell & Hollifield, 2023). Economic disparities, labor shortages, and working conditions act

as both push and pull factors that influence migration flows. This framework focuses on the socioeconomic determinants of labor mobility and the need for responsive policies that address integration, credential recognition, and workforce planning.

Cluster four draws on human capital theory, which posits that individuals invest in education and training to enhance their economic opportunities. This approach offers insights into the motivations and economic implications of employing expatriate healthcare workers. It also sheds light on how countries benefit economically from importing skilled labor, while source countries often face challenges, such as brain drain and reduced domestic healthcare capacity. This cluster directly contributes to understanding how economic incentives and labor market structures shape global healthcare migration patterns.

Cluster five engages with theories concerning the future of work, focusing on how technological innovation, automation, and changing labor demands affect healthcare workforce dynamics (Steers et al., 2004; Dabíc et al., 2023). Labor market segmentation theory and transaction cost economic theory help explain shifts in employment models, such as remote work and flexible contracts, and their implications for healthcare systems adapting to demographic and technological changes. These shifts redefine the structure of healthcare employment, potentially altering migration patterns and influencing where and how healthcare services are delivered.

Interestingly, the keyword “electronic adaptation” emerged as thematically distinct from the other clusters. This indicates the need for further investigation into how digital transformations, particularly in infrastructure and workflows, affect both healthcare delivery and the working conditions of migrating professionals. Economic analysis in this area can offer critical insights into cost-benefit outcomes and long-term sustainability.

Finally, the dynamic capabilities of global supply chain leaders play a pivotal role in shaping global health care migration. Centralized decision-making and adaptive strategies in procurement directly impact the availability of medical resources, stability of healthcare employment, and system responsiveness (Pratono & Maharani, 2023). For example, shifts in international partnerships or supply chain efficiencies either alleviate or exacerbate labor imbalances, influencing where healthcare workers are needed and how quickly they are deployed. These economic dynamics demonstrate how broader industrial strategies intersect with healthcare workforce mobility, and underscore the need for coordinated policy and investment approaches.

Research Agenda

The phenomenon of global healthcare migration not only responds to persistent labor shortages but also reflects broader economic dynamics, including international demand for skilled labor, the expansion of global healthcare markets, and the integration of advanced technologies into service delivery. While the movement of healthcare professionals has been widely studied from various disciplinary perspectives, such as economic impact, regulatory frameworks, and workforce integration, significant gaps remain in capturing the full complexity of this evolving landscape. This is especially true in the post-pandemic era, where technological advancements and shifting geopolitical realities are reshaping global healthcare systems and labor flows.

From an economic standpoint, one of the most pressing research gaps lies in the limited understanding of how healthcare migration interacts with the growing digitalization of healthcare services. The rise of telemedicine, electronic health records, and mobile health applications is rapidly transforming cross-border healthcare delivery. However, there is insufficient research on how these technological shifts influence the mobility, employability, and integration of migrant health care professionals. These technologies not only alter the demand for specific skill sets, but also redefine cost structures, workforce deployment strategies, and patient access models, which are deeply embedded in national and global healthcare economies.

In addition, there is an urgent need to investigate emerging migration flows and destinations that are gaining prominence in the global healthcare labor market. Traditional migration corridors, such as those between South Asia and Western countries, are increasingly being complemented by new destinations, including the Gulf Cooperation Council (GCC) countries and other parts of the Middle East. These regions rely heavily on expatriate healthcare workers to sustain their healthcare infrastructure, often through recruitment models influenced by bilateral agreements and private sector dynamics. However, the economic implications of such reliance, such as labor market saturation, wage suppression, and the impact on domestic training programs, remain underexplored. Furthermore, the integration of digital health technologies in these emerging regions introduces a new set of challenges and opportunities that warrant focused investigation.

Another critical but often overlooked dimension is the socioeconomic and cultural challenges faced by healthcare professionals in host countries. While much of the literature focuses on the economic benefits of healthcare migration, such as alleviating workforce shortages and improving access to care, comparatively less attention has been paid to the lived experiences of migrant healthcare workers. Issues such as discrimination, limited career mobility, lack of recognition of foreign credentials, and poor job satisfaction can have profound economic consequences that affect retention rates, training costs, and overall system efficiency.

Moreover, a comprehensive evaluation of the economic costs and benefits of healthcare migration from both the sending and receiving countries remains largely absent from the current discourse. Receiving countries, particularly high-income nations and fast-developing healthcare markets such as those in the GCC, benefit economically by importing trained professionals without incurring the high costs of education and professional development. By contrast, sending countries often experience a net economic loss due to the "brain drain" effect, where investments in training and education do not yield returns within the domestic system. This outflow exacerbates existing healthcare shortages and weakens the public health infrastructure in countries that can afford it, creating long-term economic and social consequences.

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