



Regional Differences in the Supply of Medical Resources in China

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Abstract. This paper examines the regional discrepancies in medical resource distribution across China and their implications for healthcare access and quality. It aims to investigate the patterns of healthcare resource allocation, and the contributing factors to regional differences. Using examines 12 articles selected from the Google Scholar database using regional differences in the provision of healthcare resources as keywords, the study identifies notable variations in healthcare access and quality across different regions in China, as well as the underlying factors that contribute to these disparities, including economic development, population density, and government policies. The research emphasizes the need for targeted policies and interventions to address regional differences and ensure equitable and accessible healthcare for all individuals in China. The findings underscore the importance of continued efforts to improve access to quality healthcare and reduce disparities in healthcare access and quality across different regions in China. Overall, this study provides valuable insights into the regional differences in the supply of medical resources in China and highlights the importance of promoting equitable healthcare for all.

Keywords: Regional differences, Medical resources; China.

1 Introduction

The fair and accessible distribution of health care resources is of paramount importance to ensure that all individuals receive the necessary medical attention, regardless of their geographic location. However, disparities in the allocation of health care resources can create regional discrepancies in health care accessibility and quality. These discrepancies have raised significant public health concerns and led to numerous studies that investigate the distribution of health care resources across different regions.

Research on regional disparities in the provision of health care resources has been extensive and diverse. This paper's studies are focused more on exploring the variations in the distribution of healthcare resources across regions, identifying factors contributing to such differences, and evaluating the impact of regional discrepancies on healthcare accessibility and quality.

One of the notable research areas in this field is the East-West divide in China. With its vast geographical area and diverse population, China's health care system faces

unique challenges in ensuring equitable distribution of resources across all regions. Studies have revealed that the eastern region of China has a better provision of health care resources, such as hospital beds and physicians. However, the urban and rural areas are still struggling to receive adequate medical attention. This inequality in resource allocation has led to differences in health outcomes between the two regions, with higher disease prevalence and lower life expectancies in the urban region.

While extensive research has been conducted on regional differences in the allocation of health care resources, there is still a crucial need for comprehensive studies that examine these disparities more comprehensively. Therefore, this paper aims to add to the existing literature by exploring regional differences in the supply of health care resources. This study will focus on identifying variations in the distribution of health care resources across different regions and analyzing the factors that contribute to these differences. Furthermore, this research will also evaluate how regional disparities in health care resource allocation impact health care access and quality. By conducting a comprehensive analysis, this study aims to provide valuable insights that can inform policymakers and stakeholders in the health care industry.

2 Literature Review

The extant literature on healthcare resource distribution in China reveals considerable discrepancies between the northern and southern regions. Southern provinces exhibit a higher prevalence of healthcare resources, including hospital beds, physicians, and nurses per capita, as compared to their northern counterparts. A recent study conducted by highlights the substantial regional divergence in hospital bed availability per 1,000 people, with southern provinces such as Guangdong and Fujian reporting significantly higher figures than northern regions like Hebei and Shanxi ^[1].

In addition to geographic disparities, healthcare resource allocation within regions, particularly in urban-rural areas, has been identified as a significant concern. Scholars have explored how factors such as the availability of medical facilities, public transportation, and poverty levels might affect healthcare delivery in these areas.

The literature has also underscored the potential of technology to bridge the existing gaps in healthcare access and delivery. Numerous studies have highlighted the efficacy of telemedicine and remote monitoring systems in providing healthcare services to underserved regions. Additionally, research has evaluated the impact of e-health services, such as web-based portals and mobile applications, on improving patient outcomes in different regions.

Furthermore, the literature has investigated the overall effectiveness of various healthcare initiatives aimed at enhancing access and reducing regional disparities. For instance, research has explored the impact of Medicaid expansion legislation on healthcare outcomes, as well as the role of Medicaid reimbursement rates in promoting provider access. These findings emphasize the importance of understanding regional differences in healthcare resource distribution to inform policymaking and bring about significant improvements in healthcare access and delivery.

In summary, extensive research has been conducted on the regional disparities in

healthcare, examining the impact of socio-economic factors, healthcare industry influences, technology, and initiatives aimed at improving access. The research indicates that targeted interventions can have a positive impact on health outcomes and emphasizes the need to better understand and address regional differences in healthcare to reduce disparities and promote improved health for all.

Despite the extensive research on regional differences in health care, certain limitations still exist. Many studies only focus on a single factor or aspect, which may not provide a comprehensive understanding of the complex health care system. What's more, some research projects only provide a snapshot and do not follow up to determine the long-term effects. Additionally, there is often a lack of assessment of the quality of health care services and a dearth of patient-centered research, which could offer further insights into the needs of underserved populations.

Furthermore, there is a need for more research into sustainable models of health care delivery, especially in rural and under-resourced areas.

3 Regional Disparity

The growing population is likely to increase spending on medical resources. Medical resources encompass all types of products and services utilized for the prevention, diagnosis, treatment, or management of diseases or illnesses.

Figure 1 displays a comparison of the concentration of essential medical resources in China's eastern and western regions from 1998 to 2012. The results indicate that the central-western and northeastern regions possess the highest concentrations of medical resources, while the Shandong Peninsula and the Beijing-Tianjin region are dominant in eastern China [2]. China's economic development exhibits a pattern in which the east is strong, the west is weak, and the level of economic growth advances from the coastal to the inland areas. Thus, the availability of medical resources correlates with the economic environment.

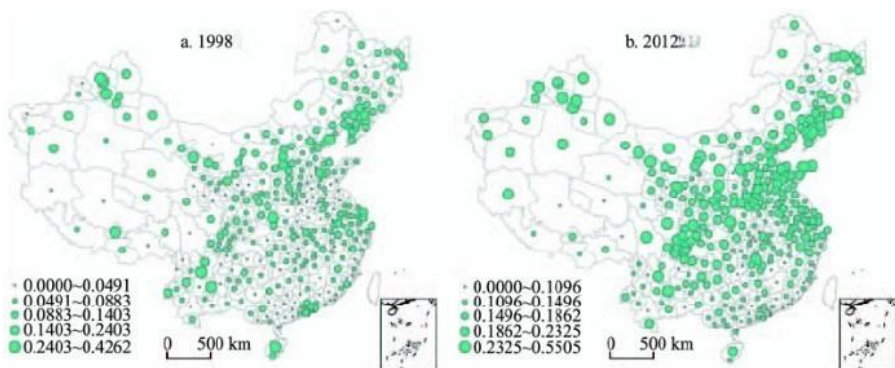


Fig. 1. A comparison of the concentration of essential medical resources in China's eastern and western regions from 1998 to 2012 [2].

Furthermore, the study reveals that the most valuable healthcare resources in China were primarily concentrated in old industrial cities with abundant resources during the 1980s. This explains why medical care has been more advanced in the eastern regions, particularly in the Shandong Peninsula, Jiangsu and Zhejiang regions, Beijing, Tianjin, Hebei, Liaoning, and Central and South China in the 2012 data. Conversely, the western regions may not have the same level of medical care.

In economically underdeveloped mountainous regions of southern China, the economically developed but more populated Pearl River Delta and West China townships, the economically developed Yangtze River Delta region, and other areas, most healthcare services rely on community health service stations and central health centers.

In summary, the availability of medical resources is significantly influenced by economic development and population density. Regions with a higher population density and better economic conditions tend to have more advanced medical resources.

3.1 The Disparity of Healthcare Resources between Urban and Rural Areas

The vastness of China's territory poses a significant challenge in ensuring equitable access to medical resources across different regions ^[3]. Low population densities in many parts of the country exacerbate the existing regional disparities between urban and rural areas, particularly in remote locations where medical care may be scarce ^[4]. Economic inequality between provinces and cities also contributes to differences in medical resource availability. Wealthier regions typically have greater resources for healthcare, including better-equipped hospitals, specialized personnel, and advanced medical technologies, while underprivileged areas may struggle to provide adequate medical care ^[5]. On the other hand, regions with lower economic development often face challenges in financing and providing adequate levels of medical care. Consequently, patients in rural areas may not have the same level of access to healthcare as those in urban areas.

The Chinese government has implemented a range of policies and initiatives to tackle the regional imbalances in medical resource allocation. These include establishing high-end public hospitals in urban centers, as well as improving healthcare services in remote and rural areas. The promotion of public-private partnerships has also played a crucial role in addressing healthcare disparities, as has the provision of population-specific health services. Despite these measures, significant variations in healthcare access and quality persist between urban and rural populations in China. One of the main factors contributing to these disparities is the uneven distribution of high-tech medical resources. In urban areas, advanced diagnostic techniques, treatments, and surgeries are readily available, while rural patients often face reduced access to these resources. Financial constraints also pose a significant barrier, limiting the availability of better-equipped medical staff and timely care in rural regions ^[6]. Moreover, cultural factors can impact healthcare access, with some individuals avoiding medical services until their condition becomes severe.

These issues stem primarily from inadequate investment in medical technology and infrastructure in many of China's less populated regions. While Beijing and Shanghai have some of the most advanced medical centers in the world, other parts of China lack

even the most basic healthcare facilities. The number of doctors per capita in China's cities far exceeds that in its rural and remote areas, as indicated by available data [5]. As a result, the vast geography, lower population densities, and socioeconomic disparities between urban and rural areas pose significant challenges in providing equitable and efficient access to healthcare resources. In broad terms, those living in China's larger cities have much greater access to healthcare services than those living in more rural or remote locations.

In conclusion, China faces significant challenges in providing equitable access to medical resources across its diverse regions. Addressing regional disparities in medical resource access requires sustained investment in medical technology and infrastructure in less populated areas, as well as targeted policy measures to address economic and cultural barriers. By prioritizing equitable access to medical care across its diverse regions, China can ensure that all citizens have access to the healthcare they need to lead healthy, productive lives.

3.2 What Medical Resources Limit Support and Affect Impoverished Areas

Regional Disparities in Medicine and Medical Equipment. China's vast geography and socioeconomic disparities have resulted in significant regional differences in access to medical resources. A major issue facing rural areas is the limited availability of pharmaceuticals. Due to remote locations and lower purchasing power, residents in these areas often struggle to access even basic medications. Meanwhile, many of the drugs that are available in urban pharmacies may not be affordable or accessible to rural patients [4].

In addition, the availability of advanced medical equipment is also a concern in rural areas. Since much of the high-quality medical equipment is concentrated in urban centers, rural areas are often left behind in terms of the latest healthcare technology [7]. Moreover, due to lower incomes, people living in rural areas may have difficulty affording sophisticated medical equipment or may lack access to skilled personnel who can operate such equipment.

The unequal distribution of medical resources between urban and rural areas in China can lead to exacerbated health problems and higher mortality rates in rural regions. In the absence of quality medical care, people in rural areas are often forced to rely on traditional home remedies or seek support from charitable organizations to receive medical attention [6].

The Chinese government has implemented a range of policies and initiatives to address these regional disparities in healthcare services and improve access to medical resources in rural areas. Recent reforms in the healthcare system aimed at expanding coverage and reducing costs have made healthcare more accessible to rural populations. For instance, insurance plans have been extended to cover up to 90% of China's population, and the costs of medical treatment in public hospitals have been reduced. Additionally, the government has invested significantly in building medical infrastructure in rural areas, including constructing and equipping primary healthcare facilities. Despite

these efforts, however, significant disparities between urban and rural populations in terms of medical resource access persist.

Differences in Medical Staff between Urban and Rural Areas. Moreover, the availability and quality of professional medical personnel in rural and urban areas vary significantly. Healthcare facilities in rural areas are often staffed with less skilled medical personnel compared to those in urban areas. As a result, medical professionals in rural areas may lack the necessary capabilities to adequately diagnose and treat health issues. Furthermore, rural healthcare facilities are often understaffed and equipped with outdated and inadequate equipment, leading to a lower quality of care.

The regional disparities in access to healthcare resources can be attributed to several factors, such as population migration and economic development [8]. The lack of economic opportunities and population growth in rural areas results in poorer infrastructure and services. As people migrate to urban areas for better jobs and wages, the population in rural areas decreases, making it challenging for the government to invest in medical infrastructure. In addition, limited access to capital investment further constrains the development of medical infrastructure and resources in rural areas. These regional differences in healthcare resources have been a point of concern for the Chinese government. To address the issue, the government has focused on developing healthcare infrastructure and services in rural areas. It has implemented policies such as reducing medical costs, providing free health insurance to the poor, and increasing subsidies for healthcare providers in rural areas. The government has also invested in medical education in rural areas and increased funding for research and development of medical technology. This includes augmenting medical infrastructure, training healthcare professionals and nurses, providing better access to medicines, and implementing health awareness campaigns.

Furthermore, government and non-governmental organizations have collaborated to develop telemedicine and e-health initiatives, which provide remote access to healthcare services for rural residents. Such initiatives have already made a significant difference in the lives of rural residents and are gradually closing the gap between urban and rural areas regarding healthcare resources.

Solutions to Address Medical Regional Disparities. Efforts to encourage rural doctors, nurses, and other healthcare professionals to stay and practice in rural areas have been initiated in some countries like Thailand. The governments are incentivizing them with better salaries and job opportunities, thus ensuring that rural communities have access to qualified and experienced healthcare professionals.

Nevertheless, there is still much to be done to equalize the provision of healthcare resources in rural and urban areas, which requires continuous investment from both the public and private sectors. Furthermore, it is crucial to raise awareness of the issues facing rural communities and develop innovative solutions to bridge the gaps in healthcare resource provision continually. On the other hand, governments and organizations must prioritize creating healthcare policies that are tailored to local contexts, taking into consideration specific social and cultural needs [9]. For instance, women

living in rural regions often have limited opportunities to access healthcare services due to sparse population distribution, limited economic resources, and a lack of transportation infrastructure. Additionally, cultural norms and beliefs may impede women's access to health services, even when they are available. Addressing these issues requires giving particular attention to the needs of women living in rural areas, ensuring that they are provided with healthcare services and educational programs tailored to their specific needs.

In addition, technology has played a significant role in increasing access to healthcare services in rural areas. Digital health solutions, including telemedicine, mobile health apps, and mHealth devices, have greatly facilitated reaching rural communities, which are often isolated and lack basic infrastructure^[10]. With these innovative solutions, remote consultation and diagnosis can be provided quickly and accurately, without requiring any physical infrastructure or long travelling distances for the patient. Furthermore, digital health solutions have been utilized to facilitate data collection and management, empowering healthcare workers with comprehensive patient information. These solutions can also be used to monitor and manage chronic diseases, such as diabetes and hypertension, in rural communities. Mobile health apps and telemedicine can provide a platform for remote consultations, diagnoses, and treatments. This technology can be particularly useful when coupled with better transportation infrastructure and healthcare information systems.

4 Discussion

4.1 Regional Disparities in Access to Healthcare Resources

The equitable distribution of healthcare resources across various regions of a nation is a critical concern. The availability and accessibility of healthcare resources are influenced by population migration and a range of economic and social factors. The relationship with the population is a critical aspect to consider while exploring this issue. Population migration can create disparities in the accessibility and availability of healthcare resources in a particular region. An example from research suggests that people who relocate from one area to another in search of better job prospects may leave behind an area with fewer healthcare resources and relocate to one with greater resources^[11]. This often results in significant disparities in the access to healthcare services between rural and urban areas. In addition to population migration, economic factors such as income inequality, housing affordability, and insurance coverage contribute to regional discrepancies in healthcare availability and access.

These regional disparities lead to a range of problems. For instance, income inequality often limits access to healthcare for those in lower-income regions^[12]. Individuals who are unable to afford health insurance or live in areas with inadequate healthcare services may be unable to receive necessary medical care, leading to poorer health outcomes. Adequate housing is also critical to ensure access to healthcare since those residing in lower-income neighborhoods often lack access to preventive care and other services essential to maintain good health.

Social factors such as race, ethnicity, language barriers, and cultural competency

play a vital role in the provision of healthcare resources. Minority groups and other underserved populations often have inadequate access to healthcare due to discriminatory practices and a lack of cultural competency among healthcare providers. Language barriers can create a physical and emotional divide between provider and patient, leading to poorer health outcomes.

The impact of these regional disparities in the provision of healthcare resources cannot be ignored. In order to ensure equitable access to healthcare, policymakers must take proactive steps to address systemic factors that contribute to disparities in access. This includes providing adequate funding for healthcare services in rural and low-income regions and ensuring that minorities and other underserved populations have access to preventive care and other services required to maintain good health. What's more, programs that provide cultural training and language services to healthcare providers can help bridge the gap between provider and patient, enabling better communication and empathy. Addressing these regional disparities can create a more equitable and compassionate healthcare system, which is essential for the wellbeing of a nation's population.

4.2 Limitations of this Study

In the begging, the study did not examine potential disparities in access to care within specific geographic areas, such as urban versus rural communities. Within a given region, differences in healthcare access may vary depending on socioeconomic and environmental factors, such as income, transportation, and healthcare infrastructure. Failure to account for these nuances may limit the study's findings.

5 Conclusion

In conclusion, regional disparities in the availability of healthcare resources are a complex issue that can be influenced by factors such as population density, economic and social conditions, and cultural competency. While more populous and specialized regions tend to have better access to healthcare resources, some less populated areas can still provide quality care through a community's dedication. Nevertheless, many areas still lack reliable access to new medical technologies and specialists.

The paper advocates for a research focus on identifying the causes of disparities in the availability of healthcare resources across different regions. To achieve this, several factors must be analyzed, including population size, access to medical specialists and advanced medical technologies, proximity to hospitals, and overall healthcare access. By scrutinizing these factors and the resulting data, areas with limited healthcare resources can be identified, and effective strategies can be developed to enhance their healthcare availability. This is vital to ensure that everyone, irrespective of their location, has access to quality and affordable healthcare services. Further, it is imperative to conduct research to comprehend how certain regions can maintain their access to quality healthcare services. This could entail examining their policies and procedures, the qualifications and training of healthcare providers, and other factors that contribute

to their success in providing quality and efficient care. Studying these factors will provide valuable insights into how other regions can replicate these practices, creating a more equitable system of healthcare access.

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