

論文内容要旨

Gender difference of geographic distribution of physicians in Japan: three-point analysis of 1994, 2004 and 2014

(1994年から2014年までの本邦における性差に注目した医師分布変化分析)

BMC Health Services Research, 23:1404,2023.

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Japan's medical education system produces 9,000 graduates annually. Despite the government's implementation of several strategies, including increasing the number of doctors trained, the country still struggles with a shortage of physicians in rural areas. This study examined this issue, focusing on gender and considering years of physician experience, demographic and geographic factors. Our previous study suggested that there were limits to the trickle-down of physicians. The purpose of this study is to further explore the factors that contribute to physician maldistribution. Ultimately, we aim to recommend policies to resolve the uneven distribution of physicians.

We analyzed the Physician Census from 1994, 2004, and 2014, examining data on physicians' gender and the number of years since licensure. Since the census year did not match the physician survey year, we used the most recent year combination (1994–1995, 2004–2005, and 2014–2015) as the physician survey-census combination. To correct the impact of municipal mergers, the analysis was aligned with the number of municipalities in 2014 (1741). We conducted a detailed examination of the changes in the number of physicians over the 20-year period from 1994 to 2014, with an emphasis on changes by gender and years of experience. We then used the Gini coefficient to evaluate the distribution change of physicians based on gender and years of experience. Next, we surveyed 47 prefectures in Japan ($N = 47$) at three time points to determine how many physicians are distributed in the most populous one-third of each prefecture (urban areas), divided into overall physicians, male physicians, and female physicians. Our focus on the “one-third” of the population is based on the National Statement of Depopulation Measures 2019. Finally, we analyzed the demographic and geographic distribution trend using Spearman correlation coefficients (five factors could significantly affect physician distribution: number of physicians to population, number of physicians, municipal population, distance (from the prefectural capital), and population density).

The number of physicians increased 1.29-fold over the 20-year observation period (1.23-fold for male physicians and 2.17-fold for female physicians), and the percentage of female physicians increased from 13.4% to 20.4%. 42% of licensed physicians during the study period were female physician. Gini coefficient for all physicians was 0.315–0.298–0.298 (male physicians: 0.311–0.289–0.283, female physicians: 0.394–0.385–0.395). Gini coefficients for female compared to male physicians were higher in all age groups, showing that the distribution of female physicians is skewed toward urban areas. We found that 87.7% of physicians were concentrated in the top 1/3 municipalities in 2014 year of population. The number of female physicians was higher at 91.8% compared to 86.8% for male physicians. Physicians to population (per 100,000 population) / municipal population

showed only some correlation 0.511-0.529-0.566 (1994-2004-2014), but the physicians to population / municipal population correlation was the highest at 0.943-0.948-0.952. When observed in terms of the number of physicians to population ratio, it is clear that the number of physicians was not necessarily evenly distributed in each municipality. In addition, the correlation was weak for the distance factor (number of physician / distance from prefectural capital 0.436-0.460-0.484), but the correlation was increasing. Against the background of population concentration in urban areas, a trend was observed that physicians are also concentrated in urban areas.

The geographic distribution of physicians in terms of population per 100,000 showed a slowdown in the distribution of physicians. Although previous studies have shown that remote medical care is dependent on male veteran physicians, we were able to visually understand this situation by using the Gini coefficient. Even if the absolute number of physicians increases, as long as the ratio of female physicians continues to increase, the concentration of physicians in urban areas will continue and a trickle-down limit will exist. The factors that have slowed the distribution of physicians include the start of the clinical training system for physicians and the diversification of physician careers, which have also been identified in previous studies, but this study has newly revealed that the increase in the number of female physicians has led to an increase in the number of physicians who wish to work in urban areas. In order to stop the slowdown in the distribution of physicians and to ensure the survival of local medical services, it is necessary to encourage the ever-increasing number of female physicians to take on the responsibility of providing medical services in remote areas. We have propose three policies to achieve this: the first is to improve the working environment in the medical field in consideration of physician work-life balance, the second is to take measures to enable physicians to continue their careers in a stable manner, and the third is a policy to guide them to remote areas.