

Geographic Disparities in Pediatric Care: Analyzing Accessibility in Seoul, South Korea

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South Korea has been faced with an incremental critical shortage of adolescent and OB/GYN physicians and their healthcare facilities, accompanied by the country's lowest birth rates in the past 30 years, which is known to have been exacerbated with several socio-economic shocks, indicating the shortage may have accelerated spatial disparities in access to healthcare for children and adolescents. This study aims to investigate the dynamics of spatial disparities in pediatric and adolescent care accessibility from 2000 to 2023 in Seoul, South Korea, to examine the impact of the economic crisis on these services in spatial and temporal dimensions. To explore how spatial disparities in pediatric and adolescent healthcare services have evolved, we will develop a set of spatial statistical methods to examine spatial discrepancy among population-weighted centroids and healthcare facilities centroids with location data of registered medical facilities. Based on the identified discrepancies across different geographic scales, the degree of pediatric healthcare access will be assessed with an evolution of spatial disparities at different levels of geographic scales to measure the spatial disparities of access. In a systematic analysis perspective, the healthcare services for children and adolescents are defined to the medical service clinics providing pediatric and adolescent care and public health centers, which constitute the primary line of healthcare for non-emergency conditions and preventive services. As a horizontal dimension, we will examine the disparities of healthcare accessibility over five pivotal periods, spanned by the years 2000, 2005, 2010, 2015, and 2020 based on domestic or global economic shocks, including significant economic crises and the global COVID-19 pandemic in South Korea. This research frame aims to characterize the evolution of healthcare services accessibility disparities within a changing economic and demographic landscape during each period. The accessibility measures will be designed to measure the geographical discrepancies between the population-weighted centroids and the nearest hospitals at two geographic scales, Jipgye-Gu (Census Block) to Si-Gun-Gu level (City-Tracts) to examine spatial scale effect. Our findings will demonstrate whether inequality has been amplified during the temporal duration and exploit the relationship between economic crisis and healthcare accessibility to the adolescent and OB/GYN services. With empirical evidence, this research will provide crucial insights into healthcare service provision's temporal and spatial aspects in the current shortage of pediatric specialists and facilities in South Korea.

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