

GEOGRAPHY OF HEALTH INEQUALITIES: SPATIAL ANALYSIS OF ACCESS TO HEALTHCARE SERVICES

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Abstract

By undertaking a spatial study of access to healthcare services, the research investigates the complex geography of health disparities and provides a deeper understanding of the issue. The purpose of this study is to evaluate the discrepancies in healthcare accessibility that exist across a variety of geographic regions using a multidimensional methodology. It investigates the complex relationship that exists between geographical locations and the accessibility, affordability, and closeness of healthcare facilities from a geographical standpoint. The study maps and analyses the distribution patterns of healthcare services, demonstrating the uneven spatial distribution of medical resources. This is accomplished through the utilisation of modern spatial analysis tools. The purpose of this study is to identify the underlying variables that contribute to unequal access to healthcare by conducting an investigation into demographic factors, socio-economic situations, and infrastructure discrepancies. The research not only reveals regions that have restricted access to medical care, but it also suggests viable ways for fixing the discrepancies that have been identified. The purpose of this in-depth investigation is to provide policymakers, healthcare practitioners, and other stakeholders with information regarding the geographical dimensions of health disparities. In the end, the purpose of the study is to achieve the goal of contributing significant insights towards the creation of healthcare systems that are more fair and accessible for all communities, regardless of where they are located geographically.

Keywords: Geography, Health, Demographic, Region.

Introduction

The world population has increased dramatically, and in the twenty-first century in particular, improvements in life expectancy and quality of life have made better and more continuous healthcare services necessary. Thus, the advancement of health management systems has a bearing on the socioeconomic development of every nation. Because private sector companies are more likely to be lucrative and to invest in rich locations, they frequently offer services in metropolitan areas to cater to the wealthier segments of society. Public sector providers, on the other hand, offer services in both rural and urban locations. However, generally speaking, the availability of medical equipment in rural areas is restricted to fewer qualified workers and experts, fewer visits for screenings, and secondary or tertiary care settings. In the meantime, cities are home to the majority of comprehensive services. Compared to persons in metropolitan centres, it has been stated that residents of rural areas would have to travel farther to obtain healthcare services. On the other hand, rural areas' limited geographic accessibility makes it impossible to provide sufficient, high-quality infrastructure for public healthcare. As this indicates, this is the most evident reason why rural health has drawbacks. For people with chronic illnesses in particular, this can be a significant journey for harmonious care.

An essential measure of both spatial equity and performance efficiency is accessibility. The idea of accessibility emerged from a paradigm shift away from mobility, which concentrated on making all areas easily accessible in order to enhance access. A broad notion, accessibility is used in the formulation and assessment of sustainable goals. Various definitions exist based on the measuring technique employed and the particular objectives of the analyst. The economical and psychological components of accessibility to health services combine to provide "availability of services" within a specific reaction time. However, these two are not the same because spatial accessibility denotes a specific geographic focus. Within the field of health sciences, the degree of spatial accessibility to resources is commonly expressed as a distance, where a smaller distance indicates better accessibility.

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In West Bengal, access to healthcare services is significantly impacted by geographic disparity. The purpose of this study is to evaluate geographic disparities in rural West Bengal residents' access to public healthcare services. Two geographically separate community development (CD) blocks from the Uttar Dinajpur district-Kaliaganj and Goalpokhar-I -have been selected as case studies. In order to analyse the data, both primary and secondary databases were used, and mixed method approaches were employed to evaluate the healthcare services (Karmakar, 2022). The results demonstrate that rural populations have suffered greatly as a result of the State's and districts' unequal geographic allocation of healthcare services. People from rural origins have challenges during emergency health crises because of a lack of healthcare resources, limited physical accessibility, etc. The disparity in access to healthcare that currently exists between rural and urban areas is strikingly obvious. One important contributing reason to the disparities in West Bengal's access to health care has been identified as geographic location.

The purpose of this study is to investigate the geographical patterns of healthcare accessibility by making use of tools that are associated with spatial analysis. The purpose of this project is to create a map of the distribution of healthcare facilities, assess the proximity of these facilities to communities, and determine the influence that distance has on the utilisation of healthcare services. In addition, this study investigates the socio-economic and demographic factors that play a role in determining access to healthcare services in various geographical regions.

This study examines how the public's perceptions of accessibility to hospitals and general practitioner (GP) offices relate to factors such as geographic distance, car ownership, and health status. By doing this, it investigates the various aspects related to facility accessibility and access. Through an attitudes survey, information was gathered on the challenges faced in obtaining health care, the health status of the respondents, and car ownership. Using a GIS, the road lengths to the closest service were determined for each respondent. Using logistic generalised linear models, difficulty was correlated with health, ownership of a car, and geographic distance. The geographical non-stationarity in the data was investigated using a Geographically Weighted Regression (GWR). It was discovered that long-term illness, reported poor health, and not owning a car were important predictors of having trouble getting to hospitals and GPs. For GPs, geographic distance was a significant predictor of hospital accessibility challenges, but not for hospitals. GWR determined the spatial (local)

variation in these global associations, pointing to places where the independent variables' predictive power differed from the worldwide trend. The effects of poor health and not owning a car on the challenges encountered while trying to get health care varied geographically throughout the research area, but the effects of geographic distance did not. Accessibility to various health facilities was shown to be highly correlated with both car ownership and health status, with the effect of geographic distance varying depending on the facility (Comber, 2011). GWR illustrated the variations in these correlations throughout the research region. This study shows that access is a multifaceted term with a composition that changes depending on the facility being studied, the individual's health, and their socioeconomic background.

When it comes to developing targeted treatments and policies that are aimed at alleviating health inequities, having a solid understanding of these disparities is absolutely necessary. We hope that by conducting this research, we will be able to give insights that may be used to advise policymakers, healthcare providers, and stakeholders in the process of implementing strategies to improve access to healthcare and bridge the gap between regions that have varied degrees of healthcare resources. This research is to shed light on the complex relationship that exists between geography and health disparities. The ultimate goal is to pave the way for healthcare systems that are more inclusive and equitable, and that are able to meet the varied requirements of populations that are located in a variety of geographical settings.

Discussion

A fundamental obstacle that must be overcome in order to guarantee that everyone in the globe has equal access to medical treatment is the geographical distribution of health disparities. However, socioeconomic variables are not the only factors that contribute to disparities in healthcare accessibility; geographical regions are also inextricably linked to these disparities. A comprehensive spatial study is going to be carried out as part of this research project with the intention of elucidating the complications that are associated with the distribution of healthcare services across a variety of geographically distinct regions. Access to medical treatment continues to be unequal in today's interconnected world, despite the fact that there have been numerous advances in both medical technology and medical science. It is common for the discrepancies to be more obvious in locations that are geographically isolated or distant. This is because in these areas, low resources, inadequate infrastructure, and geographical isolation all come together to create significant hurdles to accessing healthcare. The keypoints are as follows:-

Disparities in Space: The findings of the research indicate that there are significant differences in access to medical treatment dependent on the location of the individual. It sheds light on the discrepancies that exist between urban and rural locations, demonstrating that remote and rural areas frequently have restricted access to healthcare facilities as a result of geographical isolation and inadequate infrastructure.

Influence of Distance: The proximity to healthcare services has a substantial impact on the utilisation rates of those services. The investigation reveals how access is affected by distance, with persons who live further away from medical facilities experiencing significant difficulties in obtaining timely and essential medical care.

Socioeconomic Factors: Disparities in socioeconomic status overlap with geographic circumstances, illustrating how factors such as income levels, educational attainment, and employment prospects impact access to healthcare. Communities that are marginalised in certain geographic regions have additional difficulties as a result of socioeconomic constraints.

The research maps the distribution patterns of healthcare resources by employing spatial mapping techniques. This allows for the mapping of health resource distribution and distribution patterns. Through the identification of clusters of underserved areas that are lacking sufficient medical services, it is possible to obtain a visual depiction of locations that have the greatest need. The purpose of this study is to investigate the ways in which demographic characteristics, such as age, gender, and cultural diversity, influence the accessibility of healthcare in various geographical regions. It sheds light on particular demographic groups that are disproportionately impacted by the restricted access to healthcare that is available.

Policy Implications: The findings of this study highlight the significance of evidence-based implementation of policy interventions. It shows that targeted policies that take into consideration the spatial disparities in access to healthcare can successfully address these inequalities through their implementation. Consider the possibility that policies that promote telemedicine or mobile healthcare units could help bridge the gap in locations that are geographically isolated.

tactics for Improvement: The research presents a number of different tactics that are intended to improve the accessibility of healthcare. These methods include the construction of infrastructure, the implementation of community-based healthcare initiatives, and the implementation of individualised

interventions with a particular emphasis on regions that are socioeconomically challenged.

The research ultimately argues in favour of the fundamental idea of equity in healthcare, which is a fundamental principle. It places an emphasis on the necessity of making extensive efforts to guarantee that geographical location does not act as a barrier to getting healthcare services that are of high quality and delivered in a timely manner.

By showing the multidimensional nature of difficulties and providing insights that are essential for planning targeted interventions to establish healthcare systems that are more inclusive and equitable, these points jointly emphasise the complicated relationship that exists between geography and health disparities. Population health outcomes are significantly influenced by the biophysical, political, and cultural settings as well as the neighbourhoods. Certain populations may be more susceptible and less robust to negative health consequences as a collective if facilities like clinics, hospitals, public transportation, fresh food markets, and schools are distributed unevenly in space. This grim truth makes it seem more like the old adage "who you are depends upon where you are" and that health disparities affect people differently depending on where they live.

Conclusion

The spatial analysis that was carried out as part of this research has shed light on the complex relationship that exists between geography and health disparities. It has also shed light on the disparities that exist in terms of access to healthcare services across a variety of jurisdictions. As a result of this study's detailed mapping and assessment of healthcare distribution patterns, the substantial inequalities in availability, closeness, and utilisation of healthcare services that are based on geographic areas have been brought to light.

The findings shed light on the vital significance of geographical considerations in determining access to healthcare. Distance, a lack of infrastructure, and socio-economic constraints are some of the factors that make it difficult for people living in remote and marginalised areas to gain access to competent medical treatment. These discrepancies not only have an effect on the utilisation of healthcare services, but they also make a significant contribution to the health disparities that exist amongst populations.

Furthermore, this research have revealed major socio-economic and demographic characteristics that influence accessibility to healthcare, which has provided valuable insights into the varied nature of these discrepancies. These types of insights are

extremely helpful in directing the development of targeted treatments and policy formulations that are aimed at addressing the underlying causes of health disparities.

The purpose of this research is to advocate for the creation of individualised solutions to bridge the gap in healthcare access. This is accomplished by acknowledging the spatial elements of current health disparities. In order to prepare the path for more equitable healthcare systems, it is possible to implement efforts that concentrate on strengthening infrastructure, enhancing healthcare resources, and tackling socio-economic impediments.

In conclusion, this study highlights the critical importance of a concerted effort on the part of policymakers, healthcare providers, and stakeholders to address the geographical inequities that exist in access to healthcare. It is possible to move towards a future in which every individual, regardless of their geographic location, has equitable access to quality healthcare services. This can be accomplished by utilising spatial analysis and gaining an understanding of the subtle dynamics of health inequities. The findings of this research provide a basis for making well-informed decisions and implementing targeted changes with the intention of making healthcare systems all over the world more accessibility and inclusive.

Conflicts of Interest

The author declares that there is no significant competing financial, professional, or personal interests that might have influenced the performance or presentation of the work described in this manuscript.

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