Disparities Between Zip Codes on the Spread, Diagnosis, Treatment, and Vaccination of COVID-19

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Geographic Healthcare Access and Disparities

Introduction:

In an era of inclusivity, social advocacy, and medical progress, disparities in healthcare access are increasingly more important to study within the fields of public health and preventative medicine. Historical traumas and socioeconomic policies still pose a structural obstacle to minority populations when accessing proper medical care, known as social determinants of health. This research project looks to understand geographical and spatial determinants of health through zip codes and their respective contributions to the medical treatment of the American population during the COVID-19 pandemic and to identify inconsistencies of care within the system.

Objectives:

The objective of this research was to identify the top 100 cited sources of literature that address disparities in medical treatment of COVID-19 by zip code and location.

Methods:

DATA SEARCH:

Web of Science was used to make searches for keywords: Zip Code, COVID-19, Health Equity, Health Care Disparities, Geographical Disparities, and Social Determinants of Health. Country and language were set to United States and English to refine search.

- Results were ordered from "highest to lowest number of citations," and manually checked to fit eligibility; those ineligible were removed before exporting. The top 100 cited sources were exported as a BibTeX file.

DATA EXTRACTION:

- Biblioshiny was accessed through the R Studio platform and the "raw BibTeX file" was uploaded. It was then exported as an "Excel file" and subsequently re-uploaded as a "bibliometrix file".
- Biblioshiny provided a complete view of the study's variables and they were analyzed to create the figures and charts relevant to the study.

Data Analysis and Results:

The initial search yielded 177 preliminary results. The eligible top 100 most-cited sources were composed of 97 articles, 2 early-access articles, and 1 review, with keywords: disparities, structural racism, residential segregation, and access to care.

440 authors, 178 institutions, and 46 journals were responsible for these publications. The Icahn School of Medicine at Mount Sinai was the top affiliated institution with 22 articles. The Journal of Racial and Ethnic Disparities was the highest publisher in this field with 13 articles.

These papers outline important connections between disease prevention and care and geographical determinants of health, like socioeconomic status and zip code identification as well as patient perception of treatment.

Figure 1. Authors with two or more articles in the top 100 cited

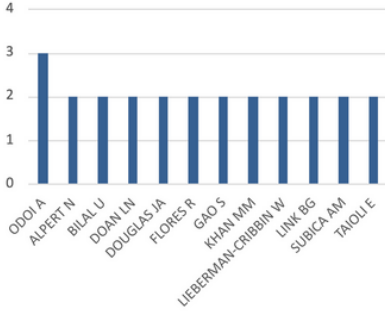
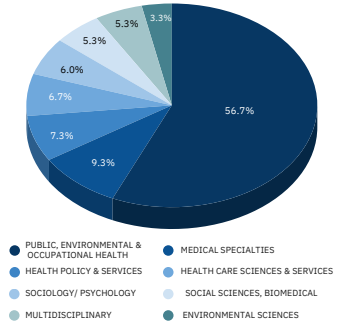


Figure 2. Article Topics by Percentage



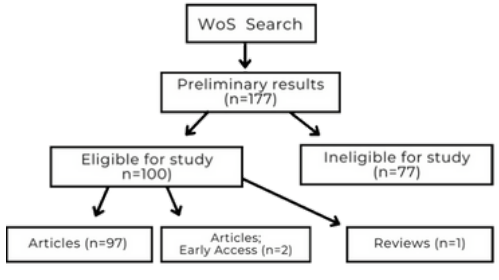


Figure 3. Extracted Literature flow Chart

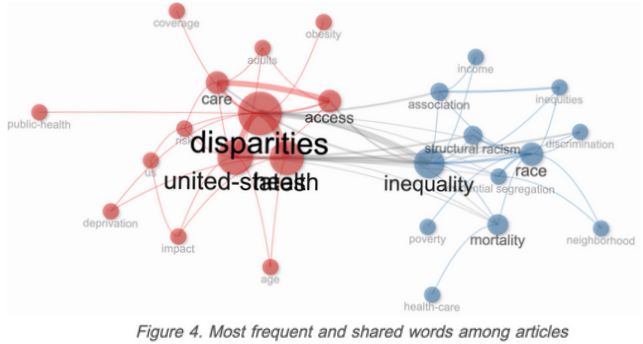


Figure 4. Most frequent and shared words among articles

Conclusion:

It is concluded from the data that zip codes impacted inequities of care that populations received for COVID-19. This correlation provides further insight into the persistent challenges that marginalized populations face and is a crucial step towards addressing the barriers in accessing healthcare. The prevalence of certain words in the data analysis suggests an inseparable link between the geographical determinants of health and other social determinants such as race, gender, and social class, showcasing how these factors impact access to care simultaneously. In the future, it is imperative to consider the broader socioeconomic context within specific zip-code regions to reduce the burden of disease on marginalized populations. In addition, the literature review describes how "poor" zip code areas received fewer resources in medical treatment, diagnosis, vaccination, and accessible information than affluent neighborhoods. The sources establish that rural Americans and minority populations are distrustful of COVID-19 vaccinations, stemming from historical harm inflicted by past governments. From this extracted data, researchers, policymakers, health providers, and patients can construct targeted interventions and policies to proactively prepare for future public health emergencies, among the likes of COVID-19 while also engaging public trust and atoning for past wrongdoings, paving the way for a more equitable healthcare system.

References:

- Web of Science
- Biblionshiny
- R Studio Platform