Bridging Gaps: Investigating COVID-19's Influence on Health Disparities in Connecticut

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Abstract

Social determinants of health (SDOH) are the conditions in which people are born, grow, live, work, and age, which significantly influence their overall health and well-being. These determinants include factors such as socioeconomic status, education, access to healthcare, and the physical environment. Understanding the interactions of these elements will be essential for addressing health disparities and developing more effective public health policies and interventions.

1 Introduction

Current research focuses on how social determinants of health (SDoH) plays a massive impact on one's health; it is estimated that 80 percent of a population's health outcomes are dictated by SDoH (Hood et al., 2016). Often, SDoH, when referring to an individual, can result in racial disparities in care when looking at a population(Monroe et al., 2023). It has been shown that major inefficiencies in the health system are attributed to overlooked prevention opportunities and unequal access to care.(Allin et al., 2014)

Understanding the intricate interplay of these social determinants is crucial in addressing health disparities and developing effective public health policies and interventions. The COVID-19 pandemic has shed new light on these disparities, amplifying existing inequalities within various communities. This research topic gains paramount importance in the current context as it seeks to delve into the specific impact of COVID-19 on key social determinants of health in different counties and racial groups in Connecticut.

The existing literature underscores the pressing need for research in this area. Studies have shown that predominantly black counties in the United States experience significantly higher COVID-19 infection and mortality rates, emphasizing the racial disparities prevalent in healthcare outcomes. The pandemic has magnified these discrepancies, leading to mortality rates among historically marginalized minority communities that are 1.9 to 2.4 times higher compared to the general population (Badalov et al., 2022). Additionally, inefficiencies

in the healthcare system have been attributed to overlooked prevention opportunities and unequal access to care, necessitating a comprehensive examination of these social determinants in the context of the pandemic.

Despite the growing body of research on SDOH, there is a notable gap concerning the specific impact of COVID-19 on these determinants within diverse communities. This research aims to bridge this gap by comprehensively assessing how the pandemic has influenced key social determinants of health across various counties and racial groups in Connecticut. By identifying the specific ways in which different communities were affected, this study contributes valuable insights for targeted interventions, policy-making, and the development of equitable healthcare strategies.

The rest of the paper is organized as follows.

The data will be presented in Section3

The methods are described in Section2

The results are reported in Section4

A discussion concludes in Section5

2 Methods

In this study, descriptive statistics is utilized to outline the total population, racial composition, education levels, and average rehospitalization rate across the 8 counties in Connecticut. ANOVA tests were conducted to assess the significance of the difference of the variables of median income, poverty level, health insurance, utilities access, and electronics access between counties and across the four years (2017, 2018, 2019, 2020). Additional Tukey's HSD tests were conducted to determine the specific counties and years that have had significant differences within each of the variables for each county.

3 Data

Data was collected from The Agency for Healthcare Research and Quality (AHRQ).The dataset comprises 7 variables spanning a period of 4 years (2017, 2018, 2019, 2020) with observations across the 8 counties in Connecticut. These variables encompass a total of 56 observations. The variables questions include housing, education level, income, insurance, rehospitalization rates, food stamps usage, and population racial characteristics. The dataset includes a range of calculated percentages, median values, and raw observations, providing a holistic view of various factors affecting the communities in these counties.

4 Results

5 Discussion

The results of the analysis shed light on the intricate relationships between county, race, and key variables such as median income, housing affordability, rehospitalization rates, food stamps usage, uninsured rates, and racial demographics. Understanding these correlations

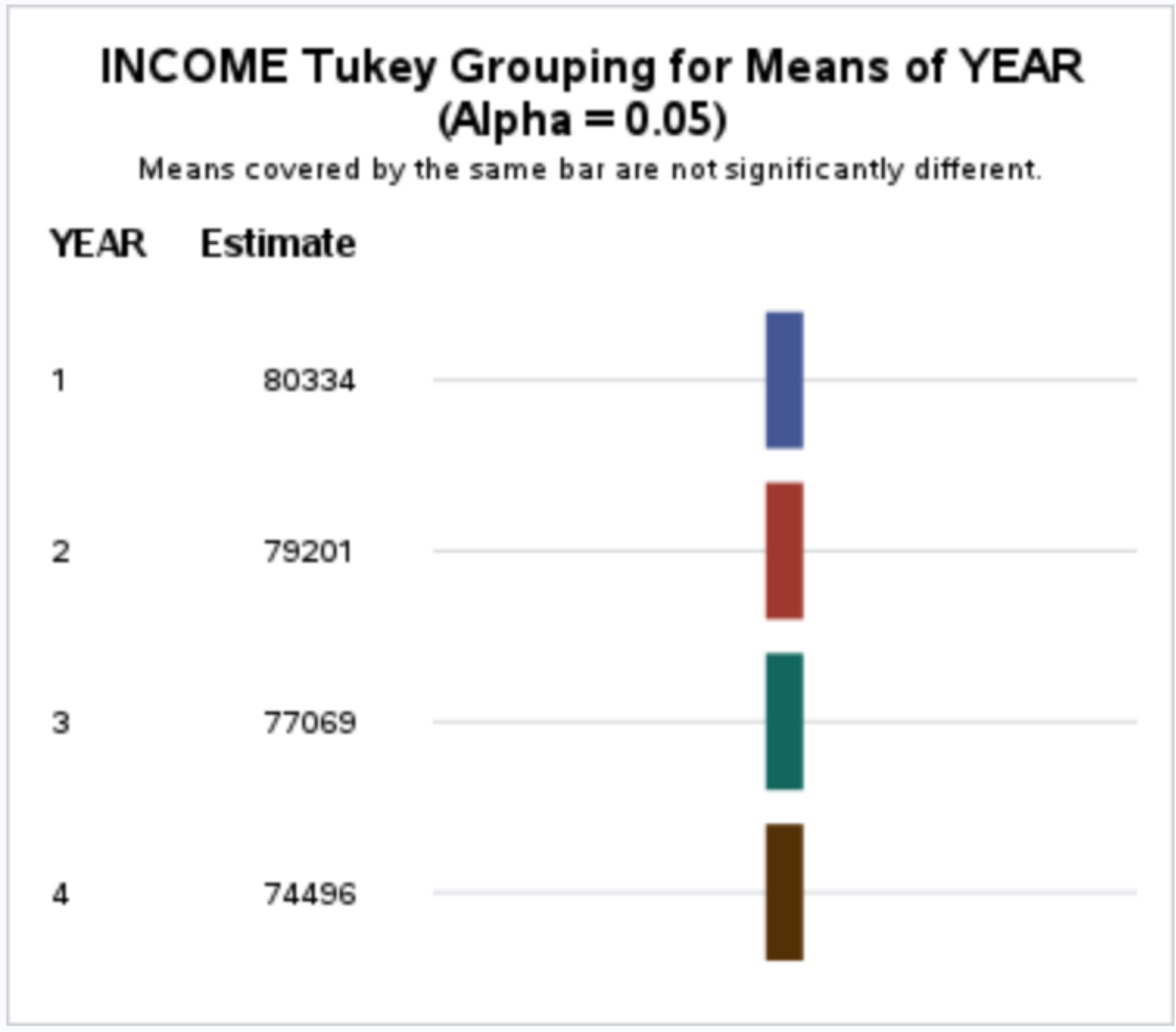

Figure 1: Median Income by Year.

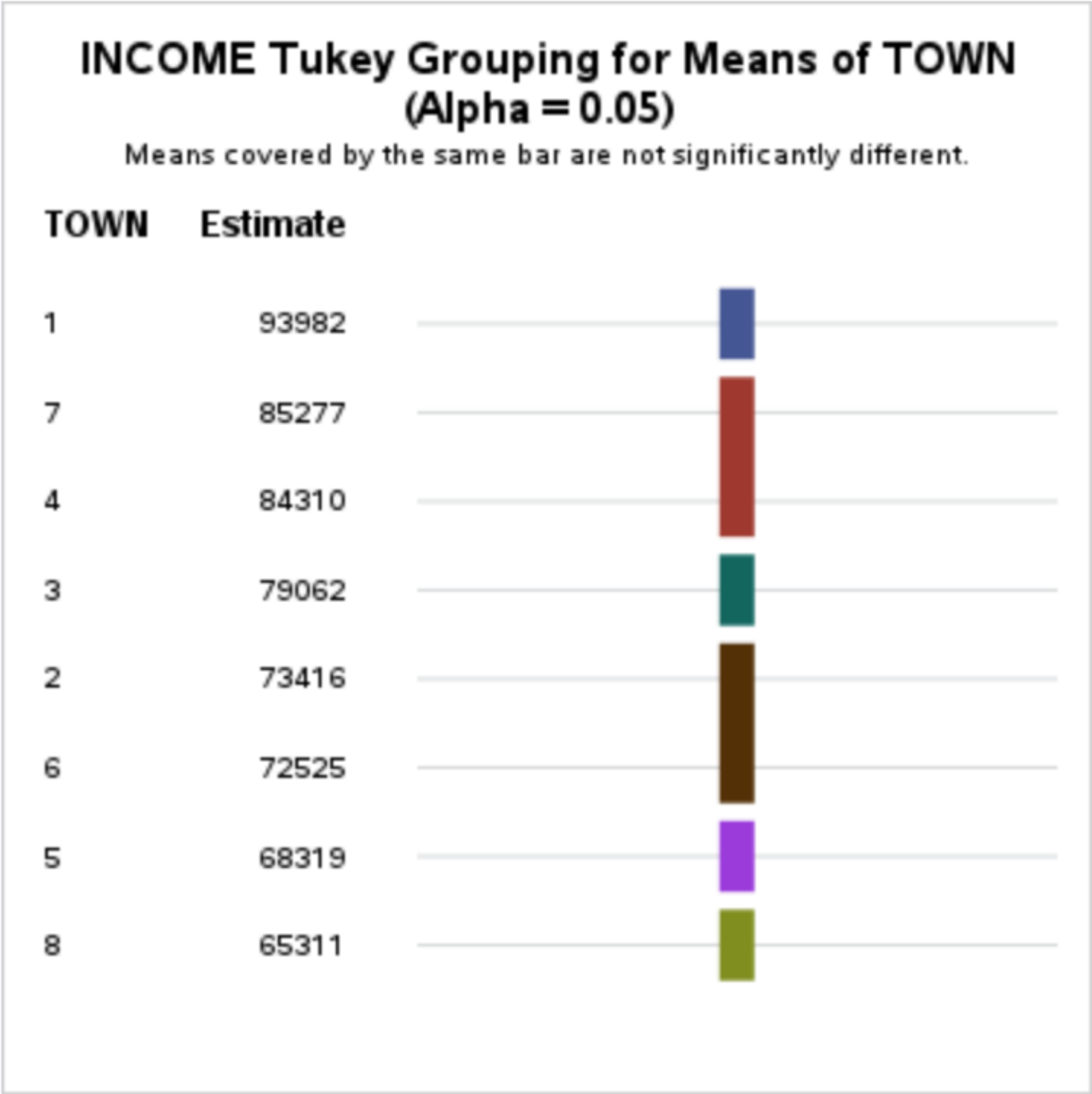

Figure 2: Median Income by County.

Table 1: Demographics and Education Levels by County

CATEGORY	Fairfield County	Hartford County	Litchfield C
Total Population	944977	894465.25	182657
RACE			
American Indian and Alaska Native race alone	0.24	0.3075	0.2025
Asian	5.2925	5.2925	1.9
Black or African American	11.405	13.7025	1.83
Native Hawaiian and Pacific Islander	0.055	0.035	0
White	72.6325	70.67	92.602
Ethnicity			
Hispanic	19.53	17.8275	6.15
Average rehospitalization rate in the county		0.1575	0.14
Education			
Associates	20.74	25	27.922
Bachelor	26.53	21.4575	20.635
Graduate Degree	21.14	16.475	14.697
HS Graduate	21.4725	26.7175	29.587
Less than High School	10.12	10.3525	7.1575

is vital in comprehending the socio-economic and racial disparities prevalent in the studied region.

5.1 Median Income

The disparity in median income across the four years highlights economic fluctuations, with 2020 exhibiting the highest income levels. County-wise analysis indicates stark differences, particularly in County 1, which consistently outperforms others. This discrepancy in wealth signifies potential disparities in access to resources and opportunities, which can significantly impact health outcomes.

5.2 Housing Affordability

The stable trend in the percentage of renters spending 50 percent of their income on rent suggests a consistent challenge faced by residents across the years. County 1 and 5 facing significantly higher rates reflect housing affordability issues, possibly indicating economic strains experienced by residents in these areas.

5.3 Rehospitalization Rates

The absence of significant differences in rehospitalization rates by both county and year indicates a consistent healthcare landscape. However, it's crucial to explore the reasons behind this stability to identify potential factors contributing to the overall health system's effectiveness.

5.4 Food Stamps Usage

Counties 8, 2, and 5 having higher percentages of the population on food stamps imply economic challenges faced by residents in these regions. This data aligns with the housing affordability trends, suggesting a potential link between financial struggles and reliance on government assistance programs.

5.5 Uninsured Rates

County 1's consistently high uninsured rate points towards a significant healthcare accessibility issue, possibly linked to economic factors impacting insurance affordability. Year 3's (2019) lower uninsured rate signifies a positive change; understanding the policies or interventions during this period could offer valuable insights into effective healthcare reforms.

5.6 Racial Disparities

The racial demographics highlight disparities in various counties. County 3's higher percentage of white individuals, coupled with County 2, 5, and 1 having the highest black population, points to the need for targeted interventions addressing racial health inequalities. These disparities might be indicative of historical, social, and economic factors influencing the healthcare experiences of different racial groups.

5.7 Limitations

One limitation lies in the availability and quality of data. This dataset does not have any data from years after 2020 which may serve to limit potential external validity considerations. There may also be variability in data collection methods and discrepancies in reporting standards leading to missing or incomplete data over the course of 4 years. Another limitation involves the scope of the study, focusing on specific counties in Connecticut may not fully capture nationwide disparities. Additionally, the research is limited to the factor parameters selected to investigate which might not encompass all relevant social determinants affecting health outcomes.

5.8 Future Directions

These findings underscore the complex interplay between socio-economic status, race, and health outcomes. Addressing these disparities requires multifaceted interventions, including economic support, affordable housing initiatives, and targeted healthcare access programs. Future research should delve deeper into the root causes of these disparities, considering historical and systemic factors. Additionally, policy interventions and community-based programs should be designed to specifically target areas and populations facing the most significant challenges, aiming for a more equitable healthcare landscape for all residents.

References

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