

# 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 Section 3

The methods are described in Section 2

The results are reported in Section 4

A discussion concludes in Section 5

## 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

What are the main contributions again?

What are the limitations of this study? 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

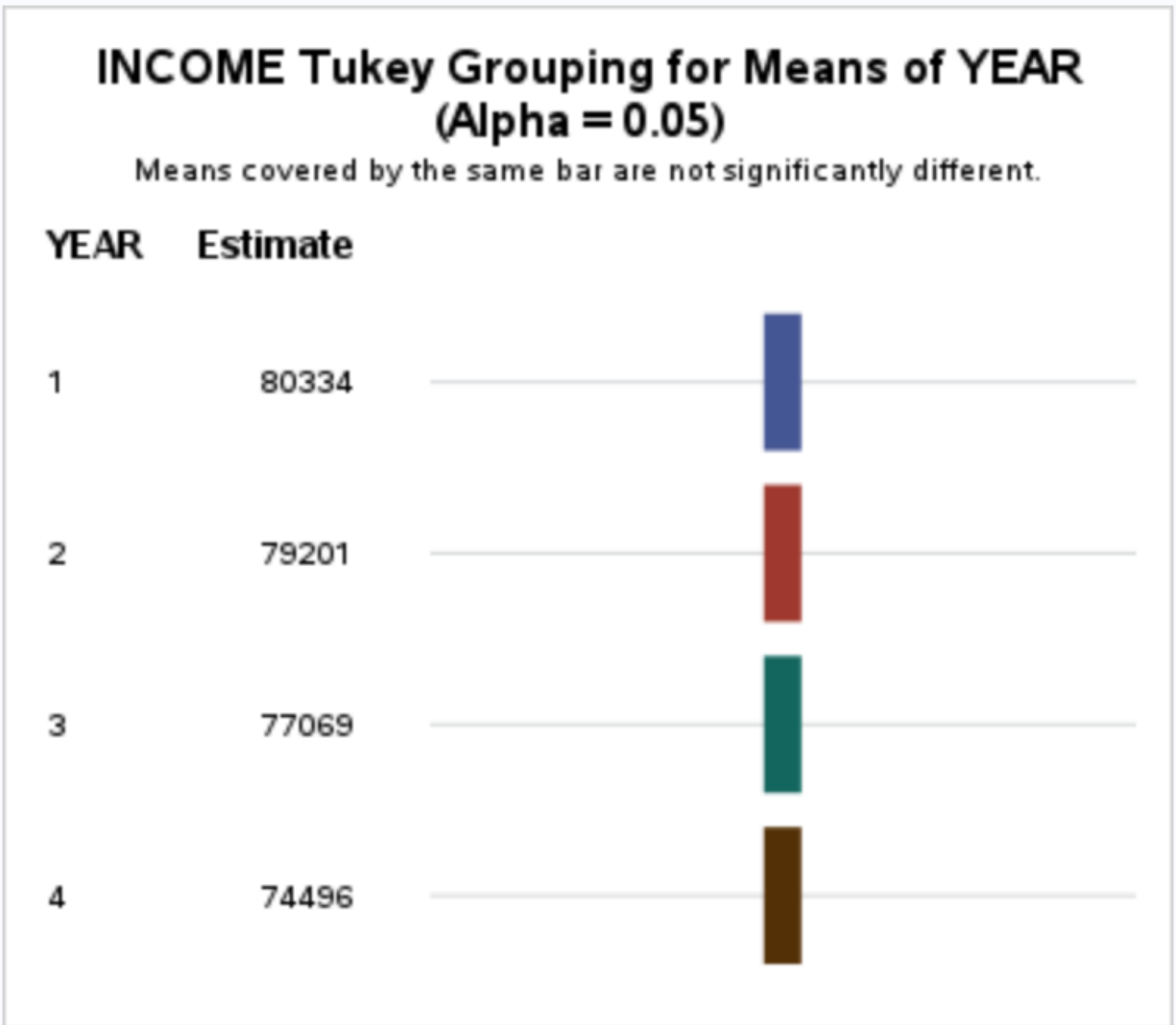


Figure 1: Median Income by Year.

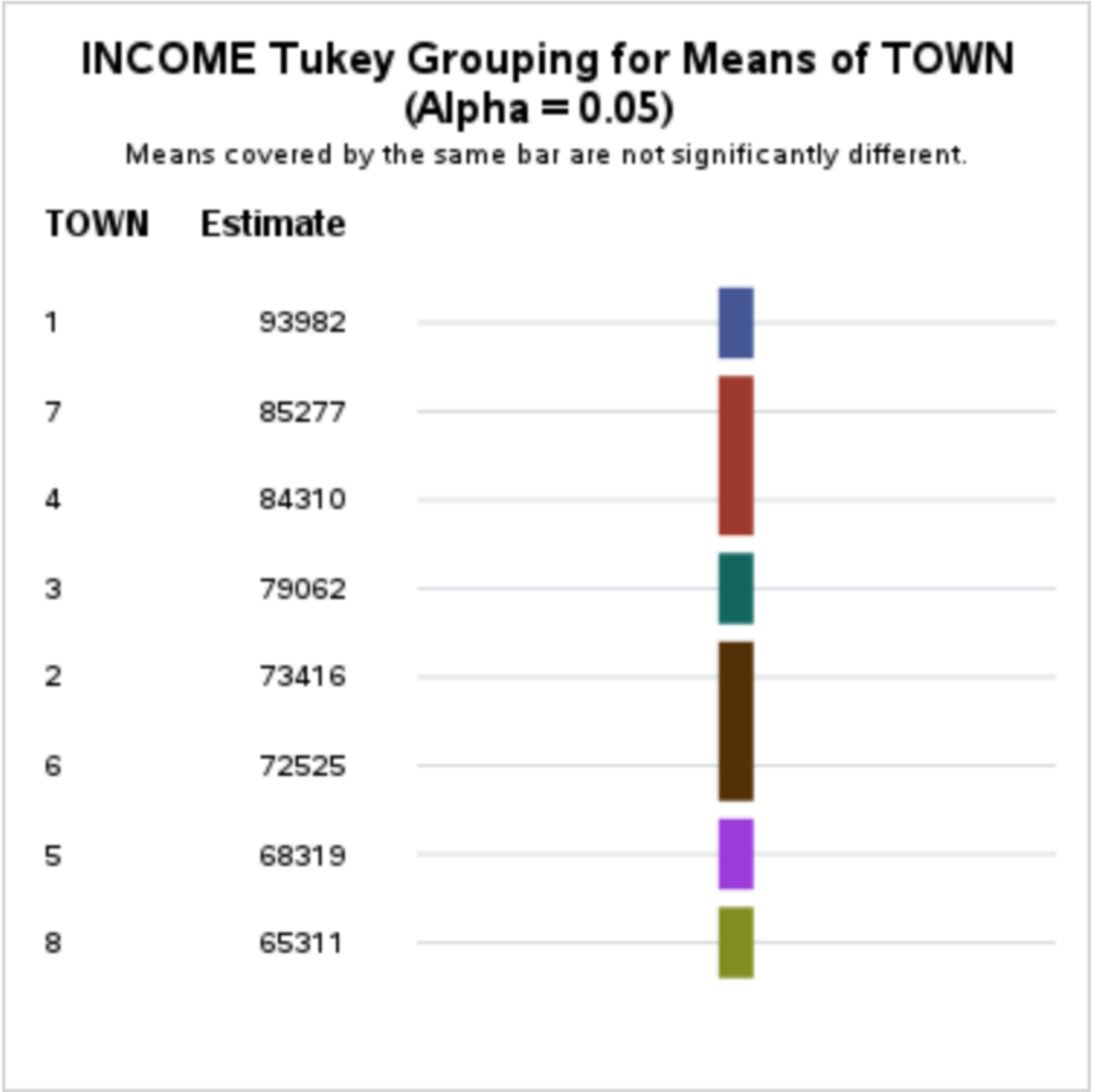


Figure 2: Median Income by County.

Table 1: Demographics and Education Levels by County

CATEGORY	Fairfield County	Hartford County	Litchfield County
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	92.6025
Ethnicity			
Hispanic	19.53	17.8275	6.15
Average rehospitalization rate in the county		0.1575	0.14
Education			
Associates	20.74	25	27.9225
Bachelor	26.53	21.4575	20.635
Graduate Degree	21.14	16.475	14.6975
HS Graduate	21.4725	26.7175	29.5875
Less than High School	10.12	10.3525	7.1575

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.

What are worth pursuing further in the future?

## References

- Allin, S., D. Ridgeway, L. Wang, E. Graves, J. Harvey, and J. Veillard (2014). *Measuring the Level and Determinants of Health System Efficiency in Canada*. Ottawa, Ontario: Canadian Institute for Health Information. ISBN 978-1-77109-268-5.
- Badalov, E., L. Blackler, A. E. Scharf, K. Matsoukas, S. Chawla, L. P. Voigt, and A. Kuflik (2022). Racial/ethnic differences in social determinants of health and health outcomes among adolescents and youth ages 10-24 years old: a scoping review. *Int. J. Equity Health* 21(1), 76.
- Hood, C. M., K. P. Gennuso, G. R. Swain, and B. B. Catlin (2016). County health rankings: Relationships between determinant factors and health outcomes. *American Journal of Preventive Medicine* 50(2), 129–135.
- Monroe, P., J. A. Campbell, M. Harris, and L. E. Egede (2023). Racial/ethnic differences

in social determinants of health and health outcomes among adolescents and youth ages 10-24 years old: a scoping review. *BMC Public Health* 23(1), 410.