Spatial-temporal Analysis of Paxlovid Dispensing Patterns within Los Angeles County in California

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BACKGROUND

In mapping the spatial distribution of Paxlovid dispensing rates, we aim to identify whether there is clustering of pharmaceutical care in certain communities based on predictors for higher dispensing rates such as accessible pharmacies and other factors including socioeconomic elements. Disparities in healthcare access and outcomes have been observed in various aspects of healthcare, and the COVID-19 pandemic has further accentuated these inequities. In 2022, the CDC reported racial and ethnic disparities in outpatient treatment for COVID-19 in the US during the specified period,[3] emphasizing the importance of addressing these disparities to meet the needs of the communities directly affected by the pandemic and to safeguard public health.

OBJECTIVES

To assess how spatial-temporal shifts in dispensing patterns in LA County were influenced by the expansion of the Test-to-Treat initiative and identify trends in the adoption of treatments across communities to inform public health strategies, healthcare policies, and clinical practices to better manage public health crises in the future
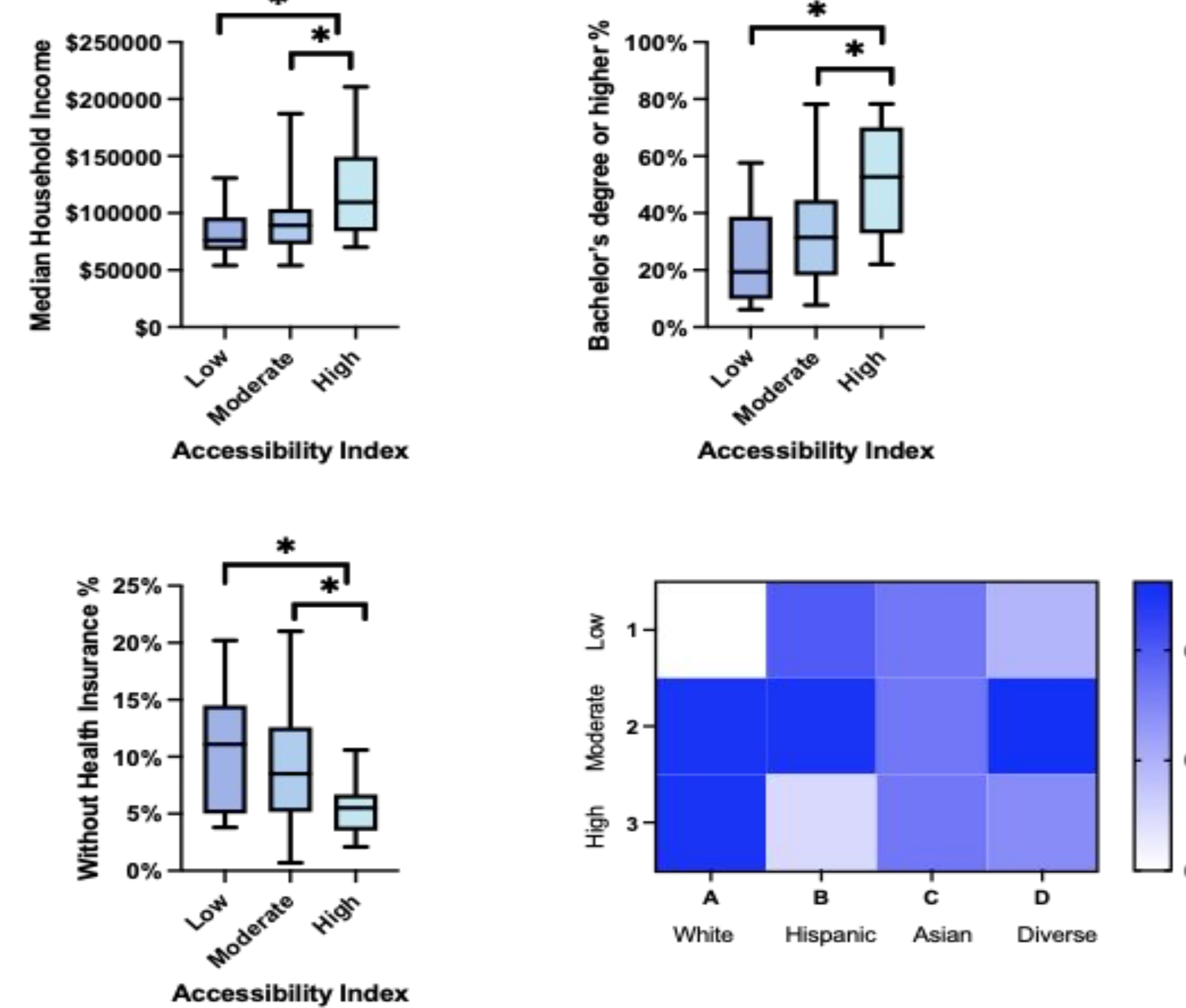
METHODS
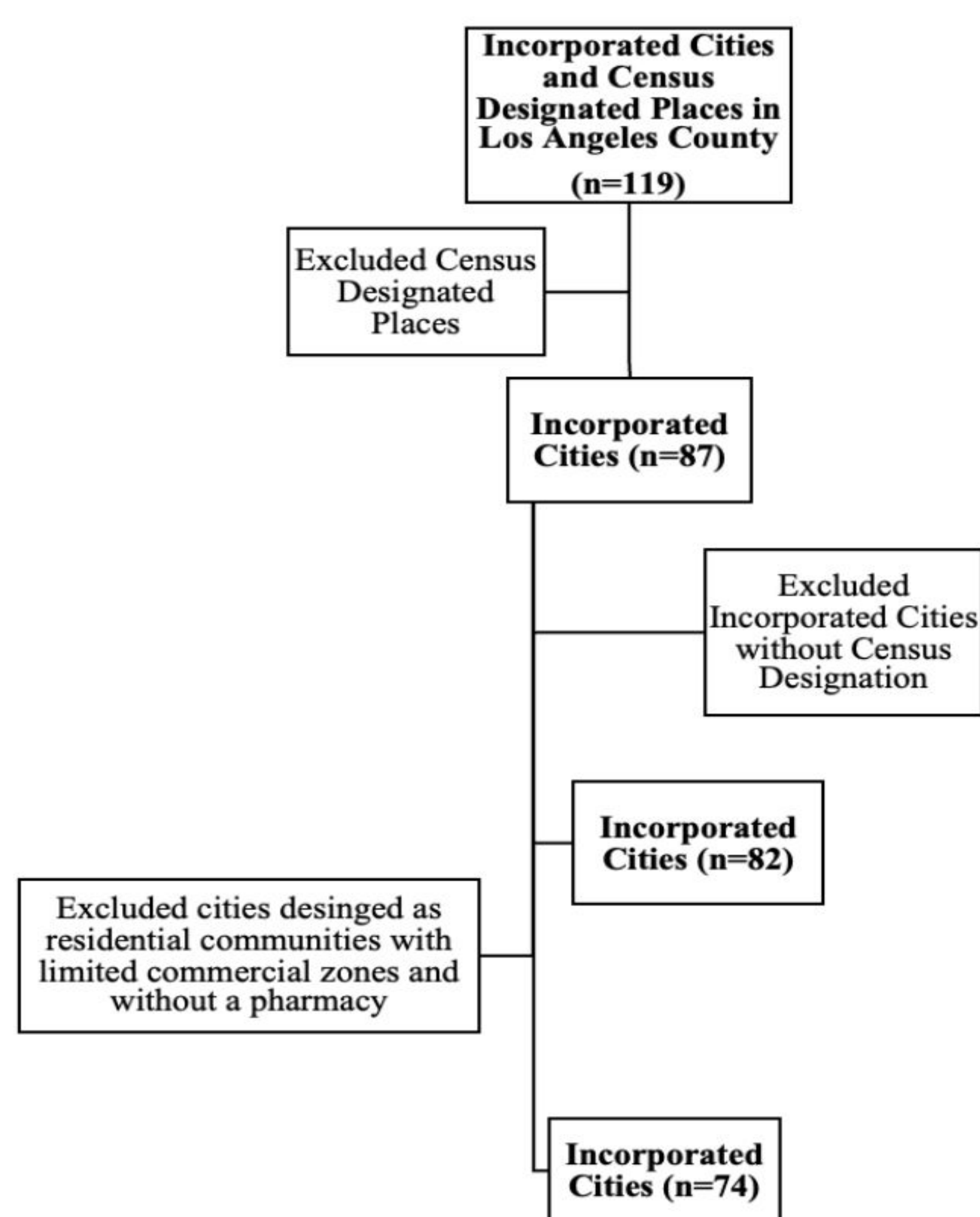
Accessibility Index is the metric used to assess the availability of Paxlovid in community pharmacies based on the quantity of locations within the boundaries of the city in LA County with active inventory per capita throughout the specified period; <25th percentile is considered low, 25th to 75h percentile is considered moderate, and >75th percentile is considered high.

RESULTS

Figure 1: Sociodemographic Characteristics of LA County Cities based on Accessibility Index in December 2023

Figure 2: COVID-19-Related Risk Factors and Outcomes for LA County Cities based on Accessibility Index in December 2023

Supplementary Figure 1: Total Quantity of Paxlovid Dispensing Sites in LA County
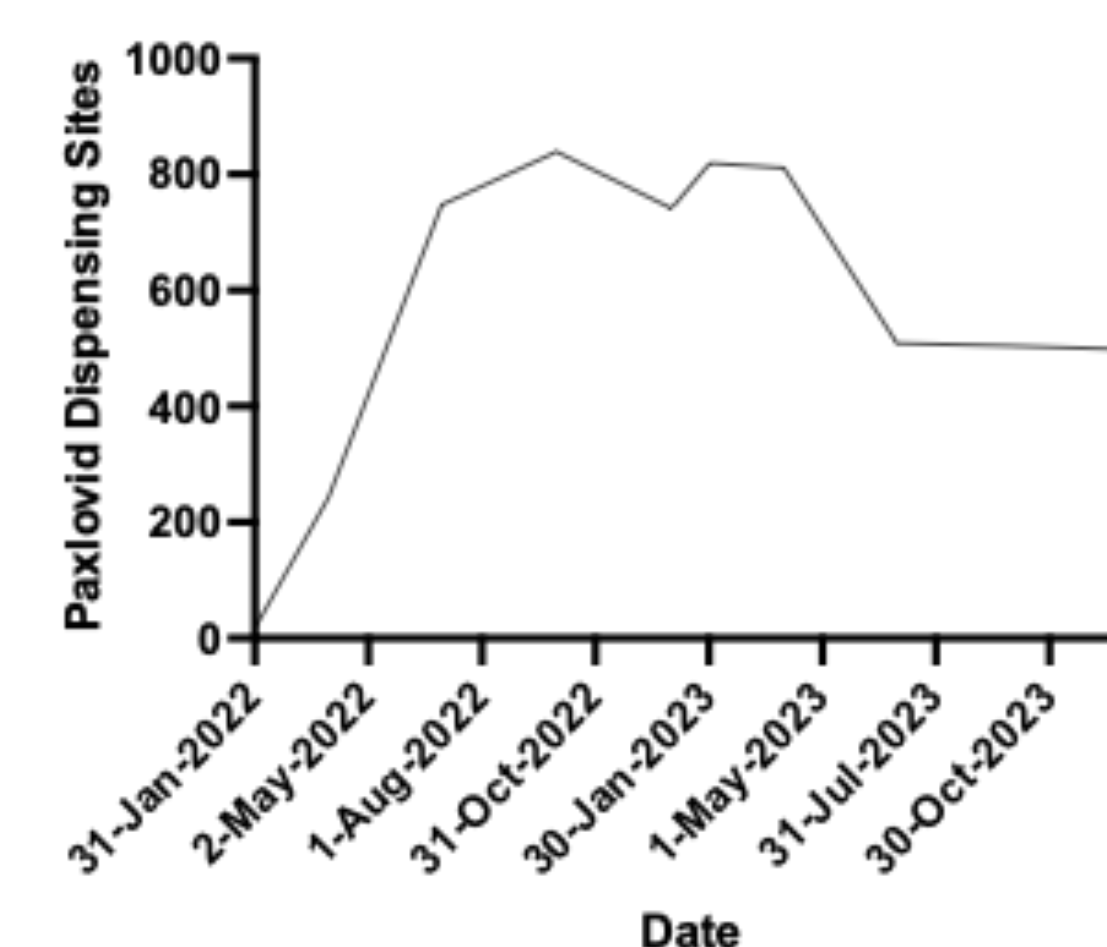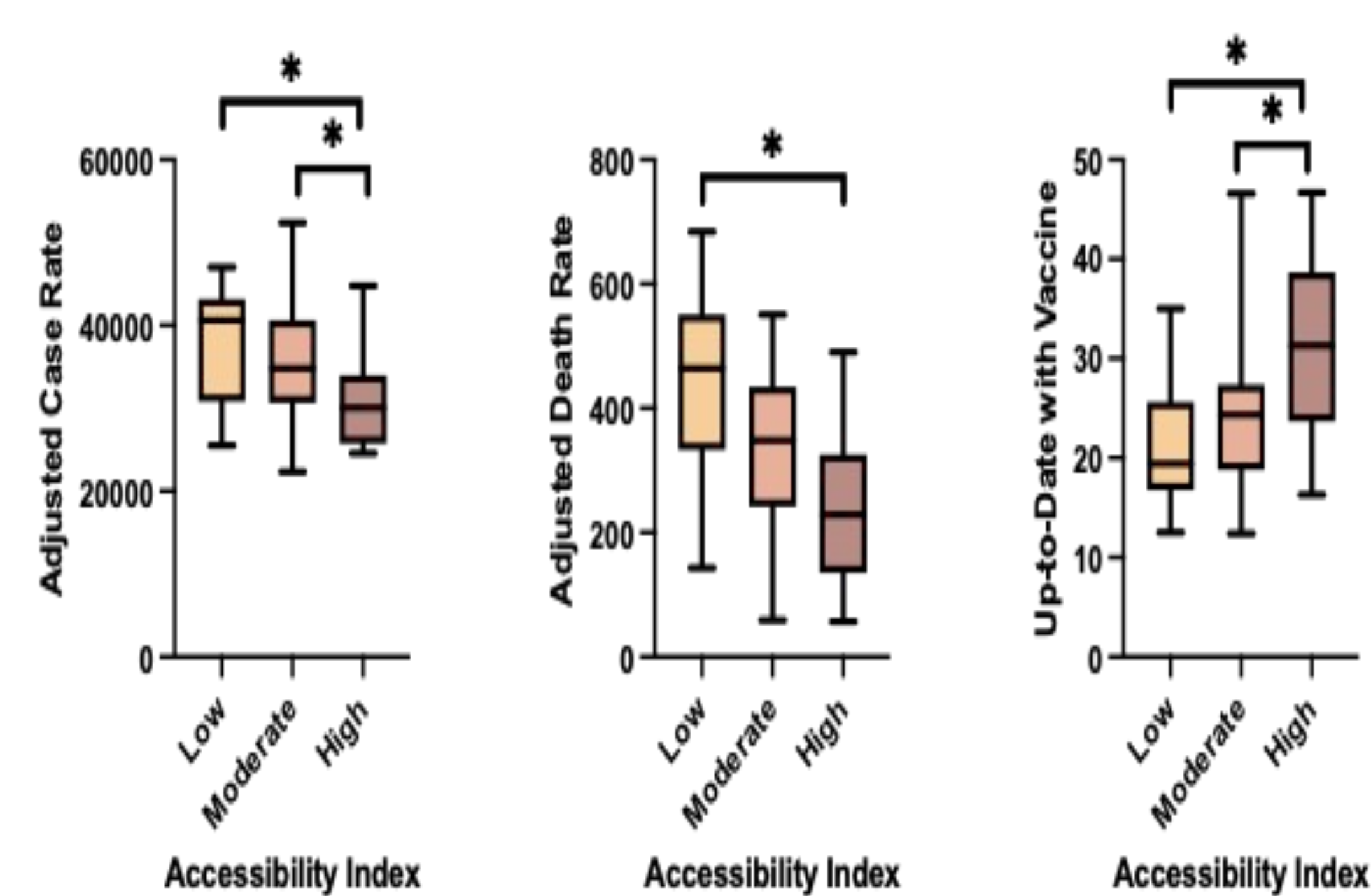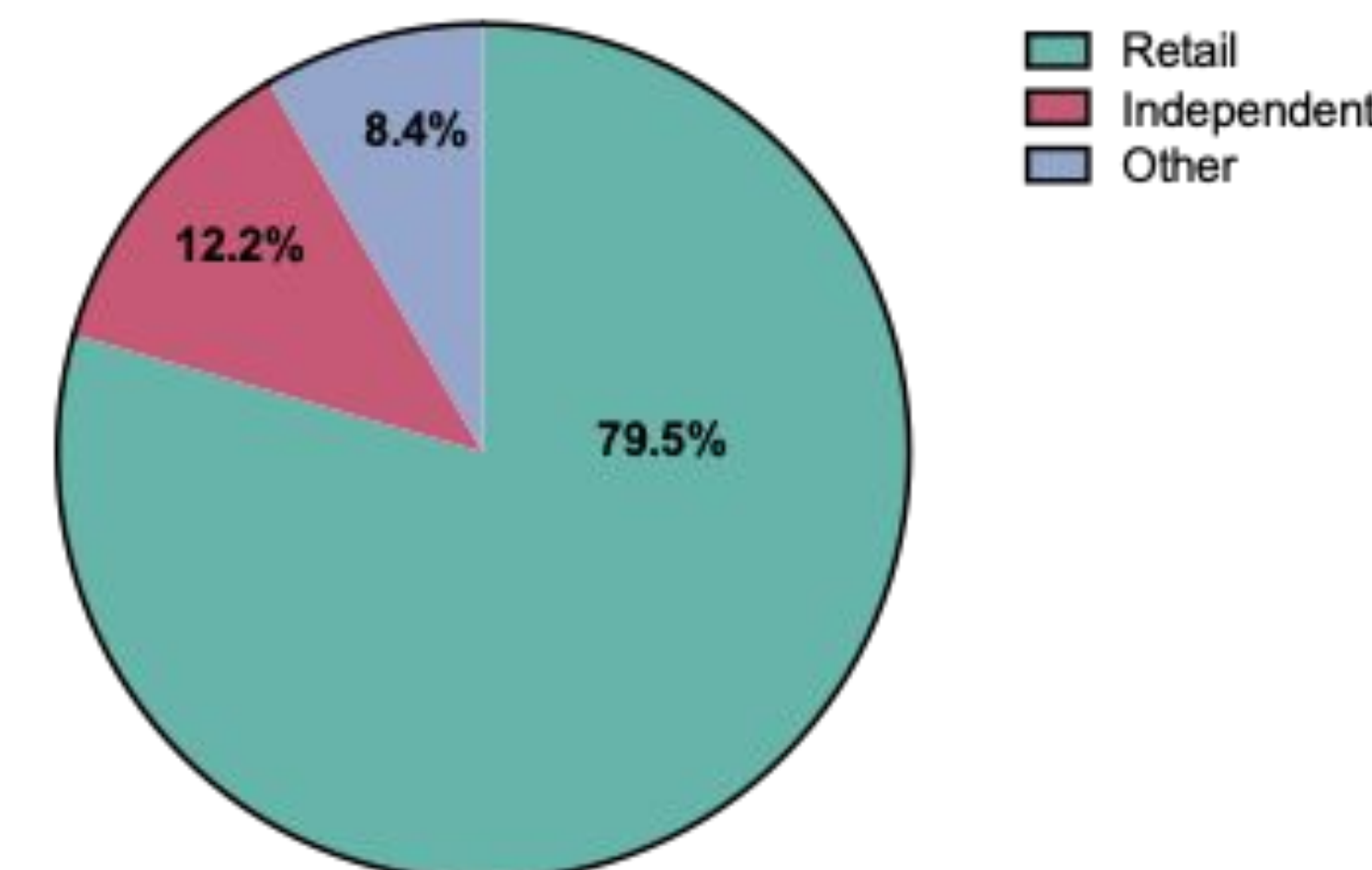

Supplementary Table 1: Paxlovid Dispensing Community Pharmacies by Setting Type in LA County

DISCUSSION

Cities in LA County who had high availability of Paxlovid accessible via community pharmacies throughout the first week of December 2023 tended to have a higher median household income, higher percentage of individuals over 25 years of age having attained a bachelor's degree or higher, and lower percentage of individuals under 65 years of age without health insurance **(Figure 1A-C)**. All cities in LA County with a predominantly white, non-Hispanic composition exhibited either moderate or high accessibility with an even distribution between these indices, with none exhibiting low accessibility **(Figure 1D)**. Cities in LA County with a predominantly Hispanic composition exhibited either low or moderate accessibility, with the distribution skewed towards moderate with a notably limited distribution into the high accessibility index **(Figure 1D)**. Cities in LA County with a predominantly Asian composition exhibited a uniform distribution into the three indices **(Figure 1D)**. Cities in LA County with a diverse composition exhibited moderate accessibility with the remainder distributed into either the low or high accessibility index with a slightly higher distribution into the high accessibility index **(Figure 1D)**. Cities in LA County with a high accessibility index had a lower adjusted case rate and death rate, both of which were derived cumulatively over the course of the pandemic with initial reporting in March 2020 to December 2023 **(Figure 2A-B)**. Cities in LA County with a high accessibility index also had a higher proportion of persons over the age of 65 years that are up-to-date with their COVID-19 immunization series as of December 2023 **(Figure 2C)**.

CONCLUSIONS

Our findings illustrate the persistence of disparities in access to COVID-19 outpatient treatments first reported by the CDC in October 2022 and contribute nuanced insights into how to incorporate a more targeted response. As the evidence clearly demonstrates a persistence of disparities in spite of efforts to address these disparities with strategies and policies implemented by the CDC in collaboration with the ASPR within the HHS, addressing these disparities requires a foundational understanding of their intricacies. An understanding of how the disparities varied across spatial-temporal dimensions is crucial for a more targeted, adaptable, and ultimately successful public health response. Our unit of analysis focuses on the community pharmacy locations that dispensed Paxlovid across cities within LA County.

Our findings intently focuses on Paxlovid as it remains the preferred outpatient treatment for mild to moderate COVID-19 in high risk patients and significantly surpassed all other available treatments in terms of utilization. It is imperative to note that any detailed insights should be interpreted within the context of cities within LA County. However, the broader insights and patterns identified may be relevant to other large metropolitan areas in the US.

ACKNOWLEDGMENT

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