Coronavirus (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was first identified in Wuhan, China and has globally infected over 11 million people.

Chronic health conditions, such as coronary heart disease (CHD), hypertension (HTN) and diabetes have been linked to increased rates of morbidity and mortality among COVID-19 cases.

In Louisiana, the highest rates of mortality due to COVID-19 was in Orleans Parish, HTN was the most prevalent across census tracts, 39.4%±9.73; with a smaller percent of residents having diabetes (13.7%) and CHD (8.4%) across census tracts.

Methods

An ecological analysis of the total cases of COVID-19 up to June 29, 2020 across 1,148 census tracts in the state of Louisiana was conducted

Data sources included the US Census Bureau, the Center for Disease Control and Prevention and the Louisiana Department of Health

Concentrated Disadvantage Index (CDI) was calculated at the census tract level in accordance with the Phen X Toolkit protocol, using American Community Survey 2018 estimates

Additional social and economic domains including housing, insurance, and education were explored in association with the prevalence of COVID-19.

Spearman rank correlations were calculated for prevalence of COVID-19 and CDI measures.

Negative binomial regression was used to evaluate the association between prevalence of COVID-19 and concentrated disadvantage, rates of chronic disease, and other housing and socioeconomic variables.

Multi-level analysis was used to explore mortality, fatality, and prevalence risk-ratios to show Black-White disparities by parish.

Results

In Louisiana, the mean prevalence of COVID-19 across census tracts was 11.2±6.7 per 1,000 cases and in Orleans parish the mean prevalence was 17.1±7.4 per 1,000 cases.

In Orleans Parish, HTN was the most prevalent across census tracts, 39.4%±9.73; with a smaller percent of residents having diabetes (13.7%) and CHD (8.4%) across census tracts.

In Orleans Parish, Black residents had a rate of COVID-19 of 17.1 per 100,000 cases, with 100 residents having COVID-19 mortality rate of 1.1 per 100,000 cases.

In Orleans Parish, Black residents had a mortality rate 1.64 times greater than White residents for COVID-19 mortality (RR=1.64, 95% CI 1.28-2.1) per 100,000 cases.

Conclusions

These preliminary analysis support the hypothesis that the risk of COVID-19 is higher among Black populations and the socially vulnerable, including groups of lower social economic status.

Further analyses are planned to continue to explore measures of SDOH and determine whether the results are consistent in areas of concentrated disadvantage and high social vulnerability across the country.