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"Environmental Health Disparities and COVID-19: How air pollution is worsening outcomes for Black communities in Cancer Alley"

Coronavirus Disease 2019 (COVID-19) emerged in Wuhan city, and the outbreak has evolved rapidly worldwide. COVID-19 is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and it has spread from person to person, mainly through respiratory droplets that can land in the mouth or nose and be inhaled by the lungs. Older adults and those with comorbidities such as hypertension, diabetes, cardiovascular disease, and respiratory system diseases tend to experience severe COVID-19 outcomes. These comorbidities are more prevalent in Black individuals. As a result, Black communities have been disproportionately affected by the virus. The health disparities in the Black population have existed prior to the pandemic and have made the Black population more vulnerable to dying from COVID-19.

Eleven Louisiana parishes along the Mississippi River, known as "Cancer Alley," comprise an 85-mile stretch of land between Baton Rouge and New Orleans. This area has a high concentration of chemical plants and is primarily Black and low income. Recent media reports indicate that within Louisiana, this area was severely impacted by the current pandemic, and past research shows an increase in long term exposure to air pollution can lead to an increase in the COVID-19 death rate. It has been proposed that the high levels of air pollution caused by chemical plants in this area contribute to the comorbidities that cause COVID-19 complications, disproportionately impacting the people who live in this area. The purpose of this study was to evaluate COVID-19 cases and deaths in the 11 Louisiana parishes along the Mississippi River. We hypothesize that these 11 parishes will have higher death rates than the entire state of Louisiana, and we believe the death rates will be higher in the Black population compared to the White population.

Data from the Louisiana Department of Health was collected for the 11 Mississippi River parishes, and infection, mortality, and case-fatality rates were calculated and compared to the entire state. Deaths and mortality rates among the Black and White population of the 11 parishes were determined and compared to those of the entire state. Relative risk ratios of cases and deaths of these parishes were calculated and compared to the remaining 53 Louisiana parishes. Additionally, the relative risk ratios of death among Blacks compared to Whites were determined for Louisiana and the 11 Mississippi River parishes.

The results of this study demonstrate that the majority of the 11 Mississippi River parishes have a higher case, death, and case-fatality rates than the state of Louisiana. The relative risk of cases and deaths in the 11 Mississippi River parishes is higher than the state of Louisiana. Also, the relative risk of deaths among Blacks compared to Whites is higher in Cancer Alley than the state of Louisiana. These results show how pre-existing health disparities, which are related to historical and current inequities and injustices in social, political, economic, and environmental factors, have worsened the effects of COVID-19 in the Black population. Further research and policy actions are required to dismantle the systems that contribute to these unequal health outcomes.