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Fundamental Causes of Racial and Ethnic COVID-19-Related Health Disparities

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Fundamental Causes of Racial and Ethnic COVID-19 Related Health Disparities

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What are the root causes of racial and ethnic COVID-19 morbidity and mortality disparities?

Purpose

To write a literature review that bridges the gap in research evaluating health outcome disparities by connecting both public health and molecular biology. This review looks at the connection between COVID-19 and hypertension on a cellular level exploring how the ACE-2 receptor connects the two diseases and how systemic racism perpetuates health disparities which cause disproportionate morbidity and mortality rates.

Background Information

- ❖ SARS-CoV-2 virus created the COVID-19 pandemic which has claimed the lives of over 3 million people globally.
- ❖ COVID-19 Disparities in Race (Mortality and Morbidity)
 - 19.1% Covid deaths = White
 - 33% Covid deaths = Latinx
 - 42.8% Covid deaths = Black
- ❖ Hypertension effects Black people more than white people
 - 46% of White people have hypertension
 - 54% of Black people have hypertension
- ❖ Hypertension is a co-morbidity factor of COVID-19
 - 24% of people with severe COVID-19 reaction also had hypertension

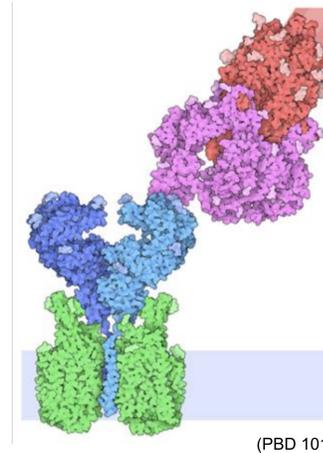
Methods

- ❖ Literature review of 65 peer reviewed sources
- ❖ Google Scholar and Chapman Leatherby Library Database
- ❖ Search terms: COVID-19, SARS-CoV-2, hypertension, health disparities, structural racism, systemic racism, education inequalities, allostatic load, ACE-2, ARBs, ACEI, chronic stress
- ❖ Selected papers that talked about molecular biology of COVID-19, health disparities of COVID-19, structural racism and allostatic load.

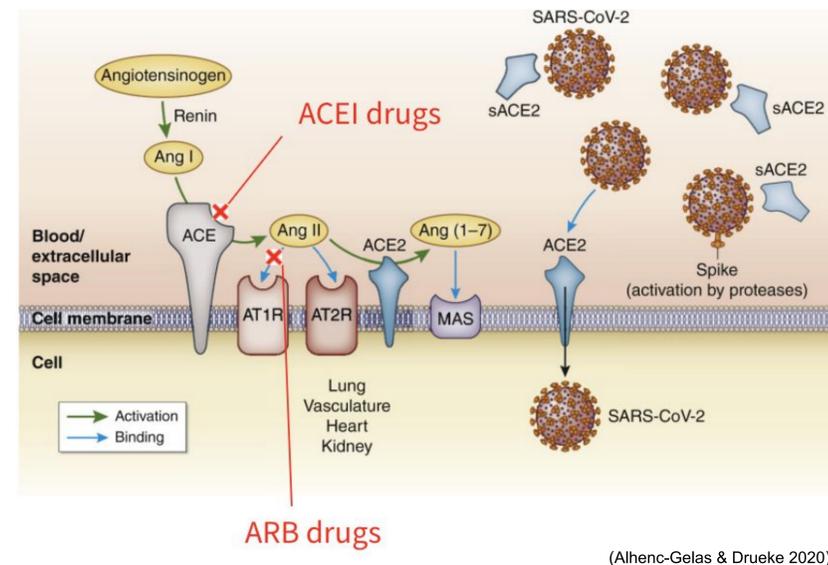
Results & Conclusions

Cellular Explanation: People with hypertension are more susceptible to COVID-19 because both act on the same receptor ACE-2

- ❖ ACE-2 Receptor
 - Used in regulating blood pressure
 - Used by SARS-CoV-2 to bind to the host cell
- ❖ ACEI and ARBs drugs treat hypertension but improve ACE2 receptor abilities and produce more receptors
- ❖ 3 important hypertension drug studies
 - Increase expression of ACE-2 but not in respiratory cells
 - No increased risk of mortality
 - No increased risk of morbidity (positive COVID-test)



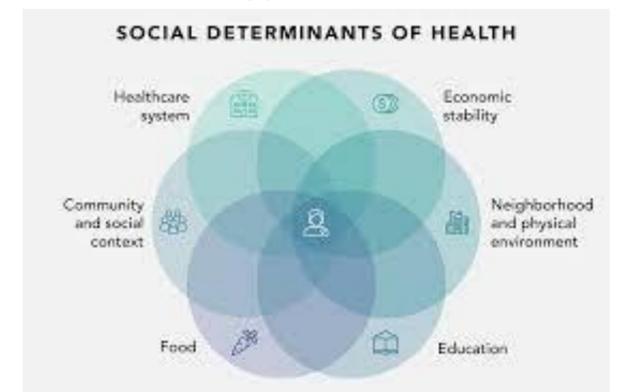
(PBD 101)



(Alhenc-Gelas & Druke 2020)

Systemic Racism Explanation: Systemic racism perpetuates poor health and chronic stress in POC which makes them more susceptible to COVID-19

- ❖ **Why do POC have worse health/higher hypertension?**
 - Racism = more chronic stress
 - Worse health behaviors
 - Hypertension
 - Weaker immune system
 - More susceptible to COVID-19
 - Racism = live in lower-income communities
 - Poor healthcare services
 - Less economic resources
 - Lower quality education
 - Neighborhood disadvantage (environmental racism, food swamps / deserts, closer proximity)



("Uncovering social determinants of health in your EHR data")

Conclusion: It is concluded through this review that these health disparities do not stem from the connection between hypertension and increased risk of COVID-19 contraction for people of color. Instead, racial and ethnic COVID-19 related mortality and morbidity disparities are a function of systemic racism.