Bhattacharyya, A., Seth, A., Srivastava, N., Imeokparia, M., & Rai, S. (2020). Coronavirus (COVID-19): A Systematic Review and Meta-analysis to Evaluate the Significance of Demographics and Comorbidities. University of Louisville, SK Patent Associates, LLC, University of South Carolina. https://doi.org/10.21203/rs.3.rs-144684/v1

## Definitions

- **COVID-19:** A disease caused by the novel coronavirus SARS-CoV-2, leading to respiratory illness.

- **Comorbidities:** The presence of one or more additional medical conditions co-occurring with a primary condition.

- **Systematic Review:** A research method that involves systematically searching, appraising, and synthesizing research evidence.

- **Meta-analysis:** A statistical analysis that combines the results of multiple scientific studies.

## Key Findings

- COVID-19 affects people of all ages, but older adults and those with preexisting conditions are at higher risk.

- Common symptoms include fever, fatigue, dyspnea (difficulty breathing), and cough.

- Prevalent comorbidities in COVID-19 patients are hypertension, diabetes, cardiovascular diseases (CVD), and chronic obstructive pulmonary disease (COPD).

- In the US, COVID-19 has a higher infection rate in females, but a higher death rate in males. Whites and Hispanics have higher infection and death rates compared to other races.

## Introduction

The study reviews the impact of COVID-19 based on demographics and comorbidities. It analyzes how age, sex, and race affect the infection and mortality rates of COVID-19, especially in the United States.

## Main Content

### Background

COVID-19 emerged in December 2019 in Wuhan, China, and quickly became a global pandemic. The study aims to provide insights into the disease's impact on different demographic groups and those with various health conditions.

### Methods

Researchers reviewed articles from PubMed and Google Scholar, focusing on studies from December 2019 to August 2020. They used data from the US CDC to analyze the significance of age, sex, and race in COVID-19 cases and deaths.

**Results**

**Demographics in China**

- Average age: 50.63 years

- 55.7% of patients were male

- Common symptoms: fever (86.5%), fatigue (41.9%), cough (66.0%)

- Common comorbidities: hypertension (16.4%), diabetes (8.9%), CVD (10.9%)

**Demographics in the US**

- Higher infection rates in females but higher death rates in males.

- Higher infection and death rates in whites and Hispanics compared to other races.

- Death rates increase with age.

<u>**Conclusion**</u>

The study shows that certain demographics and comorbidities significantly impact COVID-19 severity and mortality. This information is vital for clinical researchers and policymakers to allocate resources effectively and design inclusive clinical trials. Understanding the impact of demographics and comorbidities on COVID-19 helps in managing the disease better. Age, sex, race, and preexisting conditions play crucial roles in the severity and outcomes of COVID-19, emphasizing the need for targeted health strategies and inclusive clinical trials.

Word Count: 379