

The Factors That Contribute to the High Death Rate of Black People in America

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Abstract: During the Covid-19 pandemic, the black mortality rate in the United States of America appears to be higher than that of any other population group. It is interesting as to what factors cause black people to be more susceptible and vulnerable to the coronavirus. Black population is the main focus of this paper. The topic we want to investigate is the outstandingly high mortality rate for the black in the U.S. Throughout the research, we discussed the current situation of black people, demographic and socioeconomical, and conduct mathematical analysis (mainly multivariate OLS method) to try to find out the connection between three different variables: 1. black mortality rate, 2. black infection rate and 3. chronic underlying disease rate. Eventually, we conclude that chronic underlying health conditions rate and infection rate are positively correlated with the death rate of the black population across the United States. One way to interpret this finding is that worse body conditions are less capable of withstanding the attack of Covid-19 and side effects of provisional treatment before vaccine is invented. However, lower respiratory diseases surprisingly turn out to be negatively correlated with the death caused by Covid-19. One plausible interpretation for this surprising result is that people who have gotten such lower respiratory diseases have better precautionary awareness. They may also be more familiar with the healthcare amenities concerned such as masks and ventilators because lower respiratory diseases and Covid-19 fall in the same category.

Keywords: Covid-19; Black people; Mortality rate; Black people, America

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1. Introduction

In 2020, why is the death rate of black people related to COVID-19 in America much higher than that of any other races? The unexpected pandemic hit America full-on just like it did to the other parts of the globe. Under such climate, an abnormal but worth-digging-into phenomenon has arisen: the death rate of the black population during this pandemic is much higher than that of any other races in the U.S. This is true for almost every state with the data suggesting both higher contraction rate and death rate concerning Covid-19 for black people. In some states like Michigan, the black makes up 15% of the population but represents 30% of people diagnosed with COVID-19 ^[1]. Provided the death rate of 4% state wise, this leads to black people suffering 40% of total death number ^[1]. It is important to realize that this phenomenon of abnormally high death rate existed even before the Covid-19, that the black's death rate due to a variety of other diseases stood out from that of any other races as well in pre-covid time. Blacks high death rate is valuable to study in-depth for it manifests the meaningful sociological aspects of the American society; it touches upon the structural disparity among races in American society.

As a result, people will be made better prepared in case resembling pandemics come in the future, thus minimizing shock and damage. This raises new solutions to socioeconomic predicament.

2. Discussion

At the level of genes, genetic materials won't vary much by race, meaning the impact of Covid-19 on different races should not be varying. But what makes such a big difference that black people wind up dying at a much higher rate than anyone else in the U.S. In the stream of history, there were many with pseudoscience belief thinking that black people were minor, they thought it is nature; merely 50 years ago in America, not only black people, but coloured people, were considered less human by not a few, with laws passed to institutionally discriminate against the blacks in Congress such as Jim Crow laws. It was a time when racism and biases against other races were pervasive in American society. The circumstance was worse if traced back further: labor trafficking to the New World that targeted mostly the blacks ever since the onset of Columbian Exchange to the Late Modern Period. Blacks were often deemed as merely the source of labor and toil for white people to utilize on their extensive farmlands or other properties. However, the modern science concretely proves that there is no racial difference with respect to genes at not, supporting the universal idea that everyone is an equal human being. By now, the situation is yet to be satisfying, as black people are suffering from various inferior socioeconomic conditions that are institutionalized in our society. This appeared especially stark with the advent of Covid-19. Below are some major factors that may contribute to the unusual death rate for the blacks:

2.1. Working condition

The black usually engages in lower, unskilled and menial jobs such as bus driver and janitor. In the article, *Why are Blacks Dying at a higher Rate during COVID-19?*, The author Ray states that black people takes up 20% of the total number of the menial job ^[1]. During COVID-19, these kinds of jobs especially expose black people to the virus. This leads to higher contraction rate.

2.2. Already existing underlying health condition

Black people are more likely to have underlying health condition such as heart disease, diabetes. This situation is caused because of the scarcity of healthy food options and food dessert in black community. The blacks on a higher level are more likely to consume much junk food to the whites. Moreover, because of the poor economic backgrounds, the blacks are less often to exercise than the whites, inducing diabetes and other chronic health conditions. Consequently, the lifestyle of the black is more likely to be unhealthy; they are more likely to eat unhealthy food very often and go to the gym less. Moreover, due to the relatively poor economic background of black people at a general level, they are less inclined to seek treatment from doctors regarding their symptoms. This leads to many underlying health conditions and weaker immune system, which in return make black patients even weaker in face of Covid-19.

3. Descriptions of the Demographic and Economic Situations in U.S. and of African Americans

The U.S. national census with respect to demographics is conducted every ten years to keep track of the American population: the U.S. is one of the highest populated nations in the world. Trends suggest that it is increasing in the number of births, death and migration as the nation proceeds in the twenty-first century. Meanwhile, the country has been getting older, and more diverse in race and ethnicity over the decades as well. The census indicates that the black population is growing, with a growth percentage of 23.1% from 2000-2019 ^[2]. Other race populations are growing as well as shown in **Figure 1.**, indicative of a more diverse America ^[2]. Naturally, new social problem arises as America becomes diversified, prompting social movements and reforms. Despite the country's overall growth, African American populations are still

facing systematic inequality or discrimination in employment and salary.

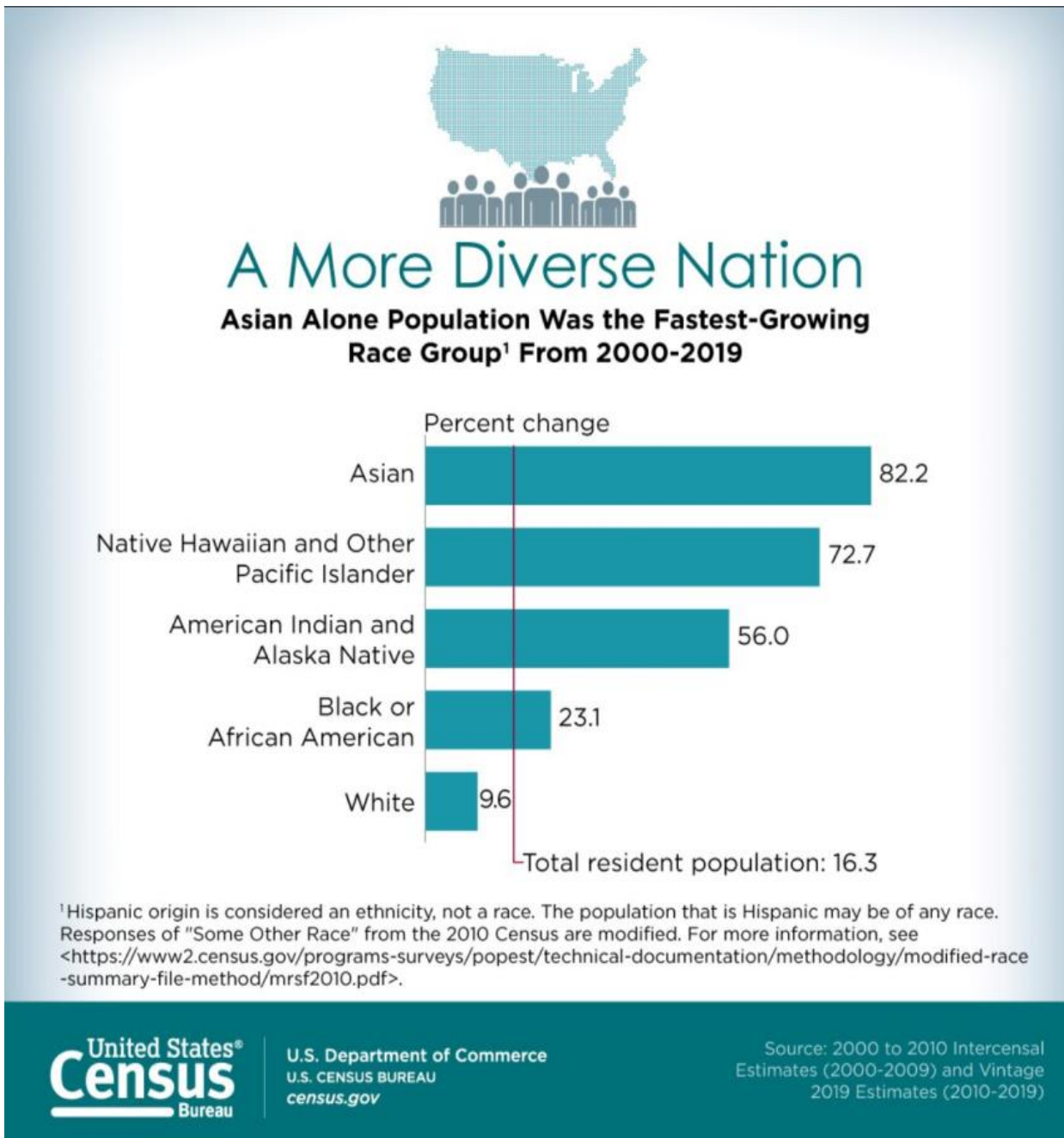


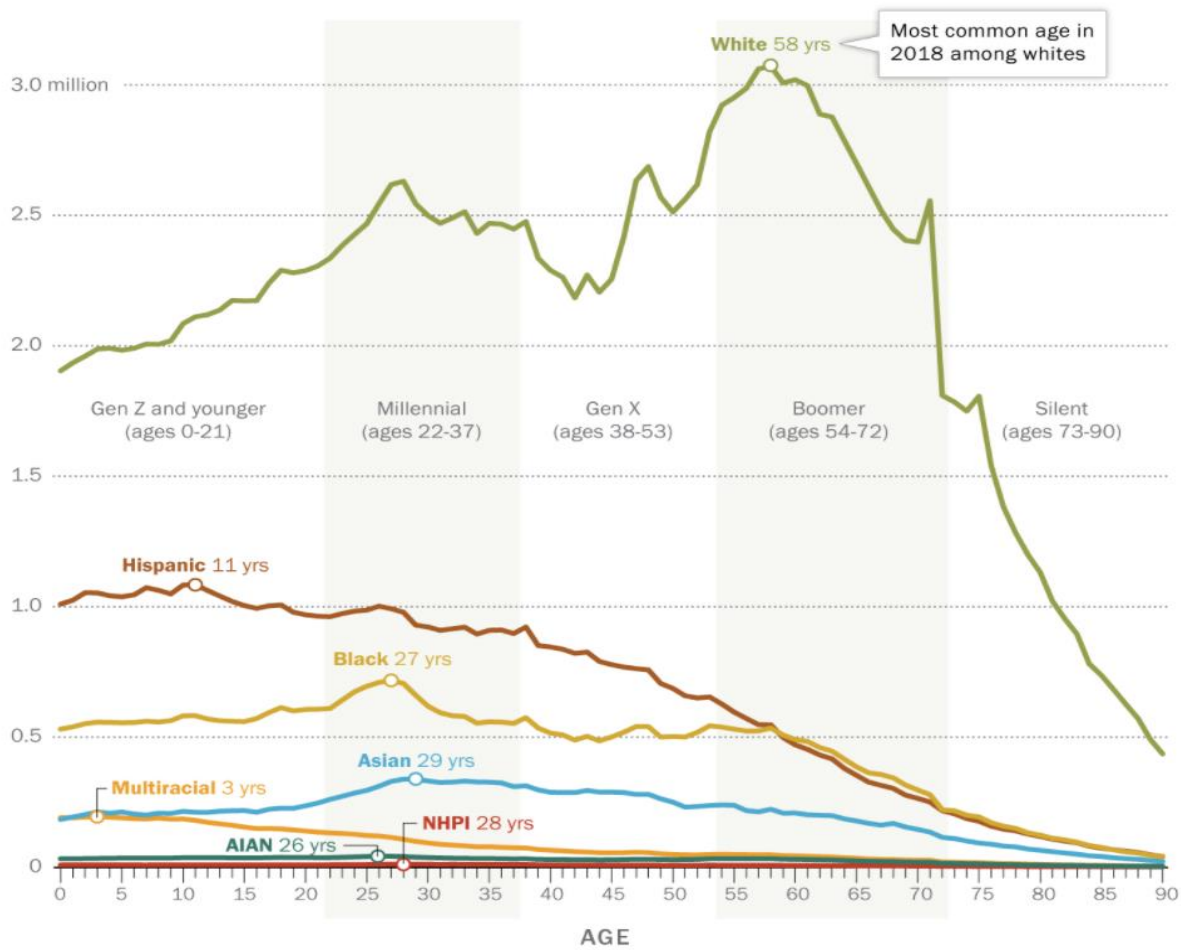
Figure 1. the percentage change of different populations by race ^[2]

3.1. Age Distribution of Black Population in the United States of America.

According to the **Figure 2.** below, the mode for age distribution of the black population is 27 years old, which is relatively young compared to that of the white majority, which is 58 years old ^[3]. Furthermore, the Figure presents that African Americans have the second largest number of 27-year-olds among all the racial groups, just below Hispanics with almost 1 million 27-year-olds. It means that the highest population of the age distribution of African Americans comprises the millennials. The millennials are individuals aging between 22 to 27. In comparison, the majority white population has its most common age at 58, suggesting the aging of the U.S. population. As time passes, black population is likely to make up a higher portion of the work force in the U.S.

In U.S., most common age for whites is much older than for minorities

Number of people of each age by race/ethnicity, 2018



Note: White, black, Asian, multiracial, American Indian/Alaska Native (AIAN) and Native Hawaiian/Pacific Islander (NHPI) groups include only non-Hispanics. All racial/ethnic groups are single-race, except multiracial Americans, who are two or more races, and Hispanics, who are of any race. Ages 91 and older are not shown. Source: U.S. Census Bureau population estimates as of July 1, 2018.

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Figure 2. Age distribution by race ^[3]

3.2. Situation of the Blacks in the Workplace and Their Salary, in Comparison with That of Other Population Group

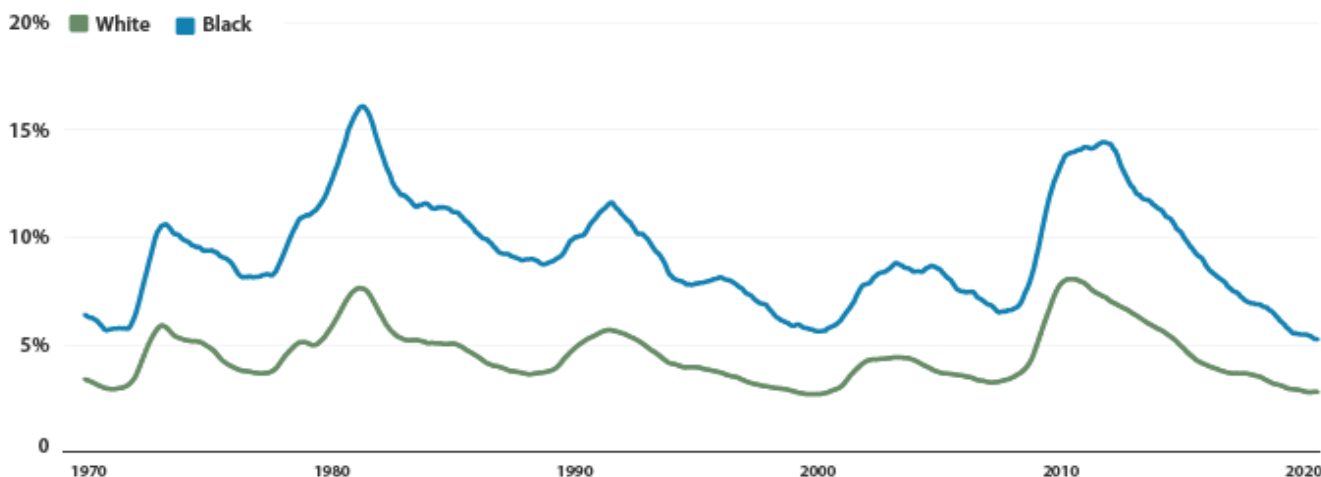
African Americans have long struggled in the work field. The fundamental cause of this is the deep-rooted racism in the United States, that originated with the slave trade in the Pre-Modern Period. The issue of discrimination by race has long been a problem in American society, with its many subtle aspects laid in different facets of society, making them hard to confront and even harder to handle. Social unjustness and discrimination are difficult to eliminate once and for all in our society. There are still remaining residues of racism built into our system and society, therefore causing many of such a structural discrimination in work field. This can be seen clearly as well from the fact that the blacks are harder to be employed or to be promoted in a corporate company

The unemployment rate for African Americans has always been higher than that of white since 1973, as indicated in **Figure 3.** below ^[4]. Reasons for this include systematic discrimination against the black pervaded everywhere in society. They have lower chances of attendance to colleges and universities and graduation from them. In this way, it is but natural that they turn out being disadvantageous and less capable

on a general level. However, this is not the only evidence that suggests the dilemma faced many black Americans; they are suffering higher unemployment rate across multiple categories, such as veterans and 25-54 of age, according to **Figure 4**.^[4]

Prime-age unemployment is historically higher for Black workers than white workers

U.S. unemployment rate by race, 1973–2019



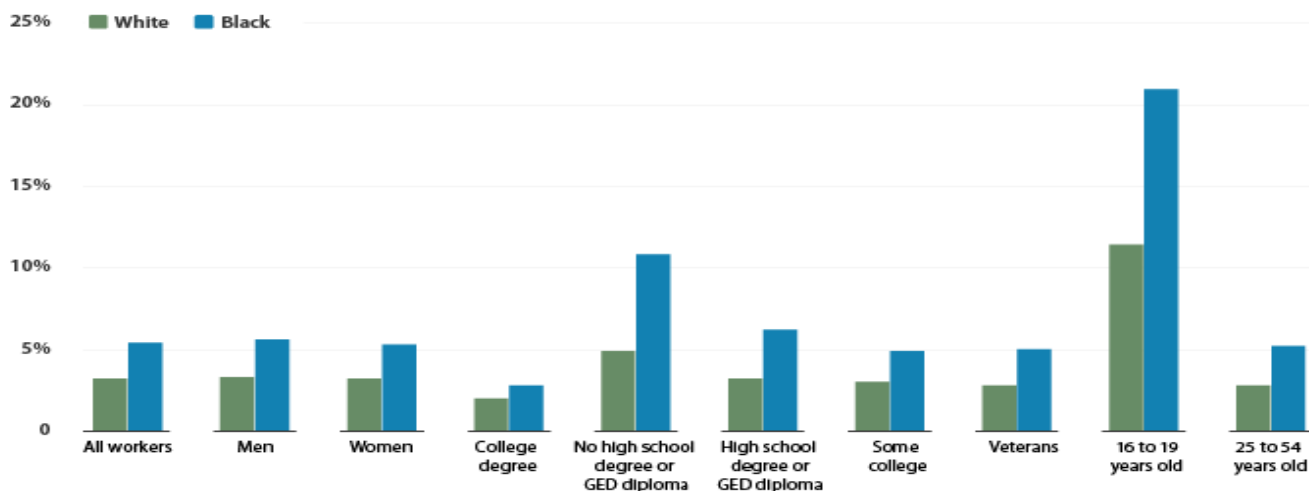
Note: Data are 12-month averages and are not seasonally adjusted. The prime-age unemployment rate is the share of workers ages 25 to 54 who are out of a job and looking for work.
 Source: U.S. Bureau of Labor Statistics, "Current Population Surveys, 1972–2019" (Washington: U.S. Department of Labor, 1972–2019), available at <https://www.bls.gov/cps/>.



Figure 3. unemployment rate with time^[4]

Black workers experience higher unemployment rates than white workers across multiple categories

U.S. unemployment rates by race across multiple subpopulations, October 2019



Notes: Data for "all workers," "men," "women," and workers ages 16 to 19 are seasonally adjusted. Otherwise, the data are 12-month averages and are not seasonally adjusted. The unemployment rate for each subpopulation is the share of workers who are out of a job and looking for work.
 Source: U.S. Bureau of Labor Statistics, "Current Population Surveys, 2019" (Washington: U.S. Department of Labor, 2019), available at <https://www.bls.gov/cps/>.



Figure 4. unemployment rate across different categories, white versus black^[4]

It is interesting to note that the COVID-19 pandemic has adversely affected the labor market since the beginning of the year 2020: It worsened the already unfavorable situation, widening the gap of unemployment rate between the blacks and whites even further, as shown in **Figure 5**.^[5] **Figure 5** also demonstrates that even as the year moves on and more people started to get employed again, the gap

between the blacks and whites are yet unrelentingly increasing. Besides, our research suggests that black men are more likely to be unemployed than black women over the course of years, demonstrated by **Figure 6.** [5].

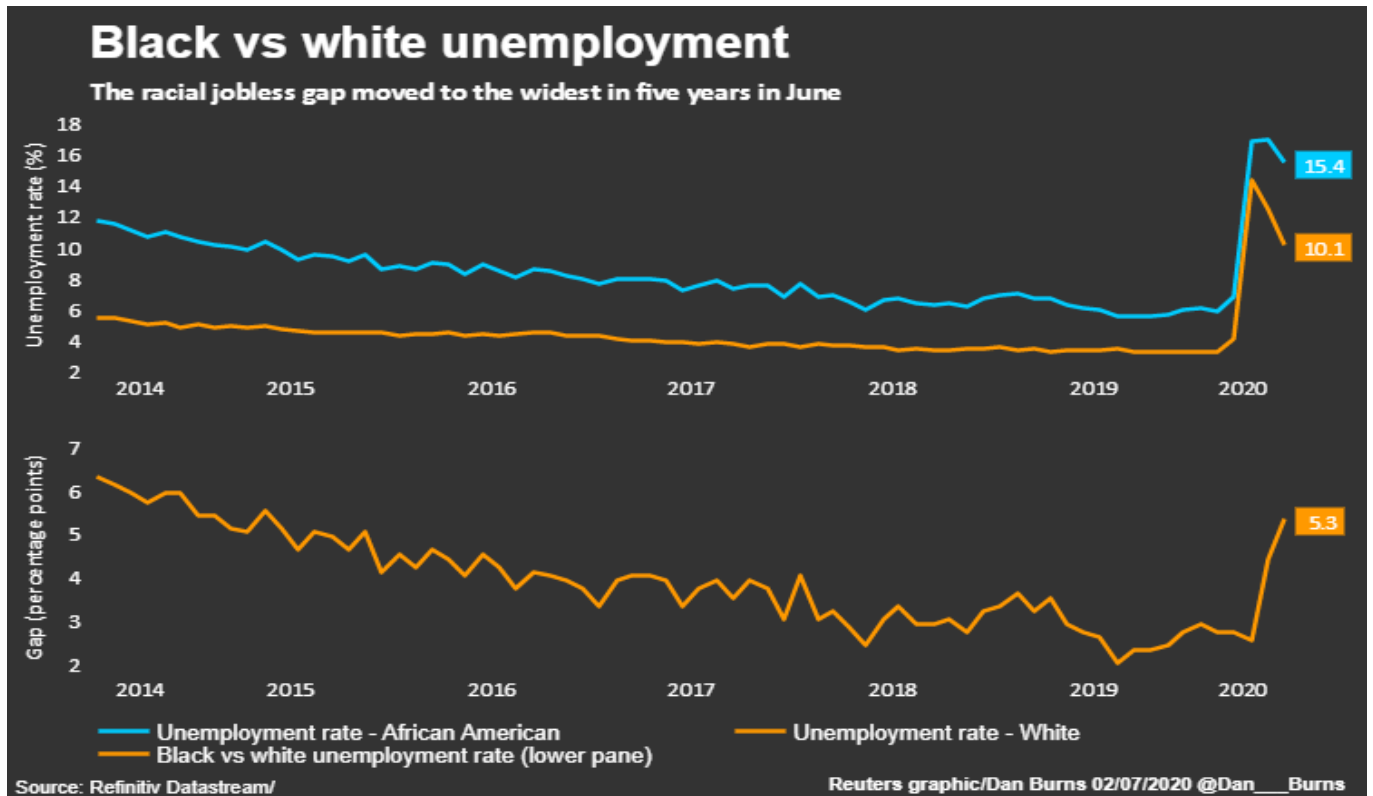


Figure 5. gap between unemployment rate of blacks and whites [5]

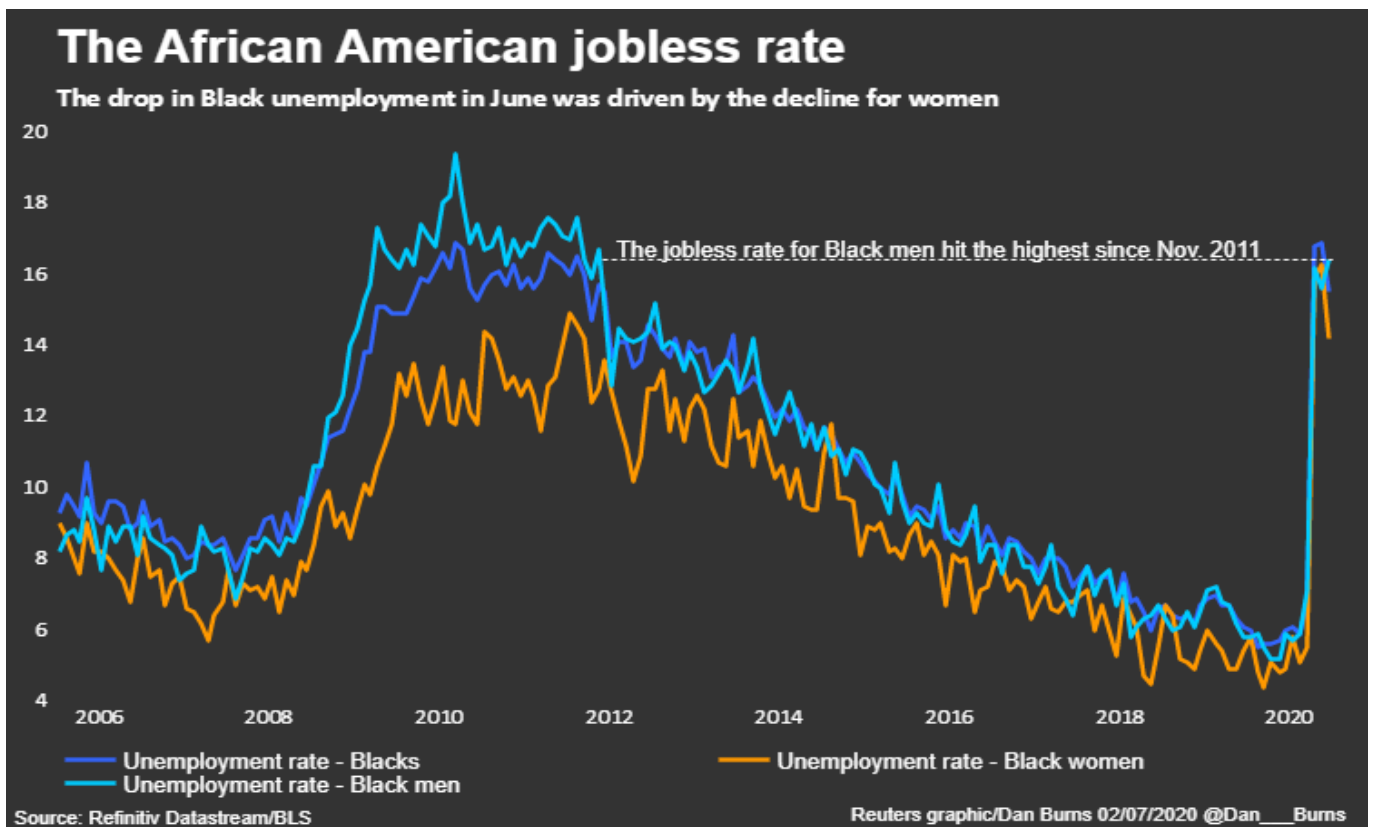


Figure 6. black men's, black women's and general unemployment rate over years [5]

Another aspect of discrimination manifests itself on income level. According to Weller and **Figure 7**, “the typical median weekly earnings for Black full-time employees was \$727 from July 2019 to September 2019, compared with \$943 for whites”^[4]. Moreover, the whites are receiving a higher income at any kind of comparison by subpopulations. The gap is the widest at the comparison between white men and black men as shown in **Figure 7**.

Black workers earn significantly less than white workers across subpopulations

Median usual weekly earnings, third quarter 2019



Note: Data are for full-time, full-year employees.

Source: U.S. Bureau of Labor Statistics, "Current Population Surveys, 2019" (Washington: U.S. Department of Labor, 2019), available at <https://www.bls.gov/cps/>.



Figure 7. Comparison of salary across subpopulations^[4]

In conclusion, despite the country’s growth, African American populations are enjoying less of the benefit of overall growth than the white majority. still facing systematic inequality in terms of unemployment and salary compared to other races.

4. Research Design

4.1. Variables, assumptions and method

In the paper, we mainly consider three variables listed below. Allowing for the fact that the federal government covers all the expenses for the treatment of Covid-19, factors concerning the financial conditions of the patients are not considered nor included in the model. All the variables below are specifically for black people.

- (1) Covid-19 Mortality Rate: is measured by the number of deaths per 100000 people.
- (2) Covid-19 Infection Rate: we theorize that if the infection rate is higher, then the pressure borne on the medical system is higher, thus leading to more deaths numbers. Infection rate is measured by the number of infection cases reported per 100000 people.
- (3) Chronic Diseases Rate: is measured by the number of deaths per 100000 people. This not only reflects the number of the cases of chronic diseases, but how their diseases are regulated and mitigated. We make the assumption that if the patient is afflicted with more chronic diseases, his or

her body is in worse condition, thus less resistant to the damage of both Covid-19 and the side effect of makeshift treatments before the vaccine is invented.

We propose the following two assumptions to explain the high mortality rate among black people:

- (1) Higher infection rate will lead to higher mortality rate of Covid-19.
- (2) More chronic diseases increase mortality rate related to Covid-19 because chronic diseases indicate worse body condition.

We decide to utilize the multivariate OLS method to examine the assumptions above. The empirical model we adopt is as follow:

$$MortalityRate = \alpha + \beta Covid19InfectionRate + \sum \gamma_t ChronicDiseaseRate_t + \varepsilon$$

Where the α , β , γ denote the constants and $ChronicDiseaseRate_t$ represents the number of a certain chronic disease.

4.2. Data and data source.

The data about mortality rate and infection rate is derived from the statistical service website Statista, which are recorded until August 21st, 2020. And the data about chronic disease rate are obtained from the data pool of CDC. Due to data availability, we adopt the chronic-disease data of the year 2018. We use the state-level data to try to understand the real causal relationship between the variables and test our assumptions.

4.3. Results and findings

Dependent Variable: COVID_19_MORTALITY_RATE

Method: Least Squares

Date: 08/25/20 Time: 10:11

Sample: 1 50

Included observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COVID_19_INFECTION_RATE	0.02272187389801196	0.00709704830638781	3.201594933144358	0.002452303592402243
CHRONIC_LOWER_RESPIRATORY_DISEASE_RATE	-2.566702772163343	0.6098324439273901	-4.208865562536303	0.0001147169253886372
HEART_DISEASE_RATE	0.7282966204593204	0.1922660245498553	3.787963173235895	0.0004310685659640389
R-squared	0.4709368014303015	Mean dependent var		43.42
Adjusted R-squared	0.4484234738315909	S.D. dependent var		39.67474393266386
S.E. of regression	29.46571745340264	Akaike info criterion		9.662456597364888
Sum squared resid	40806.73973705658	Schwarz criterion		9.777177977690576
Log likelihood	-238.5614149341222	Hannan-Quinn criter.		9.7061431533115
Durbin-Watson stat	1.683064087684125			

- (1) We discover that the Covid-19 infection rate is slightly positively correlated with mortality rate, that the rise of Covid-19 infection rate is linked with an only modest increase in mortality rate.
- (2) Additionally, our model shows that underlying-chronic-diseases rate such as heart disease is positively correlated with death rate due to Covid-19; our research suggests that higher heart disease rate is directly linked with higher death rate.
- (3) Surprisingly, chronic lower respiratory disease rate appears to be negatively correlated with mortality rate. Furthermore, high chronic-lower-respiratory-disease rate is linked with a significant drop-in mortality rate due to Covid-19.

5. Conclusions

This paper is aimed to examine the relationship among three different variables we raised, black infection rate, black chronic underlying disease rate and black mortality rate due to Covid-19.

We referenced other academic works and discovered that black people are generally poorer than white people, having a worse socio-economic background. The lack of precautionary supplies and worse working and living conditions not only render people more exposed to the viruses but also less resistant towards Covid-19 due to already poorer body health. It is unfavorable socio-economical condition that make more black people fall victim to Covid-19.

In the research, we do mathematical analysis and utilize the multivariate OLS method to test our assumptions, assuming that:

- (1) High infection rate is associated with high mortality rate due to Covid-19
- (2) More chronic diseases increase mortality rate because chronic diseases indicate worse body conditions.

Our experiment is exceptionally useful for it has the potential to shed lights on the means to cope with Covid-19. In the experiment, we try to find out the relationship between the aforementioned three variables. If these relationships are discovered, international society is able to utilize it to curb the spread of Covid-19.

We interpret our findings as that the medical systems across the U.S. haven't yet reached its full capacity, that hospitals and clinics are still able to treat patients expeditiously whenever someone is infected with Covid-19. Besides, our assumption, that chronic health condition has negative impact in defending against Covid-19 and standing provisional treatment' adverse effects, is backed up by the result of this experiment. With respect to lower respiratory disease being negatively correlated with mortality rate, we tilt towards the possibility that people with such lower respiratory diseases have better precautionary awareness, supplies and amenities around them, such as masks, ventilators and are more willing to take protection.

Nonetheless, there are many more interpretations available other than ours. For example, regarding the higher infection rate linking with slight increase in mortality rate, it is possible that the Covid-19 is just not lethal enough to cause a huge number of deaths, even if more people are infected.

Still, the causal relationship cannot be determined definitely by the time this paper is written, as in reality it is very hard to determine certainly the causal linkage between two things and only limited data are available. Still, our research sheds light on the correlation between said variables, which would significantly help both public health officials and the public in understanding Covid-19 and fighting it. The next step would be to investigate thoroughly the fundamental mechanism behind the result, which involves doing field research in society.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Why are Blacks Dying at Higher Rates from COVID-19? Brookings, Apr. 2020, <https://www.brookings.edu/blog/fixgov/2020/04/09/why-are-blacks-dying-at-higher-rates-from-covid-19/#cancel>. Accessed 16 Aug. 2020.
- [2] A More Diverse Nation, 2021, www.census.gov/library/visualizations/2021/comm/a-more-diverse-nation.html. Accessed 19 June 2021.
- [3] Schaeffer K, 2020, The Most Common Age Among Whites in U.S. is 58 – More Than Double That of Racial and Ethnic Minorities, Pew Research Center, Retrieved from <https://www.pewresearch.org/fact-tank/2019/07/30/most-common-age-among-us-racial-ethnic-groups>.
- [4] Weller CE, 2019, African Americans Face Systematic Obstacles to Getting Good Jobs, Center for American Progress, Retrieved from <https://www.americanprogress.org/issues/economy/reports/2019/12/05/478150/african-americans-face-systematic-obstacles-getting-good-jobs/>
- [5] Marte J, 2020, Gap in U.S. Black and White Unemployment Rates is Widest in Five Years Reuters. Retrieved from <https://www.reuters.com/article/us-usa-economy-unemployment-race/gap-in-us-black-and-white-unemployment-rates-is-widest-in-five-years-idUSKBN2431X7>