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Pandemic Planning in the U.S.: An Examination of COVID-19 Data

In the early months of 2020, news spread that a coronavirus (COVID-19) had been detected in Wuhan, China. The virus quickly spread across the country and to the other continents. As the deaths mounted in the United States, evidence indicated that some states experienced a higher rate of COVID-19 deaths than other states and that African-American communities were hit harder by the virus than other racial groups. Hence, we pose two questions in this research: Are COVID-19 deaths spread equally across different states and regions of the United States? Second, are African Americans more likely to die from COVID-19 than other racial groups?

A Brief History of Pandemics

The Centers for Disease Control and Prevention (CDC) define an influenza pandemic as “a global outbreak of a new influenza A virus that is very different from current and recently circulating human seasonal influenza A viruses. Influenza A viruses are constantly changing, making it possible on very rare occasions for non-human influenza viruses to change in such a way that they can infect people easily and spread efficiently from person to person” (CDC 2020a). Based on this definition and the magnitude that it encompasses, there have been six major pandemics as cited by the Centers for Disease Control and Prevention in the United States dating back to 1918 (CDC 2020a). These include the 1918 Influenza Pandemic/Spanish Flu; 1957-1958 Influenza Pandemic/Asian Flu; 1968 Influenza Pandemic; 1981 AIDS Pandemic; 2009 Influenza Pandemic/Swine Flu; and the current COVID-19 virus. The 1918 Spanish Flu has been the deadliest of these pandemics thus far. However, the number of deaths related to the AIDS virus continues to grow each year. This virus and the coronavirus have had the greatest impact on the African-American community when compared to the other viruses.

Data Sources

Using data from the Centers for Disease Control and Prevention (CDC) and APM Research Lab from February 1, 2020-May 20, 2020, we address the two questions posed above. The data for this paper came from two main sources. First, the

COVID-19 data for each state were obtained from the Centers for Disease Control and Prevention (CDC) website. Second, we retrieved COVID-19 data by state and race from the APM Research Lab. Last, the population and race statistics were retrieved from the U.S. Census American Community Survey.

Findings

The data provided us much insight into the location and race of COVID-19 victims during the first five months of 2020. The data show that more than two-thirds of COVID-19 deaths in the U.S. were in the Northeastern states followed by the Midwest at 16.3% and South at 8.8%. The Southwest region of the U.S. had the fewest deaths at 3%. When representation in the total population was taken into account, all of the regions were underrepresented in COVID-19 deaths with the exception of the Northeast region. Deaths in the Northeast were nearly three times higher than the population that it represents in the U.S.

The data also show that New York led the country in COVID-19 deaths and had nearly three times as many deaths as New Jersey, the second leading state, which had 8,791 COVID-19 deaths. Even when the death rate was adjusted for population size, New York had by far the highest rate of 1.26 per 100,000, with New Jersey and Massachusetts ranking a clear second and third. The vast majority of the New York deaths were concentrated in New York City (16,501). Notably, California, the most populous state in the U.S., experienced more than 20,000 fewer deaths than New York. This pattern reflects the fact that the Northeast, particularly New York City, was the entry point to America for infected travelers from Europe, including Chinese.

The next set of data shows total COVID-19 deaths by the race of the victim in the U.S. regions. African Americans overall were much more likely to be overrepresented in COVID-19 deaths in the U.S. when compared to the three remaining substantive racial groups. The data show that for every 100,000 African Americans in the U.S., 50.3 have died when compared to 22.9 for Hispanics, 22.7 for Asians, and 20.7 for Whites. Consequently, the ratio for all deaths for African Americans was approximately twice that of any other ethnic group (1.94), including other minorities.

When examining COVID-19 African-American deaths by region, we found that African Americans died at approximately twice their share of the population as indicated by the odds ratio of 2.1 for the entire population in the U.S. The Midwest region had the worst record, as African Americans were 3.2 times more likely to die from COVID-19 when compared to their White counterparts; and the South ranked second in disproportionate African-American death rates with an average of 2.2. With the exception of the Southwest region, more African Americans died at a higher rate from COVID-19 in every region in the U.S. when compared to White residents. Since COVID-19 is projected to continue spreading outward from the Northeast into the South and Midwest, this situation will probably become even bleaker as the pandemic proceeds.

The final set of data examined the states with the highest likelihood of African Americans dying from the virus. African Americans were almost seven times more likely to die from COVID-19 than White residents in Kansas despite only representing 6% of the total population. Wisconsin and Missouri were not far behind with a 6% COVID-19 mortality rate. The Midwest had four states in the top five and six out the fourteen states represented here. The data for Arkansas and South Carolina, two states with larger populations of African Americans, showed that African Americans were 3.4 times more likely to die from COVID-19 than White residents. Four southern states, with relatively large African-American populations, were represented in the data, while only three western, and two northeastern states made the list of fourteen.

Discussion and Policy Implications

While the results from this analysis are somewhat startling with respect to the impact of COVID-19 on minority groups, they are consistent with previous research indicating that African Americans are often adversely impacted by pandemics. There are several theories as to why disparities in health care exist. Long, Menifield, and Fletcher 2015 posit that underlying health conditions, such as asthma, diabetes and other chronic conditions are more prevalent among minority groups. Other research indicates that African Americans and other minority groups are less likely to be insured, less likely to attend a university and graduate, are predisposed to having a high incidence of diabetes and any number of other chronic diseases (Menifield and Dawson 2008; Menifield, Doty, and Fletcher 2008; Long, Menifield, and Fletcher 2015; Hales et al. 2020), and less likely to accumulate wealth (Thomas et al. 2019).

With respect to policy, we offer short and long-term interventions. In the short-term, we argue that public health departments should direct resources to African-American and underserved communities. This includes COVID-19 testing, contact tracing, advocating for quarantine and self-isolation, and collecting data. Testing must be free, easily accessed, widespread, and targeted to the communities that are most impacted by the virus. Governments must expend resources educating the communities on the value of self-quarantining and isolation when one has been exposed to the virus. Finally, there is a need for improved patient data collection.

In the long-term, we suggest that bureaucrats, policy makers and health care providers assume the worst and prepare for a second surge of the virus. In so doing, hospitals should be well prepared with equipment that is known to aid in saving lives. Second, as vaccines are created, there should be an equitable delivery method. Third, governments must increase funding for public health agencies and provide safety nets for those that have the greatest risk. Finally, more attention has to be paid to examining social determinants of health. Housing insecurity, food deserts, employment discrimination, access to transportation, and many other variables are inextricably connected to disparities in health care.

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