Social Inequalities in the Time of COVID-19

Hayley H. Robertson

University of North Carolina at Greensboro

Word Count = 8,484

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Abstract

With the recent outbreak of the Coronavirus pandemic, daily life is being drastically impacted, whether it is compromising someone's health, laying off a large portion of our workforce, or moving our youth to indefinite online schooling. With these struggles, many social inequalities are being exacerbated, due to a lack of resources being accessible to lower social groups. Previous research has shown that low-income populations are less likely to have health insurance, making them unable to receive proper medical care. Additionally, while more than half of our workforce is without a job, low-income populations usually work in hourly-paid jobs that remain essential during the pandemic, putting them more at risk. Previous research also notes that low-income students are disproportionately affected by technological troubles, and a lack of meals provided by the school system. The current study analyzed healthcare, economic, and educational disparities occurring since March, 2020, when the pandemic hit. The main comparison of interest was between 3 different income groups: <$10,000 to $39,999, $40,000 to $79,999, and $80,000 to >$150,000.

Introduction

In March of 2020, the United States was introduced to a new disease called COVID-19, which was quickly labeled as a global pandemic. The dictionary definition of the word "pandemic" is, "An outbreak of a disease that occurs over a wide geographic area (such as multiple countries or continents) and typically affects a significant proportion of the population : a pandemic outbreak of a disease." According to the World Health Organization (WHO), the Coronavirus, or COVID-19 for short, is an invasive disease that spreads through droplets expelled by the nose when a person coughs or sneezes. Many people who contract this disease will only be mildly to moderately affected by respiratory symptoms, such as dry cough, headache, fever, and loss of taste or smell (World Health Organization). Concern starts to arise when COVID-19 is contracted by older populations and populations with underlying health problems. These populations experience more serious and life-threatening symptoms, such as difficulty breathing and shortness of breath, chest pain and pressure, and loss of speech and movement (World Health Organization). From January 21st, 2020 until November 17th, 2020, there have been a total of 10,984,398 confirmed cases and 245,470 total deaths in the United States, with numbers increasing daily (Centers for Disease Control and Prevention). Even though not everyone is directly affected by the Coronavirus, everyone is being impacted by this ruthless disease in some way.

This research will focus on how COVID-19 has rapidly transformed daily life, through compromising someone's health, increasing the proportion of the workforce that is laid off, or forcing students to attend virtual schooling. As with any disaster, social inequalities are exacerbated, and those with a lack of resources struggle more. With cases of COVID-19 rapidly increasing every day, these inequities will only continue to become more prominent over time.

This paper will be assessing 3 notable social inequalities: access to healthcare, economic disparities, and access to education, by comparing the prevalence of inequality between social groups. The following is a review of the literature providing information on healthcare, education, and the economy, in relation to the current pandemic.

Literature Review

Healthcare

Research on COVID-19 in relation to healthcare disparities has found that African American and Hispanic populations are disproportionately affected by the Coronavirus. Azar et al. (2020), found that in California, African Americans make up 33% of patients hospitalized from the disease, which is more than double that of white patients. Within this same body of research, it was also found that the death rate for African Americans is higher than their representation in the population; while this group comprises 6% of the population, they have a 10% mortality rate. Brown et al. (2020) discovered that African Americans, who represent 13% of the total United States population, are twice as likely to die from the Coronavirus than other populations and account for one third of the total number of cases. Similarly, Hispanic populations are shown to be the largest minority group in the United States, comprising around 18% of the population. Within this population, research has shown that COVID-19 affects 28.4% of the population (Macias Gil et al. 2020).

The reason behind these statistics being so disproportionate, compared to other populations, begins with health insurance coverage. When assessing health insurance for minority populations, it was shown that Hispanics have the lowest rates of health insurance coverage when compared to other minority groups. While only 5.4% of Whites were uninsured in 2018, 19.8% of Hispanics were uninsured. Noonan, Velasco-Mondragon, and Wagner (2016)

found that the percentage of African American adults without health insurance has been decreasing rapidly, and at a similar rate as that of Hispanic populations without health insurance. Additionally, it was found that holding an immigrant status instills a fear or mistrust towards public health services, meaning that these populations are more likely to be excluded from public insurance coverage, such as Medicaid (Macias Gil et al. 2020). Unfortunately, people who use Medicaid, or who reported having no health insurance, had twice the odds of being admitted to the hospital for Coronavirus than people who reported using commercial health insurance (Azar et al. 2020).

There has been constant concern that our medical system is unable to support the amount of patients being brought into hospitals. For example, the number of ICU beds and ventilators needed to aid patients is disproportionate to the number of Coronavirus cases being admitted. For several months in 2020, patients have been exceeding the current hospital capacity in a number of cities, making it hard to provide proper care (Kang et al. 2020). Sheykhi (2020) found that because of how high the numbers of people being admitted for Coronavirus are, non-Coronavirus patients are unable to receive normal treatment. Lack of hospital beds, medication shortages, and a reduction of medical staff due to their own contraction of the virus, are just some of the ways that hospitals are being impacted by COVID-19. The public health system has been reported as underfunded for decades, and therefore was not prepared for the challenge that the Coronavirus presented.

One of the most common inequalities contributing to a lack of healthcare is poverty. Poverty and low socioeconomic status are shown as highly correlated with negative health outcomes, high morbidity, and high mortality rates, with mortality being independent from any other risk factor (Noonan, Velasco-Mondragon, and Wagner 2016; Yancy 2020). People who are

living in low-accessibility, impoverished areas are more vulnerable to high Coronavirus mortality rates because of their socioeconomic status, housing type, and access to transportation (Kang et al. 2020). For example, in minority communities, health screenings and drive-through testing are not always readily available, or convenient, due to lack of transportation, technology, and geographic segregation, meaning that these populations are not receiving the same access to resources as their more affluent counterparts. Additionally, recommendations to "social distance" or "shelter-in-place" are less effective for minority populations, as this is a form of privilege for middle to upper-class communities. Low socioeconomic status populations do not get the luxuries of paid sick-leave and working from home, because many of them work in essential services (e.g. food service). If these employees do not get paid-leave, and they are unable to work due to sickness, they risk the possibility of losing employment completely. Even if it is advised that these employees stay home when they are sick or at risk for contracting COVID-19, remaining at home might not financially be an option (Brown et al. 2020; Macias Gil et al. 2020; Webb Hooper, Nápoles, and Pérez-Stable 2020).

Economy

In addition to healthcare disparities, the economic system is also struggling to accommodate the imbalance inflicted by the Coronavirus. Globally, the workforce is composed of approximately 3.3 billion people. Because of the virus, it has been estimated that more than four out of five people, or 80%, of the total workforce has been impacted by full or partial closures of the workplace (Savić 2020). These workplace closures are not just occurring in a few sectors of our economy, they are spanning across a wide range of jobs and businesses. Some of the most significantly impacted workplaces include, retail, wholesale, and service sectors, which include tourism, entertainment, and transportation. Because the pandemic has impacted so many

different interconnected economic sectors, it has triggered what has been termed as an "economic contagion," meaning that there have been major disruptions to trade, tourism, energy and finance (Lenzen et al. 2020).

As a result of a numerous amount of people being out of a job, there has been a rise in the number of applications for unemployment insurance nationally, which supplies workers with a state-provided, calculated income every week based on what they were previously earning. These state unemployment programs are in high demand, with more than 40 million people applying for these benefits (Galea and Abdalla 2020). Because the numbers are so high, the online system is being overwhelmed because of the increase in applicants, causing payments to be delayed, or even missed in some cases. Unemployment numbers this high have not been seen since the 1930s Great Depression era (Galea and Abdalla 2020; Saloner et al. 2020). Along with unemployment insurance payments, there are other state and federal relief programs that are being relied on during this time. The problem with these relief efforts is that they are not readily available to all populations. Temporary Assistance for Needy Families (TANF) has been limited to certain groups because of income eligibility and work requirements. These requirements include, TANF can provide funds for no longer than 5 years, TANF cannot be used to assist legal or illegal immigrants until they have been in the state for 5 years, and families must meet federal work rates, which are 20 hours per week for single-parent families and 35 hours a week for two-parent families (Center on Budget and Policy Priorities). The national government stimulus of $1,200 was granted to "eligible" adults, whose income was under $99,000 ($198,000 for joint filers), and awarded an additional $500 per dependent child under the age of 17, or up to $3,400 for a family of 4 (U.S. Department of the Treasury). Dependents who were living on their own, such as those in college, were unable to receive the stimulus, even if they were out of a job.

These assistance programs were only given a one-time boost as a part of the Coronavirus Aid, Relief, and Economic Security (CARES) Act, but have not been supplemented since April 2020, even as unemployment rates increased (Saloner et al. 2020).

Unemployment insurance might be a concern for those out of a job, but for a lot of lower income populations, their role in our economy cannot afford to stop. In research conducted by Lenzen et al. (2020) on socioeconomic losses from the pandemic, it was found that the Coronavirus has deepened socioeconomic vulnerabilities, widened wealth gaps, and placed burdens on lower income populations. Additional research found that the risk of acquiring COVID-19 has been greater for minority and low socioeconomic status populations, and that it is disproportionately affecting these groups in comparison to middle and upper-class populations (Bonaccorsi et al. 2020; Galea and Abdalla 2020). The reason behind this inequity is that these lower-class populations have been shown to work in more of the essential service sectors of our economy such as, food, factory, and agricultural systems. The workers who make up this critical part of our economy are more likely to work in overcrowded conditions and have less access to protective equipment to stop the spread of the virus. Because of these conditions, these essential workers may be unable to follow social distancing policies properly (Lee et al. 2020). While some salaried positions allow their employees to work from home, allowing for safe social distancing, these hourly-workers have no other choice but to go into work with these risky conditions every day.

Savić (2020) defines working from home as having 4 essential characteristics: “(1) a person who is an employee of a company or a staff member of an organization; (2) actual work engagement with a company or an organization on specific tasks; (3) work being performed outside the company’s physical premises; and (4) telecommunication with the employer.” For

many fortunate populations, this has become a mandatory practice to ensure safety among employees. One of the biggest benefits to working at home is that parents are able to stay home with their children. Since the Coronavirus has led to the shutting down of schools and childcare centers, many children have no other choice than to stay at home with their parents (Markey 2020). While this may be seen as a positive occurrence for most privileged families, problems arise when working-class parents are unable to stay home with their children during the day. This inequality is especially prominent in regards to the quality of education that children are receiving through staying at home, whether it is being taught by their parents, or being self-taught.

Education

In most of the research on educational disparities in the time of COVID-19, the biggest problem with online schooling is that there is not enough access to the internet and proper technologies. Studies have shown that 18% of students do not have access to broadband internet, and for those who do have access to the internet, more than half report poor network connection (Anderson 2020; Dushkevych 2020). Even if students do have access to a stable internet connection, it is not certain that they have the proper technology, or knowledge of technology, to complete all of their assignments for school. It is assumed in our technologically-driven world that most students are digitally literate and can easily adapt to using technology to complete their work, but that is not always the case. Because of this, parents and teachers are spending more time learning online educational programs themselves, and teaching their children how to use the technology they need to be able to learn (Chang 2020; Kaup 2020). When students are forced to complete numerous virtual assignments, while also dealing with internet problems and weak signals, this stress puts students at risk for depression (Mowad 2020).

Aside from internet trouble, there are many other factors that influence the effectiveness of online learning. One of the main factors impacting learning is distraction. By sitting at a computer screen all day, students are more likely to be distracted by computer games, social media, and other online content that is readily available to them (Chang 2020). In order to try and combat this problem, some classes have been virtually synchronous, meaning that everyone meets at the same time online, rather than doing your work at your own pace. While this method is meant to be more engaging, teachers are having trouble continuously capturing the attention of children in these synchronous settings, since they cannot physically be there to stop distractions (Kaup 2020). Teachers and students alike are having trouble navigating the unknowns of virtual learning, since this is a fairly new occurrence for most populations. In a study conducted by Roy et al. (2020), 80% of students were not in favor of continuing online learning in a post-Coronavirus era.

Technology considerations are just one part of the education inequalities that are being highlighted by the current pandemic. Anderson (2020) argues that children from communities of color or from high-poverty/low-income areas depend on their school for a lot more than other populations. Students receive safety, security, one-on-one attention, and adequate food from their schools, and Coronavirus has taken that away from them. Schools normally provide a safe space for children to go during the day while their parents are at work, and allow them to potentially receive two meals if they are unable to receive meals from home. Anderson (2020) comments on the problem of providing nutritional meals to children during this crisis, saying that a lot of school systems usually provide children-in-need with breakfast, lunch, and meal bags to take home. With schools being shut down, children's only option is to eat at home. Luckily, many school districts have realized this disparity, and began to use buses to provide meals to students

that are delivered to the home, bus stop, or community. It was also shown that families in this socioeconomic group lack the resources and background knowledge to properly homeschool their children, resulting in a widening of the educational achievement gap in minority groups across the United States. Adding to this gap, individual school districts have been given the flexibility to determine how students are evaluated, resulting in inconsistencies in standardized teaching, learning, and testing (Anderson 2020).

Previous research has shown that because of the Coronavirus pandemic, many social inequalities are being exacerbated. As seen through literature on healthcare, COVID-19 is disproportionately affecting African American and Hispanic communities, which are communities that are less likely to have health insurance to cover their medical bills. In addition, people living in low-income areas are also less likely to have health insurance or close access to healthcare facilities. For those who are able to receive healthcare, we have seen that hospitals are surpassing full capacity and do not have enough supplies to properly support everyone. Literature on economic impacts of the Coronavirus has shown that more than half of our workforce has been without a job since the pandemic began, and has had to rely on government relief to support themselves. Unfortunately, low socioeconomic status populations cannot afford to be without a job, so these people have no other choice to continue working through the pandemic. Problems arise when these populations are having to work in close conditions with others and are not provided with adequate protection against the spread of the virus. Finally, research on education has shown that internet and technology accessibility are two of the biggest inconsistencies with online education. In addition to technological trouble, children are having a hard time staying focused and learning new material online. For low socioeconomic groups, these inequalities are only more prevalent, with the addition of lack of meals provided by the

school system. Because of this sudden pandemic, the inequity in our society is more prominent than ever before.

Methods

Data

Survey data was collected from a convenience sample of 123 participants. Participants were recruited through emails to professors and organizations at the University of North Carolina at Greensboro, and through posts about the survey shared on Facebook. Inclusion criteria allowed for only ages 18 and older to complete the survey. Those who expressed interest in the survey virtually, through email or social media, were asked to click on the link provided to them, which then directed them to the anonymous survey. The survey began with an age screener for 18+, and was followed by a consent form before the questions begin. Those who gave consent were then asked to complete a four-part survey that began with demographic questions, and was followed by information about healthcare, economic, and educational challenges they are facing. The survey consisted of 51 questions, and averaged around 10 minutes to complete. Being that this survey was completely virtual, no in-person interaction was required. Tables 1-6 show the demographic characteristics of the sample.

Sample

Table 1: Sex of Study Sample

Label	N	Percent
Female	79	76.70%
Male	21	20.39%
Nonbinary	3	2.91%
Total	103	100%

As shown in Table 1, 76.70% of respondents (N=79) responded that they were female. 20.39% of respondents (N=21) responded that they were male. 2.91% of respondents (N=3) responded that they were nonbinary.

Table 2: Ethnicity of Study Sample

Label	N	Percent
Hispanic or Latinx	9	8.74%
Not Hispanic or Latinx	94	91.26%
Total	103	100%

As shown in Table 2, 8.74% of respondents (N=9) responded that they were of Hispanic or Latinx ethnicity. 91.26% of respondents (N=94) responded that they were not of Hispanic or Latinx ethnicity.

Table 3: Race of Study Sample

Label	N	Percent
White	82	75.23%
Black or African American	17	15.60%
American Indian or Alaska Native	3	2.75%
Asian	3	2.75%
Native Hawaiian or Pacific Islander	0	0.00%
Other	4	3.67%

Total	109	100%

As shown in Table 3, 75.23% of respondents (N=82) responded that they were of White race. 15.60% of respondents (N=17) responded that they were of Black or African American race. 2.75% of respondents (N=3) responded that they were of American Indian or Alaskan race. 2.75% of respondents (N=3) responded that they were of Asian race. 0.00% of respondents (N=0) responded that they were of Native Hawaiian or Pacific Islander race. 3.67% of respondents (N=4) responded that they were of another race. For the measure of race, participants were allowed to select all that apply.

Table 4: Age of Study Sample

Label	N	Percent
18 - 24	56	54.4%
25 - 36	11	10.7%
37 - 48	16	15.5%
49 - 60	13	12.6%
≥ 61	7	6.8%
Total	103	100%

As shown in Table 4, 54.4% of respondents (N=56) responded that they were 18 to 24 years of age. 10.7% of respondents (N=11) responded that they were 25 to 36 years of age. 15.5% of respondents (N=16) responded that they were 37 to 48 years of age. 12.6% of respondents (N=13) responded that they were 49 to 60 years of age. 6.8% of respondents (N=7) responded that they were 61 years of age or older.

Table 5: Education Level of Study Sample

Label	N	Percent
Some high school	0	0.00%
High school graduate	12	11.65%
Some college	34	33.01%
2 year degree	17	16.50%
4 year degree	24	23.30%
Master's degree	12	11.65%
Doctoral degree	4	3.88%
Total	103	100%

As shown in Table 5, 0.00% of respondents (N=0) responded that they had completed some high school. 11.65% of respondents (N=12) responded that they had graduated high school. 33.01% of respondents (N=34) responded that they had completed some college. 16.50% of respondents (N=17) responded that they had completed a 2 year degree. 23.30% of respondents (N=24) responded that they had completed a 4 year degree. 11.65% of respondents (N=12) responded that they had completed a master's degree. 3.88% of respondents (N=4) responded that they had completed a doctoral degree.

Table 6: Average Household Income of Study Sample

Label	N	Percent
< $10,000	18	17.6%
$10,000 - $19,999	8	7.8%
$20,000 - $29,999	9	8.8%

$30,000 - $39,999	7	6.9%
$40,000 - $49,999	5	4.9%
$50,000 - $59,999	6	5.9%
$60,000 - $69,999	7	6.9%
$70,000 - $79,999	5	4.9%
$80,000 - $89,999	9	8.8%
$90,000 - $99,999	6	5.9%
$100,000 - $149,999	13	12.7%
≥ $150,000	10	9.8%
Total	102	100%

As shown in Table 6, 41.1% of respondents (N=42) responded that they had a household income of less than $10,000 to $39,999. 22.6% of respondents (N=23) responded that they had a household income of $40,000 to $79,999. 37.2% of respondents (N=38) responded that they had a household income of $80,000 to more than $150,000. For the remainder of the analysis, data has been aggregated into 3 income groups.

Results

Tables 7-10 show the percentage of responses for specific survey questions. The percentages are broken down by income brackets. These brackets were chosen because they each signify one-third of the total range of average household income responses, allowing for comparison between low, middle, and high income groups. There were 42 respondents in the low-income group, 21 respondents in the middle-income group, and 37 respondents in the high-income group.

Table 7: Healthcare Data by Income Bracket

Category	Percent for Income Bracket <$10,000 to $39,999	Percent for Income Bracket $40,000 to $79,000	Percent for Income Bracket $80,000 to >$150,000
Do you rely on any of the following public healthcare services for assistance?			
Medicare	5%	9%	11%
Medicaid	23%	9%	0%
Children's Health Insurance Program (CHIP)	0%	0%	0%
Other	15%	5%	3%
I do not rely on any of these public healthcare services	59%	68%	83%
Unknown	3%	9%	6%
Has a lack of money kept you from going to the doctor?			
Yes, it has	49%	35%	23%
No, it has not	51%	65%	77%
How satisfied are you with the care you received at your last medical visit?			
Extremely satisfied	26%	45%	46%
Somewhat satisfied	33%	32%	46%
Neither satisfied nor dissatisfied	13%	14%	3%
Somewhat dissatisfied	10%	0%	3%
Extremely dissatisfied	3%	0%	0%
I have not had any medical visits since March 2020	15%	9%	3%
How satisfied are you with accessibility to treatment (if needed)?			

Extremely satisfied	23%	18%	46%
Somewhat satisfied	18%	64%	31%
Neither satisfied nor dissatisfied	8%	0%	3%
Somewhat dissatisfied	23%	9%	9%
Extremely dissatisfied	10%	0%	3%
I have not had any medical visits since March 2020	18%	9%	9%

When asked whether or not they rely on certain public health services, 83% of high-income respondents said that they did not rely on any public healthcare services. 11% of high-income respondents relied on Medicare, and 3% relied on another form of public services. For the middle-income group, 68% of respondents did not rely on any public healthcare services. 9% relied on Medicare, 9% relied on Medicaid, and 5% relied on another form of public services. Low-income respondents relied the most on public healthcare services, with 5% receiving Medicare, 23% receiving Medicaid, and 15% receiving another form of healthcare service. 59% of the low-income group did not rely on any services. When asked if a lack of money has kept them from going to the doctor, 23% of high-income respondents said “yes, it has,” while 77% said “no, it has not.” 35% of middle-income respondents said a lack of money has kept them from going to the doctor, while 65% said it has not. For low-income respondents, almost half (49%) responded that a lack of money has kept them from going to the doctor, while 51% responded that it has not. When looking at medical visit satisfaction, 46% of high-income respondents were extremely satisfied, and 0% responded that they were extremely dissatisfied. 45% of middle-income respondents were extremely satisfied, while 0% were extremely dissatisfied. Finally, only 26% of low-income respondents were extremely satisfied with medical care, while 3% were extremely dissatisfied. For accessibility to treatment satisfaction rates, 46%

of high-income respondents were extremely satisfied, while 3% were extremely dissatisfied. Only 18% of middle-income respondents were extremely satisfied, while 0% were extremely dissatisfied. 23% of low-income respondents were extremely satisfied, and 10% were extremely dissatisfied. Trends in the data show that it is more likely for the lowest income bracket to rely on public health services. This group is also less likely to be able to pay for a doctor's visit, and when they do receive care, they are more likely to be dissatisfied than the middle and high-income groups.

Table 8: Economic Data by Income Bracket

Category	Percent for Income Bracket <$10,000 to $39,999	Percent for Income Bracket $40,000 to $79,000	Percent for Income Bracket $80,000 to >$150,000
Are you currently employed?			
Yes	56%	48%	64%
No	44%	52%	36%
Does your job provide you with hourly pay or a salary?			
My job pays me by the hour	100%	80%	19%
My job pays me a salary	0%	20%	81%
Does your job allow you to work from home?			
Yes, and I am currently working from home	10%	20%	62%
Yes, but I am not working from home	5%	10%	5%
No, my job does not allow me to work from home	85%	70%	33%
Unknown	0%	0%	0%
Do you work in any of the following essential			

industries?			
Food and agriculture	35%	0%	5%
Emergency services	5%	0%	0%
Transportation, warehouse, and delivery	5%	10%	0%
Industrial, commercial, residential facilities and services	20%	10%	0%
Healthcare	0%	10%	14%
Government and community services	5%	0%	10%
Communications and IT	0%	0%	5%
Financial sector	5%	0%	5%
I do not work in any of these essential industries	40%	70%	67%
Did you become unemployed due to the pandemic?			
Yes, I became unemployed because of the pandemic	25%	27%	25%
No, I became unemployed for other reasons	75%	64%	75%
Unknown	0%	9%	0%
Are you receiving unemployment benefits?			
Yes, I am currently receiving unemployment benefits	13%	9%	17%
I was receiving unemployment benefits, but I am not anymore	0%	0%	0%
No, I am not receiving unemployment benefits	81%	91%	83%
I have applied for unemployment benefits, but have not started receiving them yet	6%	0%	0%

When asked if they were currently employed, 64% of high-income respondents were employed, and 36% were unemployed. 48% of middle-income respondents were employed, and 52% were unemployed. 56% of low-income respondents were employed, while 44% were unemployed. Of those who were employed, 19% of high-income respondents said their job pays them by the hour, and 81% said their job pays them a salary. For middle-income respondents, 80% said their job pays them by the hour, and 20% said their job pays them a salary. 100% of low-income respondents said their job pays them by hour, with none of these respondents receiving salaried pay. For those who are working, 62% of high-income respondents are allowed to work from home and are working from home, while 33% are not allowed to work from home. 20% of middle-income respondents are allowed to work from home and are working from home, while 70% are not allowed to work from home. 10% of low-income respondents are allowed to work from home and are working from home, while 85% are not allowed to work from home. When asked whether or not they worked in any essential industries (food and agriculture; emergency services; transportation, warehouse, and delivery; industrial, commercial, residential facilities and services; healthcare; government and community services; communications and IT; financial sector), 5% of high-income respondents worked in food and agriculture, 14% worked in healthcare, 10% worked in government and community services, 5% worked in communications and IT, 5% worked in the financial sector, and 67% said they did not work in any essential industries. For middle-income respondents, 10% worked in transportation, warehouse, and delivery, 10% worked in industrial, commercial, residential facilities and services, 10% worked in healthcare, and 70% did not work in any essential industries. 35% of low-income populations worked in food and agriculture, 5% worked in emergency services, 5% worked in transportation, warehouse, and delivery, 20% worked in in industrial, commercial, residential facilities and

services, 5% worked in government and community services, 5% worked in the financial sector, and 40% did not work in any essential industries. For those who answered that they were unemployed, 25% of high-income respondents became unemployed because of the pandemic, while 75% became unemployed for other reasons. 27% of middle-income respondents became unemployed because of the pandemic, while 64% became unemployed for other reasons, and 9% did not know why they became unemployed. 25% of low-income respondents became unemployed because of the pandemic, and 75% became unemployed for other reasons. Additionally, 17% of high-income respondents were receiving unemployment benefits and 83% were not . 9% of middle-income respondents were receiving unemployment benefits and 91% were not. 13% of low-income respondents were receiving unemployment benefits, 81% were not receiving unemployment benefits, and 6% had applied for these benefits, but were not receiving them at the time of the survey. Trends in the data show that since the pandemic hit in March, 2020, the highest income group is more likely to be employed than the low and middle-income groups. This group is also more likely to receive a salaried pay, while the lowest income group is more likely to be paid by the hour. The highest income group is also more likely to be working from home and receiving unemployment benefits than the middle and low-income groups.

Table 9: Parent-Reported Education Data by Income Bracket

Category	Percent for Income Bracket <$10,000 to $39,999	Percent for Income Bracket $40,000 to $79,000	Percent for Income Bracket $80,000 to >$150,000
Did you stay home with your children, or did you have to work?			
I was able to stay home full time	100%	100%	62%

I was able to stay home part time	0%	0%	15%
I was unable to stay home	0%	0%	8%
My children are old enough to stay home alone	0%	0%	15%
In school, did your children qualify for free/reduced meals?			
Yes, my children qualified for free/reduced meals	100%	33%	0%
No, my children did not qualify for free/reduced meals	0%	67%	92%
My children did not attend a school with meals provided	0%	0%	8%
During online school, how did your children receive meals?			
I provided meals for my children	0%	75%	93%
My children provided meals for themselves	0%	0%	0%
My children's school provided meals through drop off/pick up	0%	25%	7%
My children received meals another way	100%	0%	0%
My children did not receive meals during online school	0%	0%	0%

When asking parents if they stayed home with their children, or if they had to work, 62% of high-income respondents were able to stay home full time, 15% were able to stay home part time, 8% were unable to stay home, and 15% said their children could stay home alone. 100% of middle-income and low-income respondents were able to stay home with their children full time. 0% of high-income respondents said their children qualified for free/reduced meals, 92% said their children did not qualify, and 8% said their children did not attend a school with meals

provided. 33% of middle-income respondents said their children qualified for free/reduced meals, 67% said their children did not qualify, and 0% said their children did not attend a school with meals provided. 100% of low-income respondents said their children qualified for free/reduced meals. As far as receiving meals, 93% of high-income respondents said they were able to provide meals for their children and 7% said their children's school provided meals. 75% of middle-income respondents said they were able to provide meals for their children and 25% said their children's school provided meals. 100% of low-income respondents said their children received meals in some other way. Trends in the data show that children of the low-income group were more likely to qualify for free/reduced meals than children in middle and higher income groups. It was also more likely that parents in the higher income bracket were more likely to prepare meals for their children than parents in the low and middle-income bracket.

Table 10: Student-Reported Education Data by Income Bracket

Category	Percent for Income Bracket <$10,000 to $39,999	Percent for Income Bracket $40,000 to $79,000	Percent for Income Bracket $80,000 to >$150,000
How difficult was your transition to online schooling?			
Extremely easy	6%	50%	20%
Somewhat easy	26%	7%	30%
Neither easy nor difficult	13%	14%	10%
Somewhat difficult	42%	29%	20%
Extremely difficult	13%	0%	20%
Did you learn more taking classes online than you would in a classroom?			

Much more	3%	0%	10%
Somewhat more	3%	7%	0%
About the same	32%	64%	30%
Somewhat less	35%	7%	40%
Much less	26%	21%	20%
How easy was it for you to communicate with your instructor if you had a question?			
Extremely easy	19%	79%	10%
Somewhat easy	55%	14%	70%
Neither easy nor difficult	10%	0%	10%
Somewhat difficult	16%	0%	10%
Extremely difficult	0%	7%	0%

When asking students about their transition to online schooling, 20% of students living in a high-income household responded that their transition was extremely easy, while 20% responded that it was extremely difficult. 50% of students living in a middle-income household responded that their transition was extremely easy, while 0% responded that it was extremely difficult. 6% of students living in a low-income household responded that their transition was extremely easy, while 13% responded that it was extremely difficult. 10% of students living in a high-income household responded that they learned much more online than they would in a classroom, and 20% responded that they learned much less online. 0% of students living in a middle-income household responded that they learned much more online than they would in a classroom, and 21% responded that they learned much less online. 3% of students living in a low-income household responded that they learned much less online than they would in a classroom, and 26% responded that they learned much less online. 10% of students living in a

high-income household responded that communication with their instructor was extremely easy, while 0% responded that it was extremely difficult. 79% of students living in a middle-income household responded that communication with their instructor was extremely easy, while 7% responded that it was extremely difficult. 19% of students living in a low-income household responded that communication with their instructor was extremely easy, while 0% responded that it was extremely difficult. Trends in the data show that for the lowest income group, the transition to online school was harder than it was for students in middle and higher income groups. Higher income students were more likely to report that they learned more through online school than middle and low-income groups. Across all three income groups, most of the students were able to communicate with their instructor if they had a question.

Discussion

Findings

The current study analyzed healthcare, economic, and educational disparities occurring since March, 2020, when the Coronavirus pandemic hit. The main comparison of interest is between 3 different income groups: low (<$10,000 to $39,999), middle ($40,000 to $79,999), and high ($80,000 to >$150,000). The survey examined whether individuals in these income groups relied on public healthcare services, if these individuals' incomes had held them back from going to the doctor, and how satisfied they were with treatment provided to them and their accessibility to that treatment. The survey further examined the jobs held by respondents in each income group, whether or not they were currently employed or had been laid off, if they had hourly or salaried pay, if they were receiving unemployment benefits, and if they were able to work from home. Questions were also asked to students and parents separately about parent ability to stay home with children, how children received their meals (if not from school), access

to online education resources, the transition to online, how much students learned, and how easy it was to communicate with the instructor.

Some of the general findings about healthcare from this survey are: the low-income sample was more likely to rely on Medicaid and other public healthcare services than the middle and high-income samples. Additionally, the low-income sample was less likely to say that they relied on no public healthcare services than the middle and high-income samples. The low-income sample was more likely to report that money has kept them from going to the doctor than the middle and high-income samples. The low-income sample was less likely to be satisfied with care they received at their last medical visit than the middle and high-income samples. The low income sample was also more likely to be dissatisfied with accessibility to treatment than the middle and high-income sample. One surprise finding was that the highest income group was more likely to be receiving Medicare benefits than the middle and low-income groups. Based on previous research, it was expected that the lowest income group would be more likely to receive all public healthcare services.

When looking at the economy, the high-income sample was the most likely to be employed, but less likely to work in an essential industry than the low-income sample. The low-income sample was the most likely to work in an essential industry, with food and agriculture being the most likely position this sample holds. The low-income sample was the most likely income group to be paid by the hour, while the high-income sample was the most likely to be paid a salary. The low-income sample was the least likely to work at home, while the high-income sample was the most likely to work from home. The percentage of income groups being unemployed due to the pandemic was similar in all three samples. The high-income sample was more likely to receive unemployment benefits than the low and middle-income

sample. The low-income sample was more likely to have applied for unemployment benefits, but not receive them, than the middle and high-income sample. One surprise finding was that the majority of respondents became unemployed due to other factors than the pandemic. Based on unemployment rates since the pandemic, it was expected that the pandemic would contribute to unemployment rates more than other factors would.

For education, parents in the high-income sample were less likely to stay home with their children than the low and middle-income samples. The low-income sample was more likely to report that their children qualified for free/reduced lunch than the middle and high-income samples. The high-income sample was the most likely to be able provide meals for their children during online school. For students, those from the low-income sample were less likely than middle and high-income student samples to report that their transition to online schooling was easy. The low-income student sample was also the most likely to say that this transition was difficult. The low income student sample was the most likely to say that they learned less taking online classes than they would in a classroom. Finally, the low-income student sample was more likely than the middle and high-income student samples to say that it was difficult to communicate with their instructor if they had a question. One surprise finding was that lower and middle-income groups were more likely to stay home with their children than the high-income group. Based on previous research, it was expected that the highest income group would be the most likely to stay home with their children. There were no surprise findings in the student-reported education data.

Importance

By addressing the impacts of the Coronavirus pandemic on various social inequalities, such as healthcare, economic, and educational disparities, we can better understand what

populations are being disproportionately affected. This paper chose to assess how 3 different income groups, low (<$10,000 to $39,999), middle ($40,000 to $79,999), and high ($80,000 to >$150,000), were impacted by the virus. For the majority of the questions in this survey, the low-income sample showed that they were affected more than the middle and high-income samples. Once we start to see patterns of who is being impacted the most from this virus, our society can begin to understand where attention is needed, and provide the correct resources to help those who are struggling. By providing proper aid, we might be able to reduce the amount of disparities faced by our society, and prevent this inequity from being amplified in future global crises.

Limitations

This study is subject to several limitations. First, data for this survey was collected between the months of August and September, 2020. Since the Coronavirus is constantly evolving, the data collected might not be generalizable to future time periods, which may see an even greater presence of inequalities. Second, the size of the sample for each income group (low-income: N=42; middle-income: N=21; high-income: N=37) was relatively small. Future research on income inequalities should be done with larger sample sizes, in order to be more generalizable to the population. In addition to the size of our sample groups, future research should also make sure there are an equal amount of respondents in each sample, so that comparison between the two groups can be more accurate. Third, even though this survey had a total of 103 participants, not all of the questions were required to be answered, resulting in a lower amount of respondents in some categories. If a survey like this is conducted in the future, participants should be encouraged to answer every question, or there should be a set number of respondents for each category. Fourth, since this study recruited participants through a

convenience sample, the majority of the participants were of White race. Future research should make sure that it obtains responses from a wider variety of races when assessing inequality. Fifth, the original plan for this study was to distribute paper copies to low-income populations, who may not have access to technology. Because of the pandemic, this research had to be conducted virtually, leaving out a large number of expected participants. If this research is replicated in the future, making this survey accessible to populations who do not have access to technology would provide more accurate data in regards to that disparity.

Bibliography

Anderson, Tameka C. 2020. "Academics, Achievement Gap, and Nutritional Health: The Impact of Coronavirus on Education." *Delta Kappa Gamma Bulletin* 87(1):14–17.

Anon. n.d. "CDC COVID Data Tracker." *Centers for Disease Control and Prevention*. Retrieved November 5, 2020 (https://covid.cdc.gov/covid-data-tracker/).

Anon. n.d. "Policy Basics: Temporary Assistance for Needy Families." *Center on Budget and Policy Priorities*. Available: https://www.cbpp.org/sites/default/files/atoms/files/7-22-10tanf2.pdf

Anon. n.d. "Coronavirus." *World Health Organization*. Retrieved November 5, 2020 (https://www.who.int/health-topics/coronavirus).

Anon. n.d. "Pandemic." *Merriam-Webster*. Retrieved November 17, 2020 (https://www.merriam-webster.com/dictionary/pandemic).

Anon. 2020. "U.S. Department of the Treasury." *The CARES Act Provides Assistance to Workers and Their Families | U.S. Department of the Treasury*. Retrieved November 19, 2020 (https://home.treasury.gov/policy-issues/cares/assistance-for-american-workers-and-families).

Azar, Kristen M. J., Zijun Shen, Robert J. Romanelli, Stephen H. Lockhart, Kelly Smits, Sarah Robinson, Stephanie Brown, and Alice R. Pressman. 2020. "Disparities In Outcomes Among COVID-19 Patients In A Large Health Care System In California." *Health Affairs* 39(7):1253–62. doi: 10.1377/hlthaff.2020.00598.

Bonaccorsi, Giovanni, Francesco Pierri, Matteo Cinelli, Andrea Flori, Alessandro Galeazzi, Francesco Porcelli, Ana Lucia Schmidt, Carlo Michele Valensise, Antonio Scala, Walter Quattrociocchi, and Fabio Pammolli. 2020. "Economic and Social Consequences of Human Mobility Restrictions under COVID-19." *Proceedings of the National Academy of Sciences of the United States of America* 117(27):15530–35. doi: 10.1073/pnas.2007658117.

Brown, Italo M., Ayesha Khan, Jamar Slocum, Linelle F. Campbell, Jahmil R. Lacey, and Alden M. Landry. 2020. "COVID-19 Disparities and the Black Community: A Health Equity–Informed Rapid Response Is Needed." *American Journal of Public Health* 110(9):1350–51. doi: 10.2105/AJPH.2020.305804.

Chang. H.S. 2020. "Online Learning in Pandemic Times." *Romanian Journal for Multidimensional Education / Revista Romaneasca Pentru Educatie Multidimensionala* 12:111–17. doi: 10.18662/rrem/12.2Sup1/296.

Cutler, David. 2020. "How Will COVID-19 Affect the Health Care Economy?" *JAMA: Journal of the American Medical Association* 323(2):2237–38. doi: 10.1001/jama.2020.7308.

Dushkevych, Mariana, Hanna Barabashchuk, and Natalia Hutsuliak. 2020. "Peculiarities of Student Distance Learning in Emergency Situation Condition." *Romanian Journal for Multidimensional Education / Revista Romaneasca Pentru Educatie Multidimensionala* 12:71–77. doi: 10.18662/rrem/12.1sup2/248.

Galea, Sandro, and Salma M. Abdalla. 2020. "COVID-19 Pandemic, Unemployment, and Civil Unrest: Underlying Deep Racial and Socioeconomic Divides." *JAMA: Journal of the American Medical Association* 324(3):227–28. doi: 10.1001/jama.2020.11132.

Kang, Jeon-Young, Alexander Michels, Fangzheng Lyu, Shaohua Wang, Nelson Agbodo, Vincent L. Freeman, and Shaowen Wang. 2020. "Rapidly Measuring Spatial Accessibility of COVID-19 Healthcare Resources: A Case Study of Illinois, USA." *International Journal of Health Geographics* 19(1):36. doi: 10.1186/s12942-020-00229-x.

Kaup, Soujanya, Rashmi Jain, Siddharudha Shivalli, Suresh Pandey, and Soumya Kaup. 2020. "Sustaining Academics during COVID-19 Pandemic: The Role of Online Teaching-Learning." *Indian Journal of Ophthalmology*68(6):1220–21. doi: 10.4103/ijo.IJO_1241_20.

Lee, Joseph G. L., Catherine E. LePrevost, Emery L. Harwell, Jamie E. Bloss, Leslie E. Cofie, Melinda F. Wiggins, and Gina C. Firnhaber. 2020. "Coronavirus Pandemic Highlights Critical Gaps in Rural Internet Access for Migrant and Seasonal Farmworkers: A Call for Partnership with Medical Libraries." *Journal of the Medical Library Association*108(4):651–55. doi: 10.5195/jmla.2020.1045.

Lenzen, Manfred, Mengyu Li, Arunima Malik, Francesco Pomponi, Ya-Yen Sun, Thomas Wiedmann, Futu Faturay, Jacob Fry, Blanca Gallego, Arne Geschke, Jorge Gómez-Paredes, Keiichiro Kanemoto, Steven Kenway, Keisuke Nansai, Mikhail Prokopenko, Takako Wakiyama, Yafei Wang, and Moslem Yousefzadeh. 2020. "Global

Socio-Economic Losses and Environmental Gains from the Coronavirus Pandemic." *PLoS ONE* 15(7):1–13. doi: 10.1371/journal.pone.0235654.

Macias Gil, Raul, Jasmine R. Marcelin, Brenda Zuniga-Blanco, Carina Marquez, Trini Mathew, and Damani A. Piggott. 2020. "COVID-19 Pandemic: Disparate Health Impact on the Hispanic/Latinx Population in the United States." *The Journal of Infectious Diseases* 222(10):1592–95. doi: 10.1093/infdis/jiaa474.

Markey, Ray. 2020. "The Impact of the Covid-19 Virus on Industrial Relations." *Journal of Australian Political Economy*(85):147–54.

Moawad, Ruba Abdelmatloub. 2020. "Online Learning during the COVID-19 Pandemic and Academic Stress in University Students." *Romanian Journal for Multidimensional Education / Revista Romaneasca Pentru Educatie Multidimensionala* 12:100–107. doi: 10.18662/rrem/12.1sup2/252.

Noonan, Allan S., Hector Eduardo Velasco-Mondragon, and Fernando A. Wagner. 2016. "Improving the Health of African Americans in the USA: An Overdue Opportunity for Social Justice." *Public Health Reviews* 37(1):12. doi: 10.1186/s40985-016-0025-4.

Roy, Hironmoy, Kuntala Ray, Satyajit Saha, and Asis Kumar Ghosal. 2020. "A Study on Students' Perceptions for Online Zoom-App Based Flipped Class Sessions on Anatomy Organised during the Lockdown Period of COVID-19 Epoch." *Journal of Clinical & Diagnostic Research* 14(6):1–4. doi: 10.7860/JCDR/2020/44869.13797.

Saloner, Brendan, Sarah E. Gollust, Colin Planalp, and Lynn A. Blewett. 2020. "Access and Enrollment in Safety Net Programs in the Wake of COVID-19: A National Cross-Sectional Survey." *PLoS ONE* 15(10):1–11. doi: 10.1371/journal.pone.0240080.

Savić, Dobrica. 2020. "COVID-19 and Work from Home: Digital Transformation of the Workforce." *Grey Journal (TGJ)*16(2):101–4.

Sheykhi, Mohammad Taghi. 2020. "Coronavirus Environment vs Socio-Economic and Demographic Problems Followed: A Sociological Appraisal." *Middle East Journal of Family Medicine* 18(8):46–50.

Webb Hooper, Monica, Anna María Nápoles, and Eliseo J. Pérez-Stable. 2020. "COVID-19 and Racial/Ethnic Disparities." *JAMA* 323(24):2466. doi: 10.1001/jama.2020.8598.

Yancy, Clyde W. 2020. "COVID-19 and African Americans." *JAMA* 323(19):1891. doi: 10.1001/jama.2020.6548.