

Parallel Lessons from Climate Change and COVID-19

Amy Harvey

Abstract:

The COVID-19 pandemic has held a mirror to our society: exposing the cracks and blemishes of our many systems, highlighting the inequalities that exist, and revealing the disproportionate effects this disease has on definite segments of our communities. COVID-19 is considered a global emergency mirroring another ongoing global emergency: climate change which also impacts vulnerable sectors of our populations more significantly. It makes them more at risks to hazards and less likely to be able to adapt and recover from this environmental pandemic. Many of the issues currently faced by both emergencies stem from a historical imbalance in our communities and inherent social inequalities. It is further exacerbated by a growing disconnect between the pillars of sustainability: society, economy, and the environment. If we consider the parallels and links between the two global emergencies, we may gain insight into what our focus should be in order to help our world recover and prepare for a better new normal.

Keywords: Climate Change, COVID-19, Social Inequality, Sustainable Development Goals

Introduction

Disadvantaged communities are experiencing a disparity in the impacts experienced from both climate change and COVID-19. These differences are seen not only across lower socioeconomic groups but also in race, age, and even gender. These variables are often intertwined and compounded in their effects on the response to each emergency – the emergent health (COVID-19) and the environmental (Climate Change). A 2017 study by the United Nations Department of Economic and Social Affairs mapped out how multidimensional inequalities increase the effects of climate change on these disadvantaged populations (Islam & Winkel, 2017). These populations have greater exposure, susceptibility to damages as well as poor responses to and recovery from climate hazards. As a result, these disadvantaged sectors of our community continue to have higher losses that keep them from being able to recover as well or as fast as the privileged sectors of society.

Figure 1

Three Effects of Inequality on Disadvantaged Groups (Islam & Winkel, 2017)

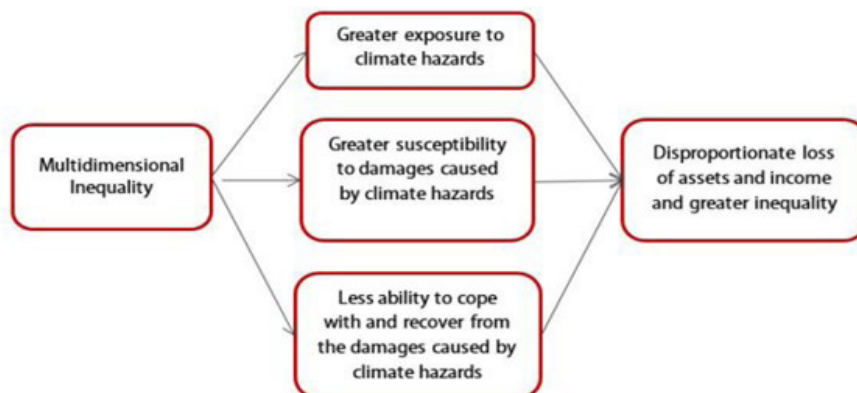


Figure 1 outlines the connections between multidimensional inequality, the effects of climate change, and the outcomes for these disadvantaged groups.

An analysis of social inequity and climate change policy actions in African countries concludes that higher social inequity resulted in less climate change policy actions. Studies specifically examined inequities in water, energy, and food security since climate change significantly impacts these three areas. The disadvantaged communities were shown to bear the burden disproportionately: climate change policy actions in water, food, and energy sectors fall around 23% for every 1% rise in the combined inequality in these sectors (Nyiwul, 2021). The previous author also identified that climate change policy actions in some countries and sectors do not benefit the poor but in fact widen the gap, further increasing their vulnerability (2021). It can be argued that these same patterns and connections studied through the lens of climate change are being witnessed as we face a global pandemic. This article will also explore the idea that social inequalities also influence how the COVID-19 virus affects disadvantaged people. These individuals are potentially more exposed and affected by the virus because their circumstances are enhanced by existing inequalities. Ultimately, there will be ramifications of the disease on all aspects of their lives, both in the short-term and the long-term. The effects of COVID-19 on these disadvantaged populations may be detrimental to their physical and/or mental health as well as to their economic stability, with environmental factors further contributing to the level of damage experienced.

Figure 2

Three Effects of Inequality on Disadvantaged Groups by COVID-19. Adapted from (Islam and Winkel, 2017) by Amy Harvey

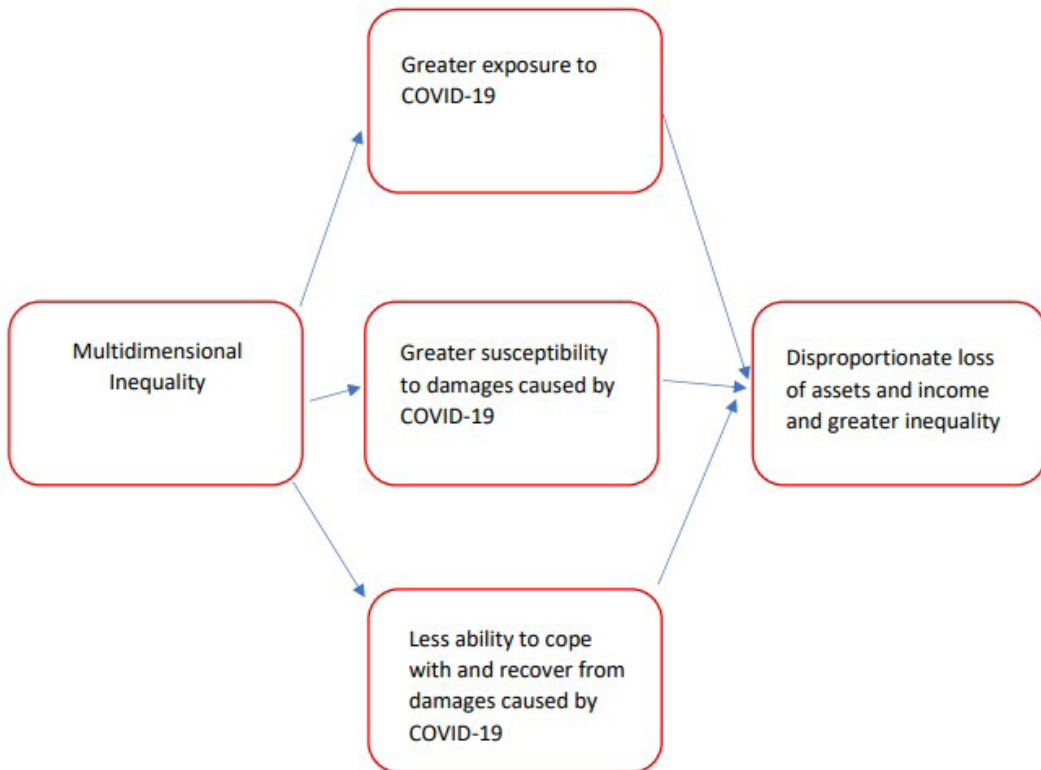


Figure 2 mirrors the connections discussed above for climate change but through the lens of COVID-19.

Exploring parallel lessons from each of these emergencies are essential to understanding the unequal outcomes enhanced by existing social inequalities. In 2015 The United Nations outlined 17 Sustainable Development Goals (SDGs) with Goal 10 addressing *reduction of inequality within and among countries* (United Nations, *THE 17 GOALS | Sustainable Development* 2015). Recognizing these existing inequalities and the significance of how they affect the overall sustainability of our planet is important for developing realistic solutions that give fair assistance to all parts of our society. Goal 10 needs to be prioritized first by countries so that the other Sustainable Goals are actually plausible and achievable. Earth needs a healthy population with equal access to a quality of life to combat any emergency that our planet faces.

An abundance of documentation shows that climate change is affecting poorer nations more significantly. In the early part of this century, a report entitled *Poverty and Climate Change: Reducing the Vulnerability of the Poor through adaptation* detailed that climate change is affecting the poor more and that in order to meet sustainable development goals, poverty reduction is key (OECD, n.d.). These nations are being hit hard by climate change through increased weather events, lack of food security, reduced access to potable water, and increased health risks due to exposure to climate hazards.

Similarly, during COVID-19, disadvantaged communities are more vulnerable to this disease in addition to already being at risk to aforementioned environmental threats. Pandemics and their uneven effects are not new. According to historian Frank M. Snowden, “Marginalized groups have long borne a greater burden from pandemics. Considering a third wave of bubonic plague lasting from 1898 to 1910, they follow the international fault lines of inequality, poverty, and neglect” (Snowden & Graaf, 2020, p.38). Massive inequalities exist globally; if they remain unchanged, they will prevent recovery and resiliency for the disadvantaged sectors of our community.

Inequity Based on Socioeconomic Status and Race

It is undeniable that climate change is bringing extreme weather occurrences to all parts of our world. However, depending on one’s locality, it may affect individuals differently, based on their socioeconomic status and race. The Intergovernmental Panel on Climate Change (IPCC) (Fifth Assessment Report (AR5), 2014) noted that differential effects of climate change with respect to race are found in both developing and developed countries, although in both cases low-income status is also intertwined with race and ethnicity. In 2021, for example, winter storms in Texas came at a time when Texan communities were already vulnerable from COVID-19. Texas had approximately 9% of the US reported corona virus cases with 44,178 registered deaths (<https://www.worldometers.info/coronavirus/usa/texas/>. Texas. 2021 February). It has been reported that the historic winter weather exacerbated pre-existing disparities like poor infrastructure and lack of resources in marginalized communities. Thus, Black and Latino communities who were disproportionately hit by COVID-19 struggled to recover from one of the worst weather events to ever hit Texas. Previous disaster response failures indicated the situation may get worse as the state thaws out (Yancey-Bragg & Jervis, 2021).

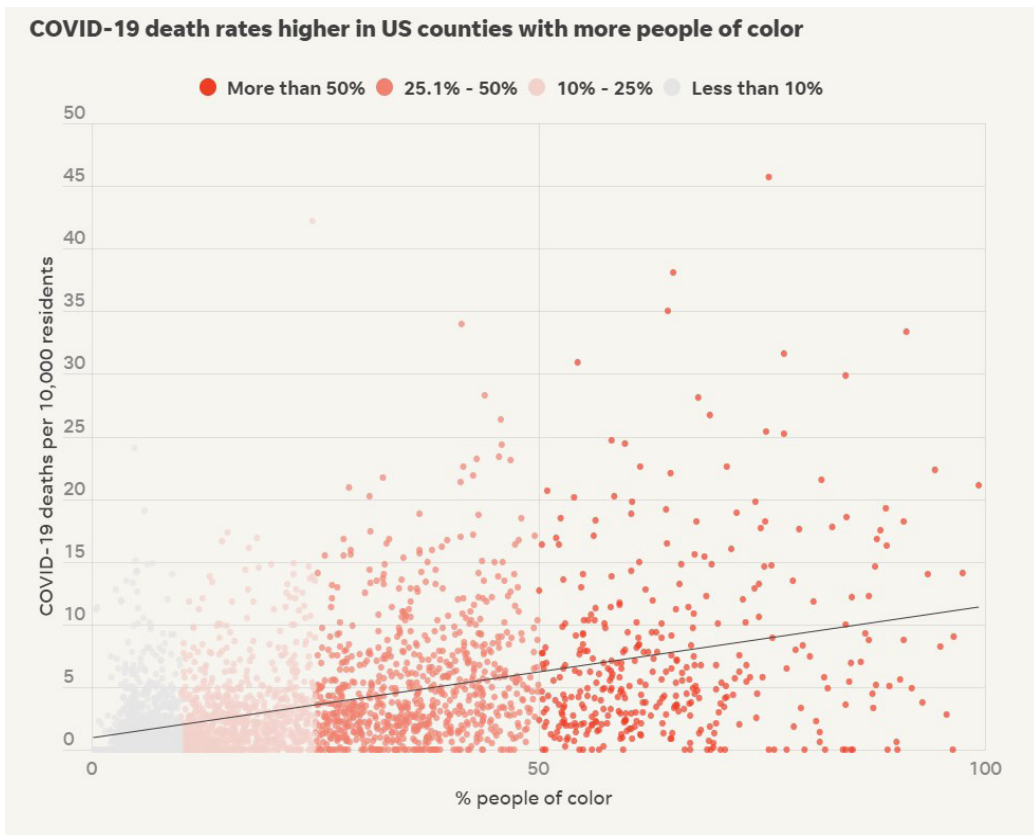
Added to the weather and Covid problems was exposure to environmental pollutants such as particulate matter (PM) that is emitted when the power plants are turned back on. Particulate matter with a diameter of 2.5 microns (PM2.5) is of particular concern for health risks, especially respiratory diseases. In the days before and after Hurricane Harvey in 2017, Houston’s network of petrochemical plants and refineries released millions of pounds of pollutants, raising health concerns in nearby communities (Dobbins & Tabuchi, 2021). A study conducted in 2019 by Tessum found that air pollution in the United States is not evenly distributed in terms of who is impacted by it. The researchers looked at consumption trends and found disparity in those that produced the emissions versus those that felt the burden of the pollution. This inequality was based on not just socioeconomic status but race as well. PM2.5 exposure is disproportionately caused by consumption of goods and services mainly by the

non-Hispanic, white majority, but disproportionately inhaled by black and Hispanic minorities. On average, non-Hispanic whites experience a *pollution advantage*: they experience 17% less air pollution exposure than is caused by their consumption. Blacks and Hispanics on average bear a ‘pollution burden’ of 56% and 63% excess exposure, respectively, relative to the exposure caused by their consumption (Tessum, 2019, 6001-6002).

Marginalized communities, not just in Texas but around the world, tend to live in industrialized areas, increasing their health risks in normal circumstances but escalating further risks during a pandemic. These disadvantaged communities tend to have houses that may not be built from materials that can withstand extreme weather conditions and simultaneously do not have the insurance to cover the damages after the fact. Similarly, these poorer communities have had limited access to resources for the fight against COVID-19. They experience barriers such as lack of testing centers, lack of insurance for medical care, as well as more exposure to the disease since the people in these communities tend to be essential workers who must work to pay bills. They have not been able to shelter in place like other socioeconomic groups. Furthermore, poorer communities tend to live in densely populated areas and in crowded, intergenerational homes – circumstances that make the spread of the disease more likely. According to surveillance data from the Centers for Disease Control on September 28, 2020, African Americans, who represent about 13.4% of the US population, comprised 18.2% of COVID-19 cases and 20.9% of deaths. Whites were underrepresented. African Americans were 3 times more likely than whites to become ill and 3.5 times more likely to die (Snowden & Graaf, 2020).

Figure 3

COVID-19 death rates higher in US counties with more people of color (Gomez et al., 2020)



SOURCE USA TODAY analysis of Census Bureau demographic data and Johns Hopkins University Covid-19 death rates as of Sept 1.

Figure 3 illustrates the positive relationship between the number of COVID-19 deaths and the percentage of people of colour affected by this disease.

This pattern is not unique to the United States. Systematic racism across many countries has made people of colour vulnerable to this disease because they have not had the same educational opportunities that could potentially put them in a better position to face COVID-19. Globally, Black, Indigenous, and other people of colour tend to live in densely populated and heavily polluted areas, putting them at further risk of not only catching the disease but also being more impacted by it. Of the 10 U.S. counties with the highest death rates from COVID-19, seven have populations where people of colour make up the majority, according to data compiled by USA TODAY (Gomez et al., 2020). This author also posits that of the top 50 counties with the highest death rates, 31 are populated mostly by people of colour (2020).

Brazil is having similar results in differences of mortality rates from COVID-19 based on socioeconomic status and existing inequalities. A study was conducted at the neighbourhood level in the Aracaju municipality, Sergipe state, Northeast Brazil. According to the study, “Geographically, the highest mortality estimates have been observed in the North and West zones, which have a large number of socio-economically deprived neighbourhoods in Aracaju” (Martins-Filho et al., 2020, p.2).

People living in socio-economically disadvantaged communities are substantially less likely to have education, adequate sanitation, access to clean water to wash hands, opportunity to work from home offices, and healthcare access (Martins-Filho et al., 2020). These poorer Brazilian communities also tend to have pre-existing conditions like hypertension and diabetes, making them more susceptible to COVID-19. Brazil has recently appealed for oxygen since the country, ironically, cannot supply its COVID-19 patients with the needed treatment despite having the Amazon forest which supplies 20% of the world’s oxygen. Marcellus Campelo, a local health secretary, said the state needed three times the amount of oxygen it can produce locally and appealed for help (Covid-19: Brazil hospitals ‘run out of oxygen’ for virus patients, as cited by *BBC*, 2021). Brazil has the second highest death tally behind the United States with respect to COVID-19. Socioeconomic disparities reduce the country’s ability to efficiently combat this disease.

Inequity based on Age

Covid-19 and Climate Change severely affect both ends of the age structure. Children and the elderly tend to be most susceptible to diseases that are often exacerbated by climate hazards such as increased temperatures and flooding. IPCC reports that flood-related mortality in Nepal among girls was twice as high as for women (13.3 per 1000 girls). The mortality rate was also higher for boys than for men (AR5 IPCC, 2014). Flooding not only causes physical damage to the homes where these children reside but also contaminates the water supply. About 361, 000 children under 5 years die because of diarrhea, resulting from inadequate access to clean water, sanitation, and hygiene (WHO, 2017). WHO also reported that some 200,000 children under 5 die from environmental-related injuries such as drowning, falls, and poisoning. The elderly also suffers ill health effects stemming from increased flooding episodes, as well as more exposure to further climate hazards resulting from not being able to relocate. Elderly residents of Limpopo, South Africa lacked access to labour necessary to construct their houses to withstand flooding. Consequently, their dwellings suffered greater damage (as cited in Islam & Winkel, 2017).

Additionally, increased temperatures from human-induced atmospheric warming are increasing the range of pests such as mosquitoes and thus the transmission of diseases carried by this vector. Warmer temperatures can also provide more suitable environments for some infectious agents in general. “Climate change can affect the epidemiological dynamics of multiple infectious agents, including vector-borne, water-borne, and food-borne pathogens. For instance, high temperatures can change the replication, virulence, and survival of microbes; and heavier more frequent precipitation may overwhelm sanitation systems or the viability and geographical distribution of mosquitoes” (Christaki et al., 2020, p. 2).

Approximately 200, 000 deaths from malaria among children under 5 years could be prevented through environmental actions, such as reducing breeding sites of mosquitoes or covering drinking-water storage (WHO, 2017). Health responses to increased temperatures may also be due to heat stroke, which affects elderly populations. Thus, the elderly and children in poorer nations will not be able to afford amenities like air conditioners to combat increased temperatures; consequently, these individuals may suffer even more. Heatwaves have notable effects on the elderly, particularly as they are already more likely to suffer from chronic illnesses, such as coronary heart disease or respiratory diseases that can be exacerbated by heat (Islam & Winkel, 2017).

COVID-19 also affects both ends of the age structure of a population for other reasons. The elderly, who are more fragile and who may have chronic conditions, will have potentially worse outcomes from this disease if infected than will younger persons. Higher mortality rates at older ages may be associated with the increased prevalence of chronic conditions such as cardiovascular diseases, diabetes, and chronic respiratory disorders (Jarosz & Kaneda, 2020). Those countries with higher populations of elderly should have prepared appropriate COVID-19 responses to protect those vulnerable age groups. Italy, for example, has an ageing population and implemented social distancing measures early on to help reduce deaths to the elderly residents.

In 2020, Italy was home to some of the oldest people in the world: nearly 30% of its population was 60 years and older and nearly 4% was aged 85 and older (Jarosz & Kaneda, 2020). February 2021 reports show that most deaths from COVID-19 in Italy were in the elderly population. Of the 94.9 thousand coronavirus deaths considered in one study, more than 86% were patients aged 70 years and older (Stewart, 2021).

Figure 4

Coronavirus (COVID-19) deaths in Italy as of February 24, 2021, by age group, (Stewart, 2021)

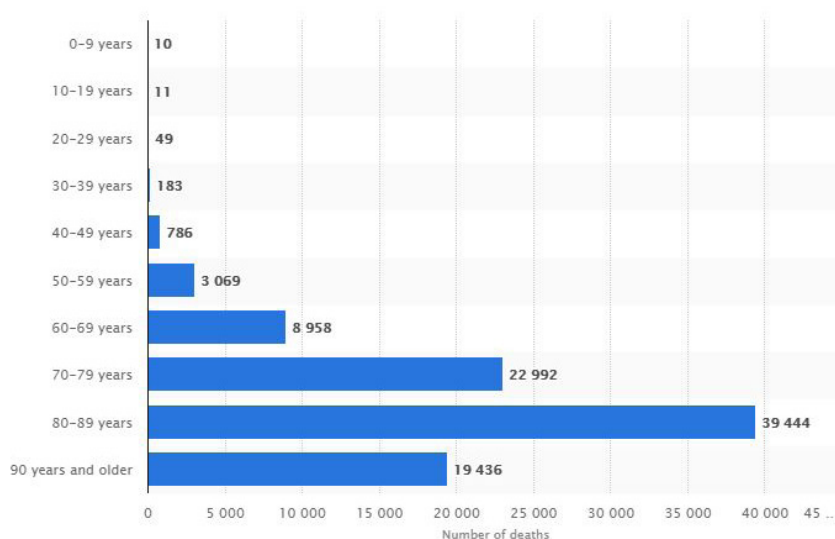


Fig 4 shows the spread of COVID-19 deaths in Italy based on age structure.

The younger population may not have high mortality rates due to COVID-19 but this disease is affecting this potentially vulnerable age group in other ways. Children in most countries have been in at least one lockdown in 2020, preventing them from going to school and socializing with their peers. They have been thrown into an unnatural environment that has affected both their physical and mental wellbeing. The COVID-19 crisis poses a substantial threat to children's mental health, physical health, and skills development, particularly if they are already disadvantaged (Yekaterina Chzhen, LSE British Politics and Policy, 2020).

It is important to note that the UK is a G7 country but has some of the highest rates of child poverty in the EU and OECD. Approximately 1 in 4 children in the UK live in income poverty (Yekaterina Chzhen, LSE British Politics and Policy, 2020). These impoverished children will be disadvantaged during the pandemic since they may not have access to the nutritional food that they usually received from the school system. Additionally, many families in lockdown will have reduced incomes and not be able to afford healthy foods which tend to be more expensive; these families are relying on cheaper processed foods. Having access to affordable nutritious food is the very basis of food security, which is under threat by both climate change and COVID-19.

In the US, though the CARES Act includes some provisions for maintaining school lunch programming and family nutritional assistance, since 2018 food insecurity has doubled among families with children (Snowden & Graaf, 2020). An added complication due to lack of nutritional food is that these families are relying on high-density calorific foods that lead to increased obesity, one of the morbidity factors that increase the severity of the individual's response to COVID-19 if contracted. Previous research has suggested that obesity, which is defined as having a body mass index (BMI) over 30 increases the risk of dying from Covid-19 by nearly 50% and being in hospital by 113% (Geddes, L., 2021).

A news article released on March 4, 2021 states that a World Obesity Federation report claims that around nine in ten COVID-19 deaths have occurred in countries with high obesity rates. This includes the UK, which has the third-highest COVID death rate in the world and the fourth-highest obesity rate (ITV News, 2021). Basically, socio-economically disadvantaged families are increasing their likelihood of becoming obese as the pandemic-induced lockdowns force sedentary lifestyles and reduced incomes lead to unhealthy diets.

Another effect from this pandemic on disadvantaged children is that they may not have access to resources needed to ensure that they are able to successfully learn in a remote setting when funding decreases as governments respond to stressed economies. In the US, 20% of the requested funding to expand building and online-learning capacity, processes, and outcomes should be carefully tracked and evaluated by local governments and school districts (Snowden & Graaf, 2020). Lack of education and access to it will only accentuate the problems for these vulnerable children and minimize their recovery from the overall effects of this pandemic.

Inequity based on Gender

Both Climate Change and COVID-19 are affecting women disproportionately around the world. Climate change, for example, is threatening water sources, making them harder to access. Typically, women and children are the ones who collect water for their families. With increasing drought, women especially must spend more time in search of clean, potable water and, therefore, have less time for other tasks. Women and children spend 200 million hours every day collecting water (Water.org, *Women and Water - A Woman's Crisis*, n.d.).

COVID-19 is also making life difficult for women in a manner that may have future repercussions on their careers. Women who do not have the same opportunity as men to succeed in the workforce under these current pandemic working conditions will see their career advancement stifled. Often the burden of household chores and homeschooling falls on women who are also having to work themselves. A recent study on publishing rates by

women during 2020 suggests that there is gender bias in what is being produced and published in scientific journals (Ribarovska et al., 2021). More research must be done. Furthermore, there were some inferences that there could be a shift in publications to countries that did not have as many women scientists (Ribarovska et al., 2021). However, an alternative explanation lies in increased care-giver responsibilities falling to women as childcare and schools below the tertiary level have closed and children have required home-schooling and full-time care (Ribarovska et al., 2021). Further studies should be conducted investigating pandemic-induced changes to lifestyle for women in the workforce and the possible effects on career progression.

Conclusion

The overarching parallel lesson that can be learned from both the Climate Change and COVID-19 emergencies is that we have a world that has multifaceted inequalities that compound the direct and indirect problems associated with each event. The solution for countries going forward is to address the SDG 10 immediately by striving for systems based on equality. We need our communities to have equal and fair access to a good quality of life that will not overburden the planet. This quality of life needs to be attained through sustainable behaviours that make sense and do not increase the gaps.

To close the gaps that inequality creates, governments need to focus on education which will drive empowerment and provide disadvantaged groups with more tools to participate in global solutions more fairly and sustainably. Countries with educational curricula that build on the concepts of sustainability while adopting holistic and inclusive approaches will thrive. Education will empower governments as well allowing them to make more sound policies that help all of their citizens. Empowerment through education will create populations who are prepared and resilient to any emergency they face.

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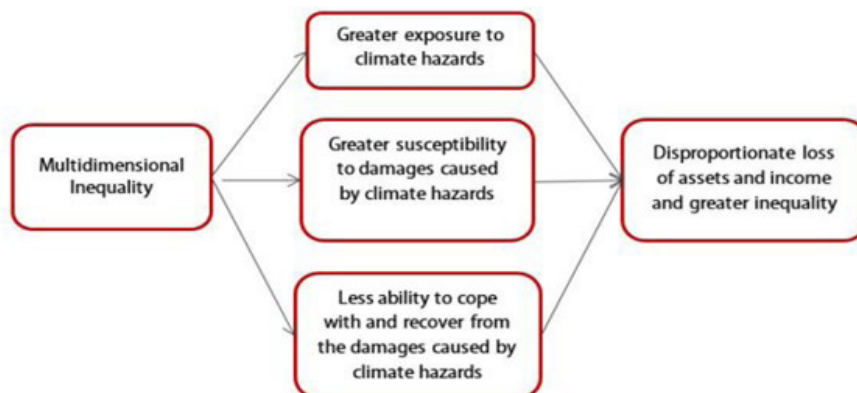


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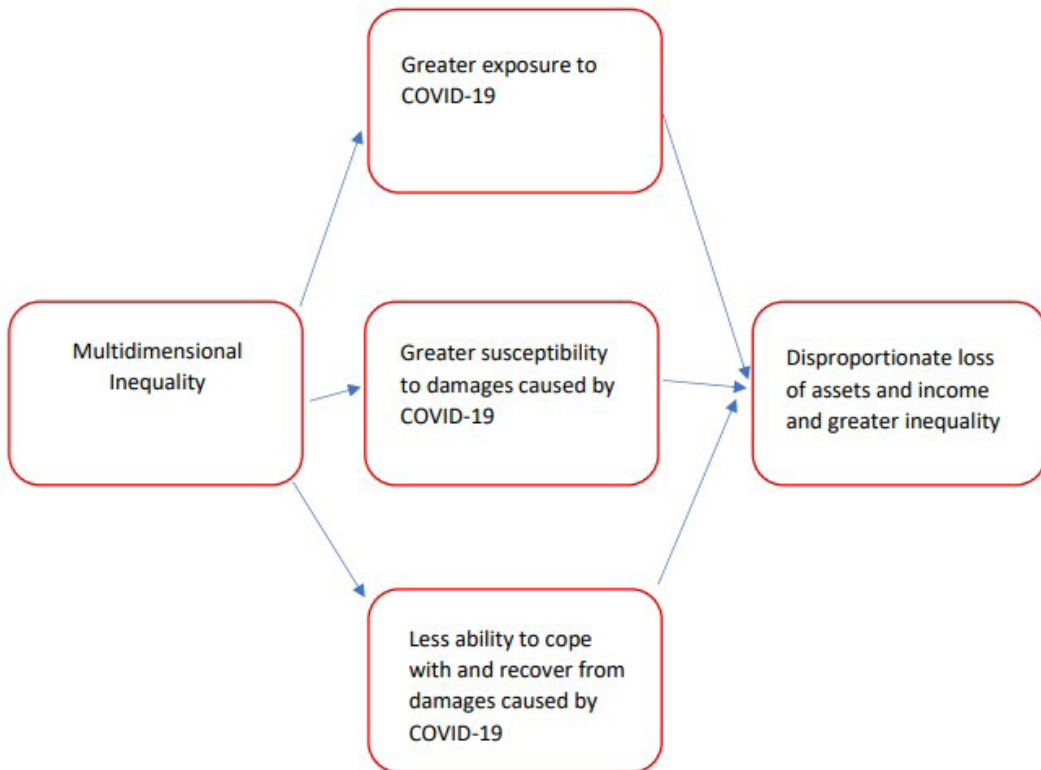


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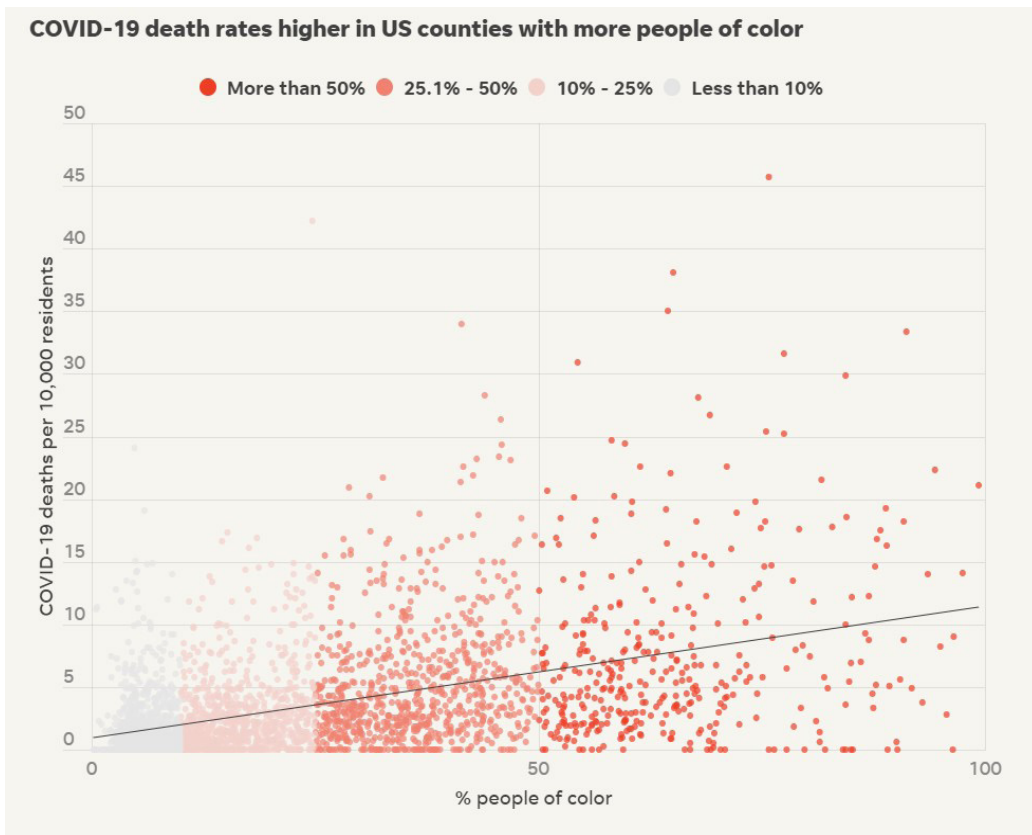
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This pattern is not unique to the United States. Systematic racism across many countries has made people of colour vulnerable to this disease because they have not had the same educational opportunities that could potentially put them in a better position to face COVID-19. Globally, Black, Indigenous, and other people of colour tend to live in densely populated and heavily polluted areas, putting them at further risk of not only catching the disease but also being more impacted by it. Of the 10 U.S. counties with the highest death rates from COVID-19, seven have populations where people of colour make up the majority, according to data compiled by USA TODAY (Gomez et al., 2020). This author also posits that of the top 50 counties with the highest death rates, 31 are populated mostly by people of colour (2020).

Brazil is having similar results in differences of mortality rates from COVID-19 based on socioeconomic status and existing inequalities. A study was conducted at the neighbourhood level in the Aracaju municipality, Sergipe state, Northeast Brazil. According to the study, “Geographically, the highest mortality estimates have been observed in the North and West zones, which have a large number of socio-economically deprived neighbourhoods in Aracaju” (Martins-Filho et al., 2020, p.2).

People living in socio-economically disadvantaged communities are substantially less likely to have education, adequate sanitation, access to clean water to wash hands, opportunity to work from home offices, and healthcare access (Martins-Filho et al., 2020). These poorer Brazilian communities also tend to have pre-existing conditions like hypertension and diabetes, making them more susceptible to COVID-19. Brazil has recently appealed for oxygen since the country, ironically, cannot supply its COVID-19 patients with the needed treatment despite having the Amazon forest which supplies 20% of the world’s oxygen. Marcellus Campelo, a local health secretary, said the state needed three times the amount of oxygen it can produce locally and appealed for help (Covid-19: Brazil hospitals ‘run out of oxygen’ for virus patients, as cited by *BBC*, 2021). Brazil has the second highest death tally behind the United States with respect to COVID-19. Socioeconomic disparities reduce the country’s ability to efficiently combat this disease.

Inequity based on Age

Covid-19 and Climate Change severely affect both ends of the age structure. Children and the elderly tend to be most susceptible to diseases that are often exacerbated by climate hazards such as increased temperatures and flooding. IPCC reports that flood-related mortality in Nepal among girls was twice as high as for women (13.3 per 1000 girls). The mortality rate was also higher for boys than for men (AR5 IPCC, 2014). Flooding not only causes physical damage to the homes where these children reside but also contaminates the water supply. About 361, 000 children under 5 years die because of diarrhea, resulting from inadequate access to clean water, sanitation, and hygiene (WHO, 2017). WHO also reported that some 200,000 children under 5 die from environmental-related injuries such as drowning, falls, and poisoning. The elderly also suffers ill health effects stemming from increased flooding episodes, as well as more exposure to further climate hazards resulting from not being able to relocate. Elderly residents of Limpopo, South Africa lacked access to labour necessary to construct their houses to withstand flooding. Consequently, their dwellings suffered greater damage (as cited in Islam & Winkel, 2017).

Additionally, increased temperatures from human-induced atmospheric warming are increasing the range of pests such as mosquitoes and thus the transmission of diseases carried by this vector. Warmer temperatures can also provide more suitable environments for some infectious agents in general. “Climate change can affect the epidemiological dynamics of multiple infectious agents, including vector-borne, water-borne, and food-borne pathogens. For instance, high temperatures can change the replication, virulence, and survival of microbes; and heavier more frequent precipitation may overwhelm sanitation systems or the viability and geographical distribution of mosquitoes” (Christaki et al., 2020, p. 2).

Approximately 200, 000 deaths from malaria among children under 5 years could be prevented through environmental actions, such as reducing breeding sites of mosquitoes or covering drinking-water storage (WHO, 2017). Health responses to increased temperatures may also be due to heat stroke, which affects elderly populations. Thus, the elderly and children in poorer nations will not be able to afford amenities like air conditioners to combat increased temperatures; consequently, these individuals may suffer even more. Heatwaves have notable effects on the elderly, particularly as they are already more likely to suffer from chronic illnesses, such as coronary heart disease or respiratory diseases that can be exacerbated by heat (Islam & Winkel, 2017).

COVID-19 also affects both ends of the age structure of a population for other reasons. The elderly, who are more fragile and who may have chronic conditions, will have potentially worse outcomes from this disease if infected than will younger persons. Higher mortality rates at older ages may be associated with the increased prevalence of chronic conditions such as cardiovascular diseases, diabetes, and chronic respiratory disorders (Jarosz & Kaneda, 2020). Those countries with higher populations of elderly should have prepared appropriate COVID-19 responses to protect those vulnerable age groups. Italy, for example, has an ageing population and implemented social distancing measures early on to help reduce deaths to the elderly residents.

In 2020, Italy was home to some of the oldest people in the world: nearly 30% of its population was 60 years and older and nearly 4% was aged 85 and older (Jarosz & Kaneda, 2020). February 2021 reports show that most deaths from COVID-19 in Italy were in the elderly population. Of the 94.9 thousand coronavirus deaths considered in one study, more than 86% were patients aged 70 years and older (Stewart, 2021).

Figure 4

Coronavirus (COVID-19) deaths in Italy as of February 24, 2021, by age group, (Stewart, 2021)

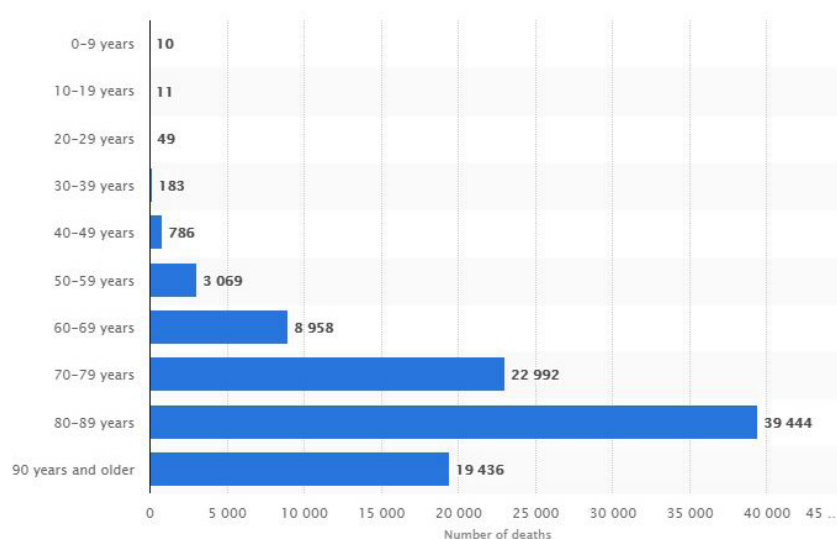


Fig 4 shows the spread of COVID-19 deaths in Italy based on age structure.

The younger population may not have high mortality rates due to COVID-19 but this disease is affecting this potentially vulnerable age group in other ways. Children in most countries have been in at least one lockdown in 2020, preventing them from going to school and socializing with their peers. They have been thrown into an unnatural environment that has affected both their physical and mental wellbeing. The COVID-19 crisis poses a substantial threat to children's mental health, physical health, and skills development, particularly if they are already disadvantaged (Yekaterina Chzhen, LSE British Politics and Policy, 2020).

It is important to note that the UK is a G7 country but has some of the highest rates of child poverty in the EU and OECD. Approximately 1 in 4 children in the UK live in income poverty (Yekaterina Chzhen, LSE British Politics and Policy, 2020). These impoverished children will be disadvantaged during the pandemic since they may not have access to the nutritional food that they usually received from the school system. Additionally, many families in lockdown will have reduced incomes and not be able to afford healthy foods which tend to be more expensive; these families are relying on cheaper processed foods. Having access to affordable nutritious food is the very basis of food security, which is under threat by both climate change and COVID-19.

In the US, though the CARES Act includes some provisions for maintaining school lunch programming and family nutritional assistance, since 2018 food insecurity has doubled among families with children (Snowden & Graaf, 2020). An added complication due to lack of nutritional food is that these families are relying on high-density calorific foods that lead to increased obesity, one of the morbidity factors that increase the severity of the individual's response to COVID-19 if contracted. Previous research has suggested that obesity, which is defined as having a body mass index (BMI) over 30 increases the risk of dying from Covid-19 by nearly 50% and being in hospital by 113% (Geddes, L., 2021).

A news article released on March 4, 2021 states that a World Obesity Federation report claims that around nine in ten COVID-19 deaths have occurred in countries with high obesity rates. This includes the UK, which has the third-highest COVID death rate in the world and the fourth-highest obesity rate (ITV News, 2021). Basically, socio-economically disadvantaged families are increasing their likelihood of becoming obese as the pandemic-induced lockdowns force sedentary lifestyles and reduced incomes lead to unhealthy diets.

Another effect from this pandemic on disadvantaged children is that they may not have access to resources needed to ensure that they are able to successfully learn in a remote setting when funding decreases as governments respond to stressed economies. In the US, 20% of the requested funding to expand building and online-learning capacity, processes, and outcomes should be carefully tracked and evaluated by local governments and school districts (Snowden & Graaf, 2020). Lack of education and access to it will only accentuate the problems for these vulnerable children and minimize their recovery from the overall effects of this pandemic.

Inequity based on Gender

Both Climate Change and COVID-19 are affecting women disproportionately around the world. Climate change, for example, is threatening water sources, making them harder to access. Typically, women and children are the ones who collect water for their families. With increasing drought, women especially must spend more time in search of clean, potable water and, therefore, have less time for other tasks. Women and children spend 200 million hours every day collecting water (Water.org, *Women and Water - A Woman's Crisis*, n.d.).

COVID-19 is also making life difficult for women in a manner that may have future repercussions on their careers. Women who do not have the same opportunity as men to succeed in the workforce under these current pandemic working conditions will see their career advancement stifled. Often the burden of household chores and homeschooling falls on women who are also having to work themselves. A recent study on publishing rates by

women during 2020 suggests that there is gender bias in what is being produced and published in scientific journals (Ribarovska et al., 2021). More research must be done. Furthermore, there were some inferences that there could be a shift in publications to countries that did not have as many women scientists (Ribarovska et al., 2021). However, an alternative explanation lies in increased care-giver responsibilities falling to women as childcare and schools below the tertiary level have closed and children have required home-schooling and full-time care (Ribarovska et al., 2021). Further studies should be conducted investigating pandemic-induced changes to lifestyle for women in the workforce and the possible effects on career progression.

Conclusion

The overarching parallel lesson that can be learned from both the Climate Change and COVID-19 emergencies is that we have a world that has multifaceted inequalities that compound the direct and indirect problems associated with each event. The solution for countries going forward is to address the SDG 10 immediately by striving for systems based on equality. We need our communities to have equal and fair access to a good quality of life that will not overburden the planet. This quality of life needs to be attained through sustainable behaviours that make sense and do not increase the gaps.

To close the gaps that inequality creates, governments need to focus on education which will drive empowerment and provide disadvantaged groups with more tools to participate in global solutions more fairly and sustainably. Countries with educational curricula that build on the concepts of sustainability while adopting holistic and inclusive approaches will thrive. Education will empower governments as well allowing them to make more sound policies that help all of their citizens. Empowerment through education will create populations who are prepared and resilient to any emergency they face.

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