The Effects of Negative Ambient Air Quality and Their Threat to Climate Change

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PLSC 400: Senior Seminar: Human Rights
April 29, 2020

I. Introduction

In a time when vulnerable populations suffer disproportionately from wealthy individuals, the poor and those of color suffer from bad air quality due to climate change within the United States. This is significant as it highlights how socioeconomic status and demographics play a role in air pollution as a climate change concern, indicating that nonwhite populations and those in poverty suffer, increasing their burden of disease. My research will focus on in what ways and why, will the poor suffer from bad air quality due to climate change within the United States? More specifically, my research reveals that people of color and poor populations suffer disproportionately to their white counterparts. Furthermore, populations in the Southern United States will have a negative impact on their health. In addition, Blacks and Hispanics are impacted significantly harder than the overall population. The poor in general suffer, due to socioeconomic status and disparities that contribute to pollution exposure. From a regional demographic standpoint, the Southern United States historically have higher levels of air pollution and negative air quality data, due to high ozone levels. In regard to socioeconomic status (SES), I will argue that it is the most important school of thought as it refers to air pollution effects on individual and group levels. My research will also reveal that those living below the poverty line often work and reside in urban and to a lesser extent rural areas and their wellness is threatened by the air they breathe, as their exposure is greater. I will further explore the relationship of air pollution effects on targeted populations and how income and wealth are overarching factors that emerge, as well as the health implications to those marginalized.

In understanding this connection, I have researched the populations of Detroit, Los Angeles, and the relationship of socioeconomic disparities and air pollutants. The significance of this finding reveals how socioeconomic status and demographics play a key role in air pollution

as a climate change concern. This finding uncovers that gaps exist between research data and scientists who wish to corroborate to explore future policy decisions. It should be noted that I believe cooperation and engagement of private and public sectors are crucial as government acceptance of scientific data is important to support climate change and regulatory standards. Government deniers need to be transformed to non-deniers. To scholars, this point is important because many gaps exist between research data and scientists who wish to cooperate to compose and enact policies. These decisions are crucial to effective government regulation. In the United States alone, "air pollution levels are relatively low, [but] emerging evidence suggests that adverse health effects continue to persist even at levels below current regulatory standards" (Zhang et al. 2019, 1727). Policy makers want practical solutions. For the United States, this presents a challenge to reduce air pollution in urban cities, which reports the highest levels of modern-day pollution. These stakeholders may consider how to incorporate quality control and utilize mitigation strategies to offset air pollution, as the fifty major cities see more red ozone days and higher levels of ozone concentration during the summer (Bell et al. 2007, 67-71). Citizens should also be concerned. How will bad air quality affect their health and daily lives? What regulation will the United States federal government institute? A study from Detroit, Michigan shows demographics play a crucial role in utilizing census data as a unit of analysis. Citizens who live below the poverty line in Detroit live in areas of non-attainment for sulfur dioxide (Martenies et al. 2017, 4). A study of low-income Hispanic women in Los Angeles produces similar data and also shows that higher burden obesity and social stressors is at play (Bastain et al. 2019, 1). This suggests urbanization is a large problem with air pollution levels exceeding the average level of Air Quality Indices, as motor vehicles worsen air quality and increase health risks among vulnerable populations. Air quality is a human right. This reveals

that in order to prevent vulnerable populations from the burden of disease due to negative ambient air pollution, the United States private and public sector needs to place emphasis on timely action to acknowledge the United Nations Sustainable Development Goals, more specifically, goal thirteen on climate action (United Nations 2015).

In order to address this issue, I will first discuss the socioeconomic disparities and inequalities of those of color. My findings will then reveal research of targeted populations that are negatively affected by air pollution, particulate matter, and ozone levels that present substantial negative health risks that impact the socioeconomically disadvantaged. To illustrate these findings, I will explain my methodology, the technical definitions that relate to air pollution, and analyze data. I will then delineate the relationship between the socio-economic disparities, the lack of college education, and the high concentration levels and exposure to negative ambient air pollution has on populations of color and those suffering from poverty. I will further expound on the negative implications of health to these targeted populations, solutions, and address further research.

II. Literature Review

The literature review compiled reveals that socioeconomic status and demographics play a role in air pollution as a climate change concern. Air quality should be considered a human right. Furthermore, the United States should acknowledge the United Nations Sustainable Development Goals. More specifically, the poor will suffer the most or as a result of disproportion. First, people of color will suffer disproportionately. Second, the poor will suffer as well. Lastly, people in the South United States will suffer disproportionately with historically more negative ambient air pollution. The people of color suffer because Blacks and Hispanics are hit significantly harder than the overall population. The poor in general suffer because of SES

and disparities that contribute to pollution exposure. The relationship of SES and exposure levels to negative ambient air pollution are essential points. Exploring this association will be the basis of my paper. I will discuss the different targeted populations and how income and wealth disparities contribute to negative health impact.

Body

In understanding the impact of bad air quality, it's first important to define and measure key terms. There are many measurements for air quality. On its most elementary level, air quality is the safety and health of the surrounding air individual's breath intake daily. The Air Quality Index (AQI) measures air pollution effects and its levels from 0 to 500 descriptor levels of air pollutants, with the hazardous levels greater than 300, the level of concern shown in this table.

AQI Basics for Ozone and Particle Pollution

Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	50 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

The 100 level is the standard set by the Environmental Protection Agency for those that are healthy and not in a high-risk category (AirNow 2019). Furthermore, the Clean Air Act designates National Ambient Air Quality Standards (NAAQS) known as the six common criteria air pollutants - ground level ozone, lead, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide which all pose serious threats (Clean Air Act 1963). "The daily AQI is determined by assigning an individual index to each of several pollutants: ozone (8- and 1-h averages); particulate matter (PM10 and PM2.5); carbon monoxide, sulfur dioxide, and nitrogen dioxide" (Bell et al. 2007, 64). These pollutants according to the general population relate to dust, smoke, soot, and droplets in the air. Furthermore, "NO_2 concentrations of oxide and nitrogen oxides primarily get in the air from the burning of fuel. NO_2 forms from emissions from cars, trucks and buses, power plants, and off-road equipment" (Environmental Protection Agency 2016). These pollutants are a direct result of transportation and factories located in high density, minority and low-income urban populations. In this paper, I will address how vastly different geographic region populations in the United States are threatened by the air they breathe as they work and reside in transportation reliant areas, heightening the risk of negative health.

School of Thought #1: People of Color will Suffer Disproportionately.

Some scholars argue that people of color will continue to suffer from negative air pollution if society does not recognize that employment, education, and income opportunities are needed to increase to offset the chronic daily stress this population endures to obtain access and equity to programs. NO_2 concentrations are two times greater among race than income level in urban areas and twenty times greater in rural areas (Clark 2014, 5). From an environmental injustice perspective, low income nonwhite individuals face higher rates, but overall NO_2 pollution is higher in inequality, in comparison to income. A study on health inequalities utilizes

the Atkinson Index to “assesses inequality across census blocks using the average health impact risk as a reference group” has been applied to air quality and income levels (Martenies 2017, 6). “. . . Inequality associated with . . . mobile sources is striking, resulting in the highest health burden and disproportionately impacts on Hispanic or Latino and low income communities,” demonstrates that income is often referred to in parallel with race (14). Data analysis makes it highly improbable, but a start can be “identifying characteristics that highlight historical patterns of racial and ethnic segregation and socioeconomic status that influence health disparities" (14). This argument of how people of color suffer has strengthened in terms of historical trends and how minorities are often shunned by the majority of the federal, state, and local electorate who often place their interests above and beyond those of minorities. An inherent weakness is evident in that minority ethnicities and blacks suffer on a national scale, as a comparison can also be made with urban versus suburban and rural communities.

School of Thought #2: The Poor will Suffer.

Socioeconomic status (SES) plays a role on an individual and area level scale, so various methodologies must be considered to accurately measure both. SES, in conjunction with negative ambient air pollution is “variable from place to place and researchers should carefully consider what it represents in the context of health studies” (Hajat 2015, 447). Poor individuals lack the political capital and social will to prevent an industrial power plant or other hazards from being built and these unwanted facilities often drive down economic value. “For these communities, it is plausible that differential exposure to air pollution may be a contributor to higher associations between air pollution and health than seen in better-off populations” (447). The poor will continue to suffer from negative air pollution as the demographics of the population have vulnerable health histories and underlying ailments, affecting various regions, as well as a high

mortality rate for infants and elderly. Daily stress of this population can also be associated with disproportionate childhood obesity. In addition, maternal pregnancy risks are in play and carry environmental exposure threats (Bastain 2019). A cohort study on the Maternal and Developmental Risks from Environmental and Social Stressors utilizes an assessment to link air pollution to obesity risks tying together housing characteristics, geographic information systems, occupation history, and other environmental exposure factors. Furthermore, "Over 15% of women reported a lifetime physician-diagnosis of asthma and over 26% reported a lifetime history of any allergies," noting that underlying health factors increase risk to air pollution (10). Therefore, mortality rates due to ozone depletion are of a growing concern. It should be note that this argument fails to highlight the depth and breadth of how SES and race are tangled, doubting some other findings. However, its strengths lie in the discussion of SES over various age and occupational groups, substantiating reference.

School of Thought #3: People in the American South will Suffer Disproportionately as well.

Other scholars argue that geography matters. High ozone concentrations and long-term exposure to negative ambient air pollution have a high health risk in some parts of the United States compared to others. A study of the EPA area that represents the Southeastern region of the United States from 1997-2000 shows "the greatest increase in 20-year returns of daily maximum temperatures", and health predictors of mortality continue to impact those at risk (Chang 2010, 2867). "For each community, daily counts of non-accidental deaths were obtained for the summer months during 1997 to 2000, revealing the 19 communities had a population of approximately 14.6 million based on the 2000 Census and the baseline mortality rate was 26.9 per 10,000 individuals" every year during the study period (Chang 2010, 2869). In addition, a 2004 study compares carbon dioxide and sulfur dioxide emissions with population growth

utilizing California as a model. It is evident that one region may not be an accurate sample and that ". . . [other] variables relating to the age structure of population, relating to the urban vs. rural settlement pattern and relating to the average household size in our estimations" are thus essential to be included in this geographic reference (Cole & Neumayer 2004). The Environmental Kuznets Curve (EKC) is a another scale that measures variables of population per income level compared to exposure to environmental pollutants. This identifies usage over a period of time determining elasticity and variation in the United States. Globally, in 2012, 3.7 million lives were lost to air pollution; in 2016, 4.3 million had been lost (World Health Organization 2014). For many, this was due to disease burden, particulate matter, disability-adjusted life years, and increase in non-communicable diseases (World Health Organization 2014). Researchers in North Carolina created the Transportation Demand Model to describe land use, transportation infrastructure, and average income per household. In calculating this model, "trip generation, trip distribution, mode choice, and trip assignment" were utilized to produce the Land Use Regression predictor to estimate concentration levels of air pollution (903). This predicts the particulate matter which demonstrates that the center of pollution is where all transportation networks intersect. This was created based on the South's issues with carbon emissions. Furthermore, air pollution by a geographical range has its own complications. The American South has more red ozone days due to health disparities and inherent racism, dividing healthy opportunities. On the other hand, other states and communities face similar issues that create a hotspot for negative ambient air pollution, but their hot spot just has failed to gain attention and momentum. Maybe, it has failed due to the size of community, political implications, or lack of resources? By not pinpointing specific areas of the United States and coalescing with all stakeholders, the movement to create better air quality could be lost.

Key Hypothesis

In urban and to a lesser extent rural, poor populations, people of color, and those socially and economically vulnerable in the United States will suffer from negative ambient air pollution as they are subject to health impact risks. This paper addresses the ways and who will suffer whether it be as a result of geographic area, SES, or racial distribution. “The poor will suffer as well” school of thought is the best representation of whom or what population will continue to be affected by negative air quality. Environmental health disparities are driven by pollution exposure, which is highly concentrated in low-income, nonwhite urban populations that already suffer from adverse health risks due to their SES. These disparities are easily correlated with level of income and vulnerability populations representing every individual of society expanding to a group, institutional, state, or national level impacting race, urbanization, and climate change threats that require a call to action from public and private entities to remediate.

III. Methodology

In order to research the ways and why the poor will suffer from bad air quality due to climate change within the United States I focused on the measurements of air pollution indices. I used the definition of air quality as the health of the surrounding air that individual’s breath. With respect to AirNow, the Air Quality Index (AQI) discusses air pollution effects and measures its levels from 0 to 500 showing an assessment of pollutants (AirNow 2019). Furthermore, the Clean Air Act designates the National Ambient Air Quality Standards (NAAQS) which are the six common criteria air pollutants discussed in the literature review. I want to investigate socioeconomic status and air quality. In comparison of locations, those with lower socioeconomic status (SES) disproportionately affect climate change, therefore result in

negative ambient air quality. The unit of analysis, locations in urban versus rural areas can be represented in a study from Detroit, Michigan which shows demographics play a role as citizens who live below the poverty line live in areas of non-attainment for sulfur dioxide. Lower SES is the measured independent variable shifting "from place to place, and researchers should carefully consider what it represents in the context of health studies", states the Current Environmental Health Reports. Utilizing this source, I also measure negative ambient air quality in the United States as the dependent variable to understand the differential exposure levels.

IV. Analysis

Socioeconomics

The independent variable of socioeconomic disparities is of immediate concern and must be addressed and are as critical to the health of these populations as is their relative exposures to high concentrations of negative ambient air pollution. Many urban and few rural communities have heavy concentration of industrial and transportation hubs, where low-income minorities work and reside, who are negatively impacted with income inequality and social disadvantages.

Table 2. Comparisons between population-weighted mean NO_2 concentrations for specific populations.

Group 1 (concentration in ppb)	Group 2 (concentration in ppb)	Difference (ppb)	Relative Difference (%)
National Comparisons			
Nonwhites (14.5)	White (9.9)	4.6	38
Below Poverty (12.4)	At or above poverty (11.2)	1.2	10
Low-income nonwhites (14.4)	High-income whites (11.0)	3.4	27
Less than high school degree (12.0)	High school degree or above (11.1)	0.9	8
Children < 5 years (11.6)	Age 5 to 65 years (11.3)	0.2	2
Nonwhite children below poverty level (14.3)	Age 5 to 65 years (11.3)	3.0	23
Elderly > 65 years (11.0)	Age 5 to 65 years (11.3)	-0.3	-3
Nonwhite elderly below poverty level (14.5)	Age 5 to 65 years (11.3)	3.1	24
Urban Comparisons			
Black Hispanics (18.9)	American Indians (12.8)	6.1	38
Black Hispanics (18.9)	Total (14.2)	4.7	28

In Table 2, in Group 1 and 2 population comparisons from a study on the "National Patterns in Environmental Injustice and Inequality: Outdoor NO_2 Air Pollution in the United States" reveals that urban areas like New York, Michigan, and Wisconsin, the burden of disease falls particularly on those communities with high percentages of Hispanics and Blacks, although their population is less than those of White ethnicity living in the same community (Clark 2014, 3). More specifically, the study shows that nonwhites are on the average exposed to 38 percent higher levels of outdoor NO_2 than whites in the communities where they live (2). That gap varies across the country and it's significantly higher in urban communities where emissions from transportation and industrial power plants are housed, adjacent to busy streets and roads. This study, used 2000 Census covering 280 million people, using 2006 annual average ground-level NO_2 concentration estimates from census blocks and satellite land and data (2). The disparity of negative ambient air pollution dependent variable is widened further when analyzing the independent variable of SES inequalities.

The dependent variable of exposure to negative ambient air pollution is more apparent in urban areas than rural areas due to the reliance on transportation. These populations often represent uneducated and unskilled labor that struggle in their daily lives and are prone to have underlying health conditions of diabetes, asthma, related respiratory illnesses, and low-birth weight newborns. The patterns here demonstrate that air pollution is segregated, suggesting that people of color, while simply walking to and from work and school, inhale exhaust from tailpipes and smokestacks. Although this study presents validity to support this paper, it does not account for differences in vulnerability and only considers two outcomes that of exposure to NO_2 and negative health. However, disparities that exist for people of color who suffer from environmental injustice and inequality are statistically higher than their White counterparts.

This dependent variable, the negative ambient air pollution, disproportionately preys on those living in urban destinations and more so on those with adverse health risks. Keep in mind "the [negative ambient] exposures alone do not account for vulnerability factors that can increase the risk of an adverse health impact" as studied in Martenies' "Disease and Health Inequalities Attributable to Air Pollutant Exposure in Detroit, Michigan" based on Census Data from 2010 (Martenies 2017, 2). The vulnerability increases when the health burden and health inequities to air pollutant exposures increase at the urban scale, evident in this Detroit study where the stressors of SES among low income groups, people of color, and the elderly are disadvantaged and do not have access to healthcare for intervention. These stressors contribute to vulnerability factors and underlying health conditions, particularly those with Asthma and Chronic Obstructive Pulmonary Disease (COPD) who have the most negative health impacts. The burden of disease most significantly is impacted by those in urban communities with low SES, primarily nonwhites and those in poverity. Those sixty-five years of age and older, with Asthma, had an incidence of 46% and COPD, with an incidence of 23% of hospitalization cases (8). These findings are no surprise as disproportionality is seen across other societal disparities that address access and equality to a better quality of life for nonwhite and poor individuals, proving my hypothesis that these populations will suffer the most from negative ambient air pollution.

Access and equity in education drives that better quality of life and a college education can raise individuals into a higher SES bracket; it is common knowledge that a college education increases income, despite reports of income inequality. Blacks and minorities are underrepresented in government; only "22 % of the House of Representatives and Congress and are non-whites" and although inroads have been made in 2019-2020 elections, there is still progress to be made (Lopez 2019). Affirmative Action, whereby blacks are given equal access

to a college education is critical, not only to make the playing field equal, but to increase diversity with minorities on campus for the common good of all humanity and create wealthy minorities to give them opportunities to locate in communities that do not have negative health risks, like transportation and industrial dense neighborhoods with high exposure to negative ambient air pollution, dependent on low-income Hispanic and Black populations.

Air Pollution and Climate Change

In reviewing the areas that will be most affected by the negative ambient air pollution, consideration needs to be given to the Southeastern United States study conducted by Chang published in 2010. While it reveals that short term exposure to negative ambient air pollution has minor health impact, repeated exposure to high temperatures and solar radiation in urban Southeastern cities increases the mortality rate. Table 1 applies models created in 2000 to future mortality predictions in 2041–2050 in Southeastern states.

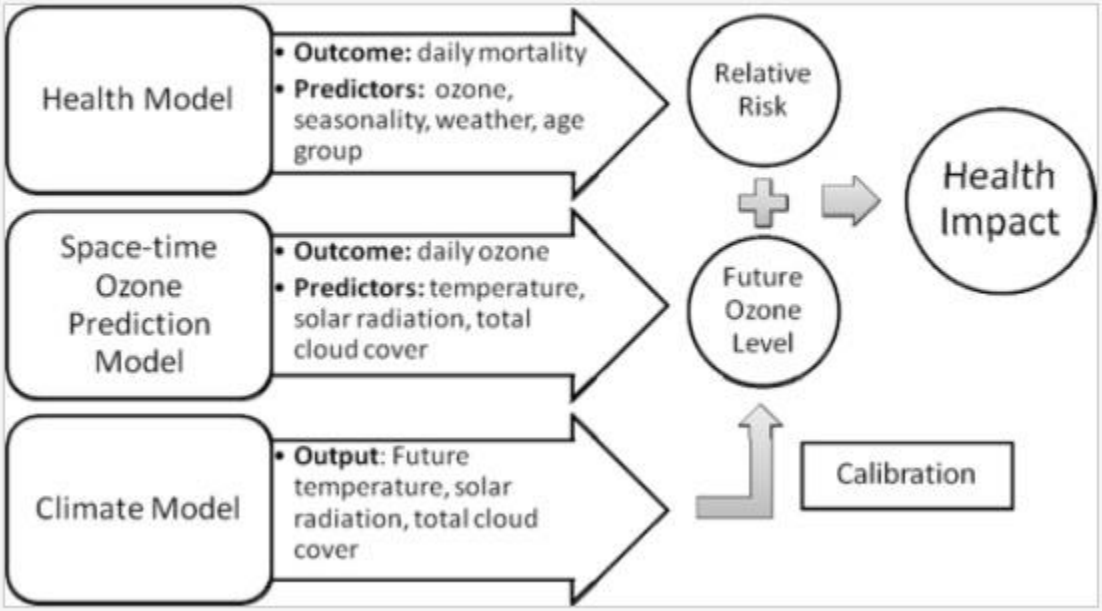
Table 1. Estimated number of non-accidental mortality associated with change in ozone level between 2000 and the period 2041-2050 across 19 urban communities in Southeastern United States based on different exposure lag in days.

Exposure lag	**Estimate**	**95% Posterior Interval**
Lag 0	19.1	(-4.5, 42.6)
Lag 1	40.0	(6.15, 73.8)
Lage 2	19.1	(3.63, 34.6)
Lag 0-2	45.2	(3.26, 87.1)

This table shows that additional “non-accidental deaths due to variable lag time exposure to high ozone levels will increase from 19 to 45,” annually, unless remediation to climate change is instituted (Chang 2010). These findings indicate that high exposure to negative ambient air represents the highest risk factor. The Southeastern cities are urban communities and it would be irresponsible not to make the correlation to Hispanic and Black populations that work and reside in these areas, resulting in negative health impact.

In addition, in looking at global climate models and calibrating the future ozone impact to these Southeastern cities Figure 1 demonstrates that the increase in ozone concentrations, coupled with the relative risk, will adversely affect health impact.

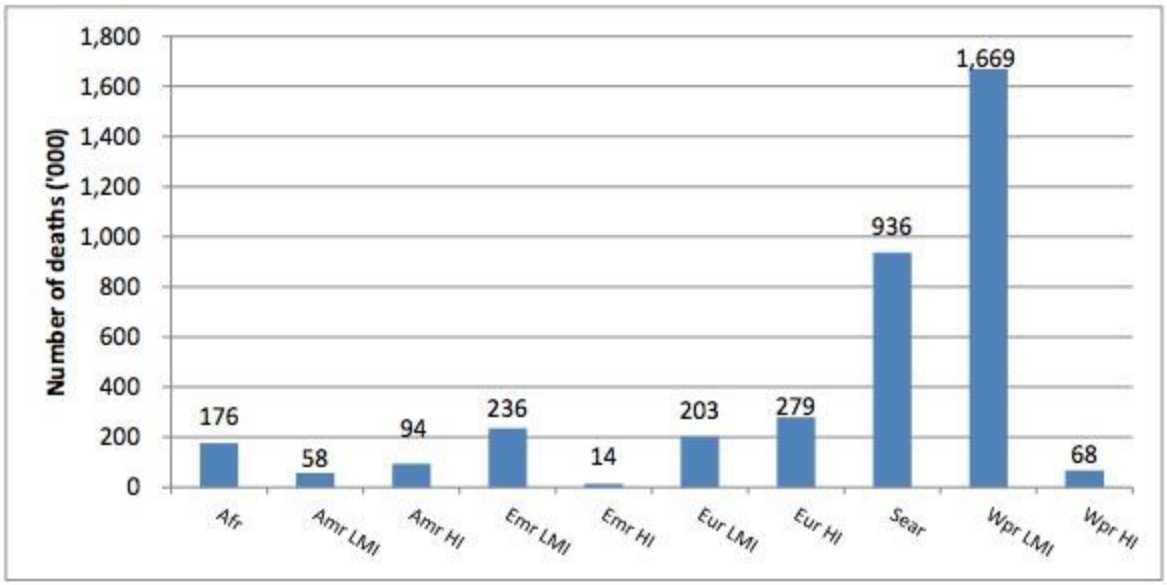
Figure 1. A modeling framework integrating climate model outputs, meteorological observations, and health data to quantify the health impacts of future ozone level.



So, given this data and modeling samples, I argue that if inaction to climate change continues, negative health impact will continue to rise. Those most affected are low-income, uneducated minority populations, placing relevance on my first and second schools of thought that poor and those of color are disproportionately affected by negative ambient air pollution.

Furthermore, in viewing Figure 1 from the World Health Organization, globally the attributable deaths as a result of negative ambient air pollution increase exponentially in low-and middle-income countries (LMI), whereby countries in the Western Pacific and Southeast Asian regions bear most of the burden.

Figure 1. *Total deaths ('000) attributable to AAP in 2012, by region*



AAP: Ambient air pollution; Amr: America, Afr: Africa; Emr: Eastern Mediterranean, Sear: South-East Asia, Wpr: Western Pacific; LMI: Low- and middle-income; HI: High-income.

It should be noted that although this research paper focuses on United States targeted populations and areas, in comparison to the world, the number of deaths attainable to ambient air pollution are meniscal. This places an even larger burden on those committee members of the United Nations Sustainable Development Goals, which addresses, "a better and more sustainable future for all . . . including those related to poverty, inequality, climate change, environmental degradation, peace and justice" (United Nations 2015). Access to education, elevating the socioeconomic opportunity for low-income minorities, and equality are all human rights that intersect and must be addressed in the United States and globally to eliminate the burden of disease.

The data represented in my schools of thought validates my hypothesis that the poor will suffer disproportionality to negative ambient air pollution that are of color and live in urbanized geographic areas that are transportation reliant. However, there are limitations to the research and constraints of time factors that force scientists to conclude their studies early, as well as

technical tools available, and geographic restrictions. Scientists operate within miniscule margins of errors and may under or overestimate their measurement findings. There are also challenges in comparing studies to one another as models and frameworks used are discrete and therefore, have discrepancies. In considering the totality of the data, research consistencies need to include sample and measurements in rural areas, increase in time period and months of testing, widened geographic areas to be studied, longitudinal studies, and allowance for dependent variables of temperatures and cloud cover that could skew and inhibit data collection. Also, it would be interesting to research a sample size of individuals that had multi-generations of mortality due to ambient air pollution who were able to reverse the course of the burden of disease by undertaking educational opportunities to raise their SES, therefore removing this population subset of independent variables from the vulnerable population, thus decreasing their health risk.

V. Discussion/Conclusion

Essentially, my research findings confirm that the poor and those of color will suffer and bear the burden of disease of negative ambient air pollution. This is unacceptable as good air quality is a human right and climate change is a growing threat to society, as well as inadequacy in righting the wrongs of racial inequality by replacing those terms with racial access and equity to education for at risk populations, noted in this research as Hispanics and Blacks.

For decades racial inequality has shadowed over the United States, although progress has been made. Non-whites continue to be under-represented across all private industries and public sectors. The social welfare, health and economic well-being of vulnerable populations is at risk for exposure to high levels of ambient air pollution as they reside in urban communities that are transportation reliant, exposing them to concentrated levels of ozone, for long periods. It makes me wonder if we simply need to move these populations out of urbanity or permanently

intervene to provide them with access to education? While uncertainty exists as to the direction of climate change, it is critical to create outreach programs to remove the barriers of this disadvantaged population. Although racial disparities will continue to exist, it is well-known that college educated individuals live healthier lives because of their access to healthcare. It is well documented that when economic downturns and natural disasters occur, low-income populations are disproportionately affected. This trend continues today as individuals across the world are quarantined due to COVID19, the respiratory illness that is fatally killing individuals, with "Hispanics residents representing 34 percent of the deaths in New York City and Blacks, representing 28 percent of deaths" (The Editorial Board 2020). Public, private sectors and nonprofit organizations need to coalesce to provide the opportunity and option to those who want a college education. In giving Hispanics and Blacks access to education, their SES rises and as a byproduct their underlying health improves and the opportunity for mobility out of heavily polluted communities increases.

While education is of primary importance in moving the disadvantaged and people of color out of poverty, it is morally and ethically unfair for inaction on climate change as the negative implications to health and increases in mortality are compounded the longer climate deniers exist. The science community, public advocates, and the policy makers need to compose substantive, consistent, and constant climate change narration and legislation that can clearly convince the audience in the United States the severity of climate change and for them to focus on realistic and positive outcomes, solutions and mitigations as outlined in the United Nations Sustainable Development Goals. Air pollution knows no boundaries or borders.

Society in general, and American people in particular see scientific evidence and findings that discuss the horrific implications climate change has to future generations but are reticent to

acknowledge forecasts as they are content with known outcomes and there are variables present in climate change forecasts. However, this inertia in discounting future losses is unfortunate and hinges on Americans inability to confront any change to their lifestyle, analogous to converting to using recycled, multiple-use bags in lieu of one-time paper or plastic bag usage at grocery stores. This is a challenge and although challenges may result in immediate losses, the long-term benefits of climate change are a societal and moral obligation necessary to avoid the imperil of the planet.

America is a democracy. What if scientists joined social media experts to create a bipartisan plan to promote and communicate the tangible benefits of climate change affecting low-income populations? What if an updated version of *An Inconvenient Truth* were filled with widespread distribution with an emphasis on a member of a multiple generation of low-income, poorly educated achievers that produced a college educated individual in the upper SES to demonstrate opportunities? What if policy makers, advocacy groups, public intellectuals, and corporations arrange for ongoing United States summits aligned with the Paris Climate Agreement? What if American schools revised the science curriculum to mandate a unit on climate change as it appears the burden of disease of negative ambient air pollution may descend upon the next generation? What if economists highlighted the revenue benefits that would be recycled to corporations and households to offset the conversion to solar power, alternative energy, or renewable energy? Climate change, air pollution and health are linked. Imagine if air pollution was minimized and health was improved, obtaining a multiplier effect by saving money on medical costs and having society pump that money into the economy. These are realistic benefits that need to be communicated globally and immediately.

Every American has a moral responsibility to make climate change conversation happen. A common shared outlook on climate change without the clutter needs to take form. Climate change bickering must stop. Activism needs to be multi-faceted. Mobilization needs to be at all levels of society. Climate change is here and now, and the United States can no longer wait until a progressive presidential leader, hopefully, takes office in 2020 to combat climate change and the ravaging effect on the Hispanic and Black populations. Climate change is absolute. Humanity must embrace climate change. Public and private sectors should view climate change and the devastating health risk it presents to those disadvantaged as an opportunity to engage in conversation to overcome obstacles, attitudes and values that need to be changed, and political ideologies and allegiances that need to be shifted to curb the current and future mortality rates.

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