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Health Care in the Caribbean: A Comparative Analysis Between Cuba and Puerto Rico

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Health Care in the Caribbean: A Comparative Analysis Between Cuba and Puerto Rico

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Honors Research Project

Submitted to the Honors College at Bowling Green State University in partial fulfillment of

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1. Introduction

The paper at hand focuses on comparing the differences of the Cuban and Puerto Rican health care (HC) system and conditions. These two countries have vastly different cultures, but they share similar geographic location and climate exposure. The analysis was made by taking into account a series of factors that affect the health condition of the population of each country over history and by comparing tangible current data of certain illnesses. The factors that were taken into account are: (a) Political and Health Care Systems, (b) Natural and Artificial Disaster and (c) Country's Demographics and Health Statistics.

1.1. Introduction to Considered Factors

a) Political and Health Care Systems,

Health care systems across the world have drastically changed throughout history as border lines were established and governments adapted to the needs of their growing populations. Countries shaped - and continue to evolve- their respective health care systems with their own paradigms focusing on different aspects of health and based on different political ideologies. While HC systems are built to serve and assist the population of a country, certain ideologies provide the foundation of how such services should be provided. Political ideologies vary greatly throughout history and for the purpose of this research we will consider the prevalent political ideologies in Cuba and Puerto Rico through the past decades: socialism and capitalism. Consequently, by having a general idea of the political system of each country would help to understand the type of health care system that was created in each nation,

b) Natural and Artificial Disaster,

Natural and Artificial disasters have created chaos in countries throughout the world. The destructive power of a hurricane or the effect of a man-made disaster in a country can have unimaginable effects on the overall health care system of a country. This is specifically true of Puerto Rico and Cuba as their geographic location as Caribbean islands, and historical interference from foreign countries, has deeply affected the country's infrastructure. Not only that, but it is important that one "recognize the deep, human-induced roots of climate change, inequality and the underdevelopment of former colonies – all of which increase the Caribbean's vulnerability to disaster" (Gahman and Thongs: 2017). Such vulnerability to geographic disasters along with international interference has severely slowed down the potential progress of the HC system of Cuba and Puerto Rico. Still, for the scope of this paper, we will only focus on certain events such as Hurricane Irma, Hurricane Maria, The Vieques Island military base effect on Puerto Rico, and the Fidel Castro totalitarian government effect on Cuba.

c) Country's Demographics and Health Statistics

Finally, both countries will be compared through a numerical perspective of the main indicators of demographics and health statistics. The demographics will include population structure by sex, age, life expectancy and infant mortality. Health statistics will include the leading causes of mortality in both countries as well as births attended by trained personnel, maternal mortality, and incidence of tuberculosis, malaria, diabetes mellitus, cancer and hypertension. However, although this research attempted to be as comprehensive as possible within the parameters of health, it is important to realize that not all conditions could be compared as data is scarce on either country.

By doing an extensive review of the aspects described above, this research paper hopes to not only shine a light on the health disparities between both countries, but to also highlight how history has affected the HC system of both countries on an unimaginable scale. Such comparisons will be made in order to test the hypotheses that (1) the social model of health care in Cuba is more effective than the model established in Puerto Rico, and (2) although both countries have different political systems, historic background summed with natural and artificial disasters have deep effects on the overall HC system of both countries.

2. Methods

As this is a comparative research analysis, this was done by reviewing many different reliable sources and compiling the relevant information from Cuba and Puerto Rico. Further, once the information was compiled, critical thinking skills were used in order to make the comparison between both countries and arrive to relevant conclusions.

3. Findings

3.1. Political and Health Care Systems

Although socialist ideologies have been attempted by many countries, including Cuba, “some basic concepts of Marxist economic theories, among which is the idea that socialist planning and the market mechanism are mutually exclusive, have so far remained untouched by socialist economic experience” (Sik:1967). Still, Fidel Castro proclaimed himself as a socialist leader whose economic and social decision were influenced by said ideologies. To this end, the focus through this research is only on how the socialist ideology instituted by Fidel Castro was heavily focused on a social HC system. Within socialist ideologies, the well-being of the population should not be affected by the pursuit of economic profits for an individual or corporation as the market dictates. “The socialist condemns the grand principles of the individualist as the

conditions of this subjection and exploitation” (Dobbs:2012) and for such means, systems tend to be built and funded by the state and for the people. Historically speaking, states that follow such egalitarian views tend to legislate health and medical care as a human right that is guaranteed to every citizen and funded by the state. This can be seen when, in 1959, Cuba established a universal health care model where each citizen was granted equal access and rights. This was further affirmed in the 1976 Cuban Socialist Constitution where health and medical care were considered "of the highest priority” through a free-to-the-patient system (Schwab, 1997)

With that in mind, the Cuba HC system is comprised of many elements that were created in order to access as many people as possible and provide a quality primary care for the population. On a general level, the Cuban HC system is composed of “almost 13,000 local family practices and 451 polyclinics that offer general and specialty care” (Blumenthal: 2017). While polyclinics are specialized centers that also deal with public health services, family practices are composed of a doctor and a nurse who are “responsible for between 1,000 and 1,500 patients, and physicians are required to visit every patient in their home at least yearly” (Blumenthal: 2017). Finally, the Cuban HC also includes secondary and tertiary levels of service, which are composed of 151 community hospitals and “12 institutes that offer highly specialized care and participate in teaching and research” (Blumenthal: 2017) respectively. Such organization of the Cuban health care for the population has given Cuba the recognition as having one of the most effective HC systems amongst developing countries.

On the other hand, under capitalist ideals “stimulus for entrepreneurial activity is no longer the obtaining of the necessary use values from others, but the process of expanding” (Sik: 1967) which leads to economic decisions that follow the demand of the market and focuses on profit above the care of the individual. Such individualist views promulgate HC systems that are profit

driven and treat HC as a common good, not a human right. “From this specific fact there comes the necessity to transform the value of goods (as the basis of exchange relations) to a capitalist production price” (Sik: 1967) where health care is simply a good that is to be exchanged for a value. The search for value within goods encourages governments to open the doors to the privatization of key institutions within a country. In the United States “government has channeled vast sums through private insurers and providers” as a consequence of the commercialization of care, prices within the HC are ramped up by “diverting money to profits and by fueling a vast increase in management and financial bureaucracy” (Hummelstein & Woolhandler: 2008). However, capitalism does not imply the free reign of corporations. In fact, corporations cannot properly function without interacting with the public sector of the country, or without being under appropriate legislation. Because of that, in order for individuals or corporations to own and control property for private gain, capitalist societies see an increase in public-private partnerships as the system is “based on a complex and continually evolving political bargain in which private actors are empowered by a political authority” (Scott: 2006).

Although relatively recent, Puerto Rico’s HC system shifted towards a privatized system after years of hardship. In fact, until the early 1970’s Puerto HC was constitutionalized as an essential human right with the construction of four 280-bed hospitals that, with a series of smaller hospitals and clinics, “formed the backbone of Puerto Rico’s regionalized health care system” (Perreira, Peters, Lalleman, and Stephen: 2017). All this changed by the late 1970’s when the public HC system “became increasingly decentralized and fragmented” and low-income families “insured by Medicaid and Medicare began to exit the public health care system and opted to receive their care through the newly formed private sector” (Perreira, Peters, Lalleman, and Stephen: 2017). Now, the Puerto Rican population is spread through private and

public health care with a proportion of: 49% covered by Medicaid, 11% covered by Medicare, 34% covered by Employer Insurance, and 6% uninsured (Henry J Kaiser Family Foundation: 2016). Although the percentage of people covered by Medicare and Medicaid is relatively high, “according to estimates from Medicaid and Medicare Service Centers, in Puerto Rico there was a reduction of 11% in 2016 funds from Medicare Advantage” (PAHO/WHO: 2016). Such reduction of funds can deeply impact the capacity and coverage of how both programs function within the country. This means that the level of care changes as less funds are allocated to specialized services and patients that have to go to an “assigned physician, according to what kind of coverage they have” will have even less options of coverage (PAHO/WHO: 2016).

3.2. Natural and Artificial Disasters

Cuba has been recognized internationally for the creation of a very effective HC system. However, not much has been done to address how Castro’s totalitarian government affected the population. Although this paper does not offer a definite answer to Castro’s actions and consequences on the population, it looks at his government through an analytic view in order to address health in the Cuban population over time. Totalitarian governments are characterized by the use of violence and other means of oppression within a country and Castro’s government was no different as it by 1987 a “credible estimates of the Castro regime’s death toll ran from 35,000 to 141,000, with a median of 73,000” (Garvin: 2016). Further, totalitarian states are in a constant “internal and/or external war against real and imaginary enemies, and therefore their top priority is to strengthen their armed forces and forces of internal repression, leading inevitably to human rights violations” (Abed: 2005). It is known that traumatic events, including human rights violations through oppression, can lead to many psychological conditions including post-traumatic stress disorder, depression, anxiety and many more. By considering the violence,

emigration, imprisonment, and other actions of the Castro's government, one can see how "policies of the totalitarian state have the potential to cause severe psychological distress" (Abed: 2005). This is reflected on Cuba's suicide rate which "tripled under Castro" leading to an overwhelming number of 1,500 Cubans who commit suicide every year (Garvin: 2016). Even now that Castro is dead, his legacy remains in the minds of thousands who were directly affected by the regime. Because of that, such events cannot be discarded and must be considered when taking into account the mental health of the citizens of Cuba as "this diversion of state resources leads inevitably to the neglect of health and social services, including mental health" (Abed: 2005). Still, man-made disasters such as this are not the only things that affect states in the Caribbean and in the world. Natural disasters also impact the health of Cuba and Puerto Rico, and so they should be considered.

The biggest thing that Cuba and Puerto share in common is their geographic location. As stated before, as islands on the Caribbean they are extremely vulnerable to natural events such as hurricanes. Hurricane Irma occurred on September of 2017 and was shortly followed by Hurricane Maria on October 2017. Both hurricanes were classified as category 5 hurricanes and took the lives and homes of thousands in the Caribbean. While Hurricane Maria did not directly affect Cuba; Irma did and left a devastating effect of Cuba's infrastructure. Irma was the first category 5 hurricane to hit Cuba since 1932, and its destructive force "caused 10 deaths and \$13 billion in damages, housing remains the most critical need" (Whitefield: 2018). When looking at the numbers one can see how natural disasters can have deep effects on the health care of the country. While Irma caused the deaths of 10 people, the damages to the health care services in Cuba were disproportional as "980 health institutions were confirmed to be affected, including 71 hospitals and 122 polyclinics" (PAHO/WHO: 2017). No formal report could be found on

how the damage to the infrastructure affected the population's health directly. However, one can infer that the damages done on almost half of the hospitals and about a fourth of the polyclinics in the country caused serious detrimental effects on the delivery of care in the country.

On the other hand, Puerto Rico faced even more hardship as they were struck by Irma and Maria in succession. When Irma hit Puerto Rico on September, it killed at least 12 people and left thousands of people without homes while leaving more than 1 million Puerto Ricans without electricity (Johnson, Arkin, Cumming & Karins: 2017). The situation only worsened when, a month after, Maria hit the Puerto Rican island leaving a death toll of over 1000 people and aggravating the lack of electricity (Seervai: 2017). Not only that, but a month after the hurricane, in December 2017, "more than a third of the territory's 68 hospitals were still without electricity, and some community health centers were operating without regular power and clean water" (Seervai: 2017). Such impacts on infrastructure are bound to affect the health of the population after the effect. Consequentially, the interruption of health care along with the poor access to health care increased the mortality rate in Puerto Rico by 62% after hurricane Maria, leading it to a 14.3/1000 persons (Blumenthal & Seervai: 2018). However, the impacts of the hurricanes in Puerto Rico also unveils another issue with the island. Issues concerning the disregard and overall lack of support from the United States government that, over time, created a crippled system as, in terms of health care, the territory "gets less money and resources from the federal government for Medicaid than it would if it were a state" (Blumenthal & Seervai: 2018). Still, while the natural disasters described are impossible to control, it "exacerbated existing fault lines in the territory's health system" (Seervai: 2017) and opened space to analyze other historical events that affected the health status of the population in the island. One of such events being the Vieques island military base and its effect on the Puerto Rican Population.

As opposed to Castro's totalitarian government, the incident in Vieques island in Puerto Rico does not relate to a controlling government, but to a neglectful one. The island of Vieques was used for over 60 years by the U.S. Navy "as a bombing range and site for military-training exercises" and a research center (Pelet: 2016) and to this date the effects of the military explorations in the island can be seen in the population. Although there are a lot of conflictive arguments between studies carried by local scientists and the U.S. government, many attribute the island's population increasingly worsening health condition to the pre-existing military base (Pelet: 2016). The Navy took a while to admit what was being done in the island, but eventually it "conceded to using heavy metals and toxic chemicals like depleted uranium and Agent Orange on the island" (Pelet: 2016). Such chemicals are known for increasing the risk of cancer and other conditions, and this was reflected on a study that found that the prevalence of cancer in Vieques is "27 percent higher than in the rest of Puerto Rico" (Pelet: 2016). Further, many reports indicate a high concentration of heavy metals in the soil, plants, crops and wildlife of the area (Commission on Human Rights: 2004). This is important to note as the presence of heavy metals in one's environment can affect the cardiovascular and neurological system, fetus development, lead to cancer and many other complications. (Commission on Human Rights: 2004). Still, the US government treats the whole situation with little to no care as they tend to focus more on other systemic issues, such as health care or economic issues, that were also created by a sense of neglect. This can be seen as no efforts by the US government to improve the health in the area have been made, and that there is only one hospital in the whole island with no specialized care (Pelet: 2016). Not only that but studies conducted by the Navy and the federal Agency for Toxic Substances and Disease Registry (ATSDR) disregard direct

epidemiological studies and a ban individual studies, thus relying on soil samples provided and collected by the Navy (Pelet: 2016).

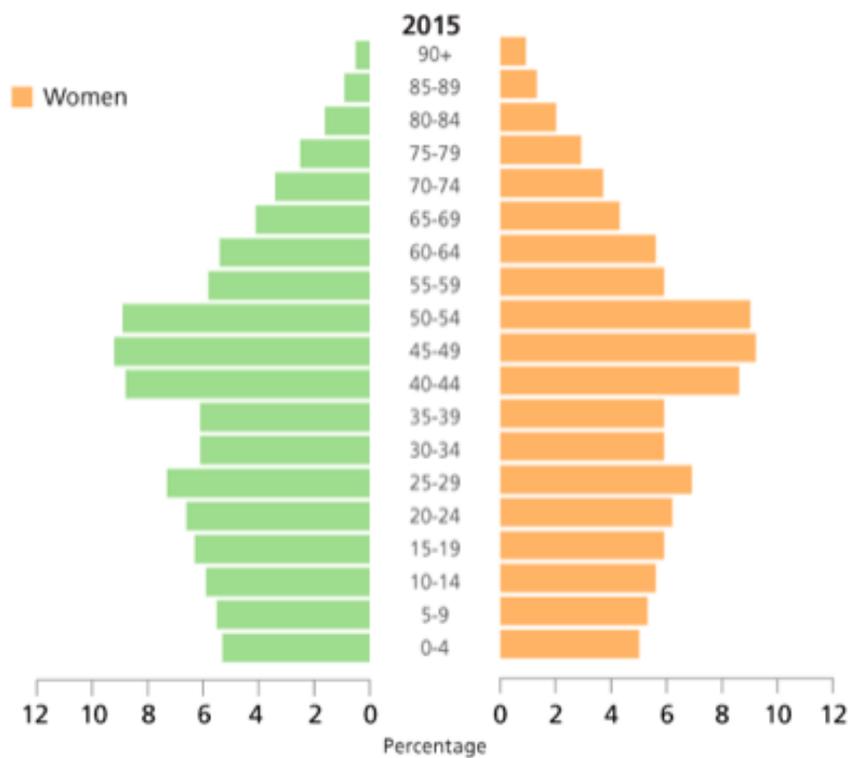
3.3. Countries Demographics and Health Statistics

This paper does a direct comparison between the demographics of both countries, including population structure by, sex, age, life expectancy and infant mortality rate. Further, a comparative analysis of the health statistics of both countries is done including: leading causes of mortality, maternal mortality, and incidence of tuberculosis, malaria, diabetes mellitus, cancer and hypertension.

- Demographics

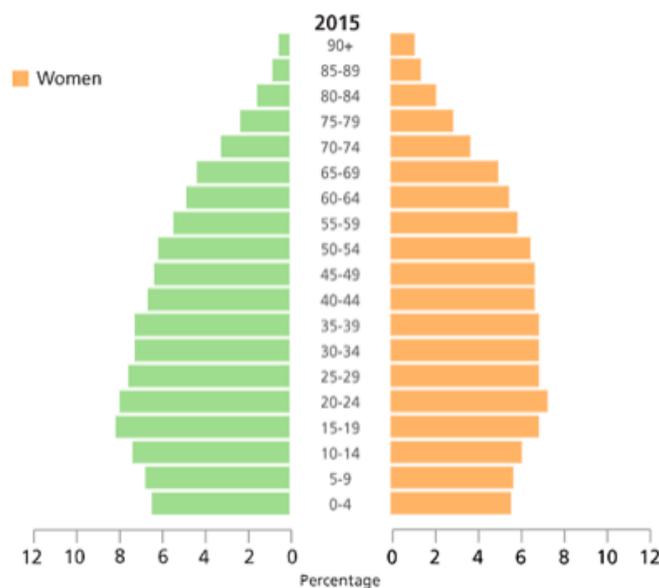
As of 2015, the population of Cuba was that of 11.3 million habitants with an average life expectancy “reaching 78.4 years (80.4 years for women and 76.5 for men)” (Oficina Nacional de Estadística e Informació: 2015). Puerto Rico, on the other hand, has a much smaller population with only 3.4 million habitants with a life expectancy of 79.5 years (75.8 years for men and 83.1 years for woman) (Departamento de Salud: 2014). The infant mortality rate for children under 1 year in Cuba is 4.3 per 1,000 births (Ministerio de Salud Pública: 2015). On the other hand, Puerto Rico’s infant mortality for children under 1 year is 4.5 per 1,000 live births (Center for Disease Control: 2015). The split of the population by age and sex is reported in the graphs bellow:

Figure 1. Population structure, by age and sex, Cuba, 2015



Source: Pan American Health Organization, based on data from the United Nations Department of Economic and Social Affairs. Population Division. New York; 2015.

Figure 2. Population structure, by age and sex, Puerto Rico, 2015



Source: Pan American Health Organization, based on data from the United Nations Department of Economic and Social Affairs. Population Division. New York; 2015.

One can observe that although Cuba has, relatively speaking, more people between the 40-50 years old, both pyramids are growing into a barrel shaped structure. This is indicative of an aging population and the increase of older adults in relation to young people below the age of 20 years old. This shape can be caused by many reasons, including emigration and birth rates. The emigration factor is a trend that is can be seen very strongly in Puerto Rico, and to some extent in Cuba. Such movement of the population has been observed years ago in Puerto Rico and was aggravated by hurricane Maria when “an estimated 130,000 people -- almost 4% of the population -- left the island of Puerto Rico” (Sutter: 2018). Cuba, on the other hand, faces the issue of a constant decline in the birth rates since the 1970’s, which means that “The population grows at a reduced pace, and the overall population is older” as reflected by the demographic pyramid of Cuba (Holodny: 2015)

- Health Statistics

Although many diseases may be observed within a population, this paper will only compare the few diseases that are a more prominent and have more comparable data within the countries.

- Maternal Mortality

Maternal mortality refers to the number of non-accidental and incidental deaths of women that are pregnant or that die within 42 after of the pregnancy (WHO: 2004) As of 2015 Cuba has a maternal mortality of 41.6 per 1000 live births while Puerto Rico has a significantly lower rate of 8.7 per 1000 live births (UN Population and Statistics Divisions)

- Tuberculosis (TB)

TB is an airborne disease that is within the top 10 causes of death in the world (WHO: 2018). As of 2015 the incidence of TB in Cuba is 5.8 per 100,000 people while the mortality of TB is 0.3 per 100,000 (UN Population and Statistics Divisions). On the other hand, as of 2013 Puerto Rico has an incidence of 1.2 per 100,000 inhabitants, and a mortality of 0.3 per 100,000 inhabitants (UN Population and Statistics Divisions).

- Malaria

Malaria is a vector born disease malaria that impacts many developing countries around the world. As of 2015, Cuba reported rates of 0.01 per 100,000 population while pointing out that all cases were brought in from other countries (UN Population and Statistics Divisions). Puerto Rico, however, has no official data base on the rates of malaria, with the exception of a 1 case in 2015 where a person was diagnosed to

have the disease, but it was ruled to be imported from the Dominican Republic (Center for Disease Control: 2016).

- Diabetes Mellitus (DM)

In 2015, Cuba reported an incidence of 56.7 per 1,000 people, which is equivalent to 5.6% of the population, with rates of 67.0 per 1,000 population in women and 46.3 in men (UN Population and Statistics Divisions). Puerto Rico faces more issues with DM as 16% (160 per 1,000) of the population has the condition (Project Hope: 2017). Further, the mortality rate for DM in Puerto Rico is that of 71 per 1,000 habitants, being one of the leading causes of death in the country amongst the older adult population (UN Population and Statistics Divisions).

- Cancer

As of 2015, the estimated prevalence of cancer in Cuba was between 115,000 and 120,000 within the entire population of Cuba, which is reflective of Cuba's investment on early diagnose and treatment of the condition (UN Population and Statistics Divisions). On the other hand, in Puerto Rico, reported in 2013 a rate of cervical cancer of 26.3 per 100,000. Further, it reported a rate for breast cancer of 95.8 per 100,000 and lung cancer of 17.9 per 100,000 (UN Population and Statistics Divisions) with 68,312 cases of cancer diagnosed by 2011 (Center for Disease Control: 2015)

- Hypertension

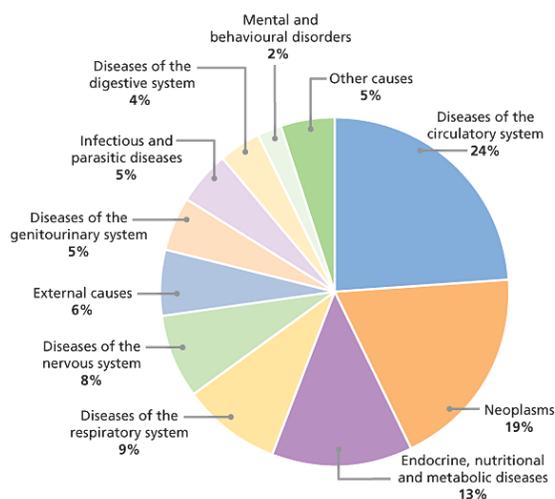
As of 2015, Cuba reported the prevalence of hypertension as of 217.5 per 1,000 people, with woman having a higher prevalence of 236.5 per 1,000 versus the prevalence of men of 198.3 per 1,000. Puerto Rico, however, reported that 42.3% of

the population had hypertension as of 2013, with 72% of the older adult population having the condition.

Finally, below is stated the main causes of mortality amongst the Cuban and Puerto Rican population

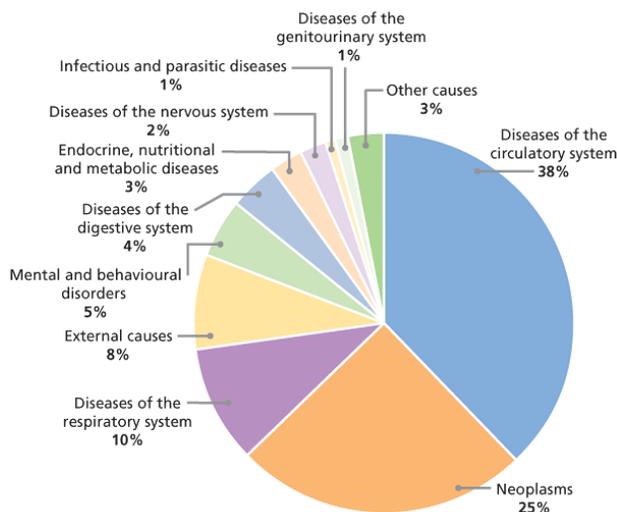
- leading causes of mortality

Figure 3. Leading Causes of Mortality, Puerto Rico, 2015



Source: Pan-American Health Organization, World Health Organization, and PAHO Health Information Platform (PHIP).

Figure 4. Leading Causes of Mortality, Cuba, 2015



Source: Pan-American Health Organization, World Health Organization, and PAHO Health Information Platform (PHIP).

As shown in figures 3 and 4, the percentage of leading causes of mortality are very close in both countries, with the exception of neoplasms/cancer (25% in Cuba and 19% in Puerto Rico) and diseases of the circulatory system (38% in Cuba and 24% in Puerto Rico).

4. Conclusion

It is concluded that the natural and artificial disasters play a key role in the effectiveness of the HC system of both countries. This is seen through the destructive power of Hurricane Irma and Maria that destroyed nearly half the hospitals in Cuba and a fourth of the polyclinics, while leaving 68 hospitals in Puerto Rico. In turn, this caused the interruption of services and access to HC for the population of both countries while leaving Puerto Ricans without electricity or potable water for months. Additionally, the artificial disasters caused by human action, such as the Vieques island incident and the Castro dictatorship, surely affect the health of the population in one way or another, while crippling the HC system of both places. There is no concrete way of comparing the HC systems in Cuba and Puerto Rico in relation to how the natural and artificial disasters affected them as each face different hardships at different points and time. However, hypothesis (2) is confirmed as it is clear that regardless of the frequency of natural and artificial disasters, the HC systems, and health care of the population, of Cuba and Puerto Rico were negatively affected.

Although Cuba seems to have a very effective health care, the data presented varies very little from the data from Puerto Rico. When looking at the rates of the diseases described in the text, both countries have very little differentiation in almost all of them, however, it is still present. Cuba's report of maternal mortality is overwhelmingly larger than Puerto Rico's, with Cuba having a rate of 41.6 per 1,000 and Puerto Rico having 8.7 per 1,000. Cuba report of TB

with an incidence of 5.8 per 1,000. Further, although the mortality rate is the same for Cuba and Puerto Rico, both with 0.3 per 100,000, the incidence rate of TB is considerably larger for Cuba. With Cuba having an incidence of 5.8 and Puerto Rico 1.2 per 100,000. However, Cuba seems to have lower rates of diabetes Mellitus (57.7 per 1,000), Cancer (115,000 – 120,000 cases reported in 2015) and Hypertension (217.5 per 1,000). Meanwhile, Puerto Rico's reports on diabetes mellitus (160 per 1,000), cancer (68,312 reported in 2011) and hypertension (afflicting 42.3% of the population) are noticeably higher. It is important to note that although the reported cases of cancer in Puerto Rico are numerically lower, their population is a lot smaller than Cuba's population. Because of that, such values represent an actual higher incidence rate for cancer within the Puerto Rican population.

Further, while one may think that universal health care was perfect and ideal in Cuba, other aspects of the political scenario of Cuba were not. Although Castro seemingly created an ideal HC system with hundreds of hospitals and specialized clinics, the health statistics of Cuba and Puerto Rico vary very little as shown above. In fact, Puerto Rico seems to do a lot better in crucial areas of primary care, such as maternal mortality and TB, and with lower leading causes of mortality for neoplasms/cancer (25% in Cuba and 19% in Puerto Rico) and diseases of the circulatory system (38% in Cuba and 24% in Puerto Rico). Surely, this was an interesting discovery as it put hypothesis (1) in question, and contradicts it, as Puerto Rico does a lot better in areas of primary care, and almost identically in other areas of care, that are highlighted to be the Cuba's main achieved goal as one of the best HC systems amongst developing countries.

It is important to keep in mind that such findings might reflect the fact that Although Castro put a heavy focus HC, education and others, "enthusiasm around the Cuban health system often stems from an exclusive attention to one indicator, infant mortality rate (IMR), the value of

which has been manipulated by a state seeking political legitimacy” (Gomez-Dantes: 2018).” Such manipulation of data sets precedent to the idea that within the Castro government, a lot of the data that is released to international institutions might be manipulated with the intent of legitimizing their government. Additionally, the political repression that was existent in Cuba, and is known worldwide, can also be seen as ways to cover systematic issues within the countries. This means that the data collected from Cuba has to be seen through a critical eye and with the knowledge of what the Castro regime entailed. Still, one should note that a socialist government does not necessarily lead to a totalitarian government, just like a capitalist one does not translate to a dictatorship. The situation of Cuba is one of its own, and although Castro operated under socialist ideals, the totalitarian government that he carried was a characteristic of him as a ruler.

In conclusion, even with the potential manipulation of data from Cuba, the data on health does not differ greatly from Puerto Rico, with a few exceptions as mentioned above. Because of that, hypothesis (1) is not proven, and both HC systems, although lacking in many ways, seem to give similar outcomes to the population. Finally, in order to conduct a more definite research for the comparison of both HC systems, more historical events should be taken into account and more reliable data should be taken from independent and direct epidemiology researches from within Cuba and Puerto Rico. Thus, providing a set of data that can not only be considered more reliable, but also more representative of the entire population of both islands while being more realistically representative of their environments.

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