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## Contextualizing the COVID-19 Era in Puerto Rico: Compounding Disasters and Parallel Pandemics

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## **Abstract**

**Objectives:** The COVID-19 outbreak has worsened the ongoing economic crisis in Puerto Rico by creating "parallel pandemics" that exacerbate socioeconomic and health inequalities experienced by its most vulnerable residents. Unfortunately, conditions on the island have been largely overlooked by national media outlets and the mainland U.S. population. Thus, this research report aims to draw attention to the disparate burden multiple and compounding disasters have on older island-dwelling Puerto Rican adults' health and well-being.

**Methods:** We characterize the lived experiences of the older population in Puerto Rico by incorporating data from numerous sources and contextualizing the effects of compounding disasters, the fiscal pandemic, and health care challenges to provide a more nuanced portrait of existing compounding factors that negatively affect the health and well-being of older adults in the era of COVID-19.

**Results:** We highlight two main factors that exacerbate pre-pandemic inequities experienced by the older adult population amid the COVID-19 pandemic in Puerto Rico: 1) the impact of multiple and compounding disasters; and 2) health care challenges.

**Discussion:** The human suffering of the Puerto Rican population is compounded by the consequences of fiscal austerity, increasing levels of income and wealth inequality, the debt crisis, significant emigration, and a dysfunctional health care system. Future governmental actions are required to lessen the burden of parallel pandemics on older adults in Puerto Rico.

**Key Words:** Puerto Rico, Minority Aging, Social Determinants of Health

## Introduction

Puerto Rico is an archipelago in the Caribbean and unincorporated territory of the United States, with its residents having full U.S. citizenship. Although Puerto Rico is a commonwealth with autonomy over local matters, the U.S. government imposes significant restrictions on how Puerto Rico manages government affairs, including education, transportation, communication, foreign trade, and public health (Malavet, 2004; Morales, 2019). As such, leading scholars contend that the relationship between the United States and Puerto Rico is best described as an unresolved colonial status (Duany, 2003). Puerto Rico is currently experiencing the cumulative effects of increasing income and wealth inequality, unemployment, outmigration resulting from fiscal mismanagement and the debt crisis, destruction caused by Hurricanes Irma and Maria, the recent damage from multiple earthquakes, and poor access to basic health and social welfare infrastructures. Despite the severity of need that is displayed in Puerto Rico, the U.S. federal government's response to what is happening on the island has been inequitable compared to other regions of the U.S. who have also suffered catastrophic natural disasters in the same period, such as in Houston, Texas (Hurricane Harvey) and Key West, Florida (Hurricane Irma) (Willison et al., 2019). This inequity exacerbates population-level health disparities and increases adverse health outcomes that significantly affect the lives and well-being of Puerto Ricans (Benach et al., 2019; Garriga- López, 2020). With the COVID-19 outbreak, it has worsened the ongoing crises in Puerto Rico by creating "parallel pandemics" that exacerbate socioeconomic and health inequalities faced by its most vulnerable residents. Unfortunately, the island's conditions have been largely overlooked by national media outlets and the mainland U.S. population.

Demographically, Puerto Rico has a larger proportion of adults aged 65 and older compared to the mainland U.S. (21% vs. 16.5%) (U.S. Census Bureau, 2020a, 2020b). In

addition to high levels of economic deprivation, the older Puerto Rican population is characterized by a high prevalence of chronic conditions associated with increased risk for COVID-19, including hypertension (73.0%), diabetes (34.9%), heart disease (14.8%), and obesity (25.4%) (see Table 1). The compounding effects of island-wide poverty, low levels of education, and a high prevalence of underlying risk factors among older adults threaten an already unstable economic structure reeling from federal funding shortfalls in entitlement programs and health care (Abel & Deitz, 2014; Alcorn, 2017). These factors combine, to directly or indirectly, affect population health through access to health-promoting goods and services (Perreira, 2017; U.S. Census Bureau, 2019).

[Insert Table 1 About Here]

As of August 4, 2020, the coronavirus infection rate in Puerto Rico was 615.0 per 100,000 and is projected to increase dramatically (Coalición de Sabiduría COVID19 de Puerto Rico, 2020). Particularly troubling is the high rate of COVID-19 cases in rural municipalities of Puerto Rico, such as Jayuya, Culebra, and Maricao (see Table 2). Rural areas tend to have a high proportion of older adults, residents with underlying health conditions, fewer economic resources, and inadequate health care (Henning-Smith, 2020).

[Insert Table 2 About Here]

The disparate impact of coronavirus on vulnerable populations may be especially burdensome due to the inability of the government to adequately address the long-term effects of disasters and crises that have structurally impacted the island, including the displacement of individuals from their homes, damaged roads, power outages, and rebuilding of hospitals (Kishore et al., 2018). This research report highlights two main factors that are exacerbating pre-pandemic inequities experienced by the older adult population amid the

COVID-19 pandemic in Puerto Rico: 1) the impact of multiple and compounding disasters; and 2) health care challenges.

### **Multiple and Compounding Disasters**

Years of economic hardship has fueled extensive outmigration from the island to the mainland U.S. (Mora, Dávila & Rodríguez 2017). The outmigration of younger Puerto Rican cohorts is a leading factor behind the increase in the age structure of the Puerto Rican population and has also resulted in a 14 percent population decline from 3.7 million in 2010 to 3.2 million in 2019 (U.S. Census Bureau, 2020a). The root cause of this population decline stems from an unequal relationship – a colonial relationship between the U.S. and Puerto Rico – that has resulted in dire economic conditions on the island such as: deindustrialization; high government debt; high unemployment; corruption in the financial sector (e.g., predatory lending practices/subprime mortgage crisis); a substandard minimum wage that limits upward social mobility; the mismanagement of pensions and corporate tax cuts; and the strangling of the Puerto Rico economy by the Jones Act (GAO, 2018). The constellation of these factors led to extremely high levels of unmanageable debt that resulted in the appointment of a financial oversight board tasked by the 114th U.S. Congress to handle the debt known as the Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA). The PROMESA board-imposed austerity measures resulted in significant cuts to pensions and other social services. Higher taxes and a crumbling infrastructure resulted in many Puerto Ricans fleeing the island, often leaving older adults behind with few economic resources and social assistance (Perreira, 2017).

In 2017, Puerto Rico experienced catastrophic damage from Hurricanes Irma and Maria that exacerbated the economic hardships stated above. Hurricane Maria, a category 4 storm with winds up to 155mph, devastated the island, leaving its residents without

electricity, communication, and a sense of being abandoned by the U.S. and the world. The health consequences resulting from the storm were devastating, particularly the death toll associated with a lack of electricity and medical care. An initial official death toll of 64 was later refuted by a public health study, which estimated the death toll to be approximately 4,000 deaths (Kishore et al., 2018). Subsequently, a study commissioned by the government of Puerto Rico put the estimated death toll at 2,975 deaths (Santos-Burgoa et al., 2018). This study found that mortality was highest for men aged 65 years and older and for individuals living in low socioeconomic status municipalities. Both mortality estimates underscore the substantial pressure placed on the island's fragile healthcare system due to these natural disasters.

Compounding these events, Puerto Rico suffered major seismic activity and accompanying landslides centered on the island's southwest area at the end of 2019 and the beginning of 2020. At the time of writing this brief, the seismic activity continues. These current disaster situations are a backdrop that Puerto Rico will have to contend with as it responds to the ongoing COVID-19 crisis.

## **Health Care Challenges**

### **Health Care Capacity**

Puerto Rico has 63 hospitals managed by private and public sectors on the main island, with the largest concentration of hospitals located in urban areas such as San Juan (22 hospitals), Bayamón (4 hospitals), and Ponce (4 hospitals) (Health Resources & Services Administration, 2020). However, there are no hospitals or Critical Access Hospitals (CAHs)<sup>1</sup> in any of the eight designated rural municipalities in Puerto Rico<sup>2</sup> (Health Resources &

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<sup>1</sup> Critical Access Hospital (CAH) is a designation given to eligible rural hospitals by the Centers for Medicare and Medicaid Services (CMS). The CAH designation is designed to reduce the financial vulnerability of rural hospitals and improve access to healthcare by keeping essential services in rural communities.

<sup>2</sup> The eight rural municipalities on the main island of Puerto Rico include Adjuntas, Coamo, Culebra, Jayuya, Las Marías, Maricao, Salinas, and Santa Isabel.



Services Administration, 2020). This suggests that residents in these communities, particularly the older adult population, will experience additional barriers to accessing hospitals and medical services for COVID-19 outcomes. As a result, residents from rural areas must travel to urban areas (which may be hours away) to access emergency and critical care. The influx of rural residents to urban hospitals may place a significant strain on medical facilities already at or near capacity levels. As of August 4, 2020, 507 Puerto Ricans were hospitalized due to COVID-19 (Coalición de Sabiduría COVID19 de Puerto Rico, 2020), so shortages in available hospital beds are not an issue yet, but must be considered in the context of how hospitals in Puerto Rico are operating. For instance, there are power and water shortages in hospitals, delays in the arrival of medical supplies, closures of hospital floors and service areas, and reduction in public access to the government health care system (Kaiser Family Foundation, 2018; Roman, 2018). This is concerning as Puerto Rico does not have the necessary resources to meet the population's health needs (Rodríguez-Vilá et al., 2017).

### **Health Care Access**

In Puerto Rico, as on the U.S. mainland, adults aged 65 and older have access to healthcare through Medicare. However, spending per Puerto Rican enrollee is lower than that of any U.S. state, despite island-dwelling residents paying similar Medicare payroll taxes as U.S. citizens residing on the U.S. mainland (Perreira, 2017). Also, recent funding cuts in Medicare have caused severe financial losses to the Puerto Rican healthcare system, resulting in higher copays and the loss of benefits. Consequently, many individuals forgo seeking medical care when they need it, experience long waiting periods for medical treatment, and have difficulty adhering to medical regimens (Villa & Aranda, 2000; Wallace & Villa, 2003). Furthermore, federal grants awarded to Puerto Rico's Medicare system through the Affordable Care Act (ACA) expired in 2017 and were not renewed by the federal government post-Hurricane Maria. Federal financial shortfalls and austerity measures have become a

central feature defining the Puerto Rican healthcare system and have increased barriers to health care access and high-quality health care among Puerto Rico's older adult population. These health care challenges are further exacerbated by delayed and low Medicare reimbursement payments (70% less than that in the mainland U.S.) that are the overwhelmingly driving force behind the substantial outmigration of physicians, physician assistants, and other health care workers from the island to the mainland U.S. (Roman, 2015, 2018).

In sum, the constellation of the economic crisis, natural disasters, and ongoing COVID-19 outbreak has compounded and exacerbated obstacles that increase barriers to health care for the older adult population. Individually, any of these events can be expected to have stark consequences for population health. The cumulative effect of parallel pandemics, however, undoubtedly puts a strain on the health care system, resulting in increased barriers to quality health care access that may be a matter of life or death in the context of the ongoing coronavirus pandemic. This stark reality demands urgent and timely action by the U.S. Congress.

### **Discussion**

The Centers for Disease Control and Prevention identified the following people at risk from suffering severe illness from COVID-19: people aged 65 years and older, people with chronic lung disease or moderate to severe asthma, people with serious heart conditions, people with BMI (body mass index) of 40 or higher, and people with diabetes to only name a few (Centers for Disease Control and Prevention, 2020). Older island-dwelling Puerto Rican adults are more likely to have diabetes, hypertension, and obesity than older adults residing in the U.S. mainland (Pérez & Ailshire, 2017), which makes older Puerto Ricans an especially high-risk group for COVID-19 outcomes. As COVID-19 infection cases and deaths continue to soar, we must place attention to this vulnerable and marginalized population. Notably,

there needs to be increased attention on the older adults living in the island municipalities of Culebras and Vieques, who are facing different levels of consequences from these compounding disasters and are facing particular conditions as an “island of an island.” Overall, the health and well-being of Puerto Ricans have primarily been shaped by colonialism and the Commonwealth’s fraught relationship with the U.S. government. The human suffering of the Puerto Rican population is compounded by the predicted consequences of fiscal austerity, increasing income and wealth inequality, the debt crisis, significant emigration, and a dysfunctional health care system. Necessary governmental actions are required now to lessen the burden of parallel pandemics on older adults in Puerto Rico.

### **Final Comments**

Current information on COVID-19 outcomes in Puerto Rico has been based on data collected by the Departamento de Salud de Puerto Rico (Puerto Rico Department of Health), which the Coalición de Sabiduría COVID19 de Puerto Rico (COSACO) has organized and published in an effort to improve the lives of Puerto Ricans amid the COVID-19 pandemic. However, COSACO recognizes that while highlighting these data is an important social justice issue, there are limitations regarding the data collection and quality. This suggests that disparities identified may be underestimated among older adults, women, people of low socioeconomic status, and other marginalized populations in Puerto Rico.

## References

- Abel, J. R., & Deitz, R. (2014). The causes and consequences of Puerto Rico's declining population. *Current Issues in Economics and Finance*, 20(4), 1–8.
- Alcorn, T. (2017). Puerto Rico's health system after Hurricane Maria. *The Lancet*, 390(10103), e24. [https://doi.org/10.1016/S0140-6736\(17\)32591-6](https://doi.org/10.1016/S0140-6736(17)32591-6)
- Benach, J., Díaz, M. R., Muñoz, N. J., Martínez-Herrera, E., & Pericàs, J. M. (2019). What the Puerto Rican hurricanes make visible: Chronicle of a public health disaster foretold. *Social Science & Medicine*, 238, 112367. <https://doi.org/10.1016/j.socscimed.2019.112367>
- Centers for Disease Control and Prevention. (2019). *BRFSS Prevalence & Trends Data*. <https://www.cdc.gov/brfss/brfssprevalence/>
- Centers for Disease Control and Prevention. (2020). *People Who Are at Higher Risk for Severe Illness*. U.S. Department of Health and Human Services. <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-at-higher-risk.html>
- Coalición de Sabiduría COVID19 de Puerto Rico. (2020). *Puerto Rico COVID-19 Overview*. <https://www.cosacopr.org/epidemiologia-y-estadisticas>
- Duany, J. (2003). Nation, Migration, Identity: The Case of Puerto Ricans. *Latino Studies*, 1(3), 424–444. <https://doi.org/10.1057/palgrave.lst.8600026>
- GAO. (2018). *GAO highlights. Factors contributing to the debt crisis and potential federal actions to address them*. <https://www.gao.gov/assets/700/691675.pdf>
- Garriga- López, A. M. (2020). Compounded disasters: Puerto Rico confronts COVID- 19 under US colonialism. *Social Anthropology*, 1469-8676.12821. <https://doi.org/10.1111/1469-8676.12821>
- Health Resources & Services Administration. (2020). *Health Care Facilities (CMS)*.

Henning-Smith, C. (2020). The Unique Impact of COVID-19 on Older Adults in Rural Areas. *Journal of Aging & Social Policy*, 32(4–5), 396–402. <https://doi.org/10.1080/08959420.2020.1770036>

Kaiser Family Foundation. (2018). *Health Centers in Puerto Rico: Operational Status after Hurricane Maria*. <https://www.kff.org/medicaid/fact-sheet/health-centers-in-puerto-rico-operational-status-after-hurricane-maria/>

Kishore, N., Marqués, D., Mahmud, A., Kiang, M. V., Rodriguez, I., Fuller, A., Ebner, P., Sorensen, C., Racy, F., Lemery, J., Maas, L., Leaning, J., Irizarry, R. A., Balsari, S., & Buckee, C. O. (2018). Mortality in Puerto Rico after Hurricane Maria. *New England Journal of Medicine*, 379(2), 162–170. <https://doi.org/10.1056/NEJMsa1803972>

Malavet, P. A. (2004). *America's Colony: The Political and Cultural Conflict Between the United States and Puerto Rico*. NYU Press.

Morales, E. (2019). *Fantasy Island: Colonialism, Exploitation, and the Betrayal of Puerto Rico*. Bold Type Books.

Pérez, C., & Ailshire, J. A. (2017). Aging in Puerto Rico: A Comparison of Health Status Among Island Puerto Rican and Mainland U.S. Older Adults. *Journal of Aging and Health*, 29(6), 1056–1078. <https://doi.org/10.1177/0898264317714144>

Perreira, K. (2017). *Environmental Scan of Puerto Rico's Health Care Infrastructure*. Urban Institute. [https://www.urban.org/sites/default/files/publication/87016/2001051-environmental-scan-of-puerto-ricos-health-care-infrastructure\\_1.pdf](https://www.urban.org/sites/default/files/publication/87016/2001051-environmental-scan-of-puerto-ricos-health-care-infrastructure_1.pdf)

Rodríguez-Vilá, O., Nuti, S. V., & Krumholz, H. M. (2017). Healthcare Disparities Affecting Americans in the US Territories: A Century-Old Dilemma. *The American Journal of Medicine*, 130(2), e39–e42. <https://doi.org/10.1016/j.amjmed.2016.07.036>

Roman, J. (2015). The Puerto Rico Healthcare Crisis. *Annals of the American Thoracic Society*, 12(12), 1760–1763. <https://doi.org/10.1513/AnnalsATS.201508-531PS>

Roman, J. (2018). Hurricane Maria: A Preventable Humanitarian and Health Care Crisis Unveiling the Puerto Rican Dilemma. *Annals of the American Thoracic Society*, 15(3), 293–295. <https://doi.org/10.1513/AnnalsATS.201710-792OI>

Santos-Burgoa, C., Sandberg, J., Suárez, E., Goldman-Hawes, A., Zeger, S., Garcia-Meza, A., Pérez, C. M., Estrada-Merly, N., Colón-Ramos, U., Nazario, C. M., Andrade, E., Roess, A., & Goldman, L. (2018). Differential and persistent risk of excess mortality from Hurricane Maria in Puerto Rico: A time-series analysis. *The Lancet Planetary Health*, 2(11), e478–e488. [https://doi.org/10.1016/S2542-5196\(18\)30209-2](https://doi.org/10.1016/S2542-5196(18)30209-2)

U.S. Census Bureau. (2019). *ACS 2018 (1-Year Estimates)*. <https://www.socialexplorer.com/tables/ACS2018/R12592167>

U.S. Census Bureau. (2020a). *QuickFacts: Puerto Rico*.  
<https://www.census.gov/quickfacts/fact/table/PR/AGE775218>

U.S. Census Bureau. (2020b). *QuickFacts: United States*.  
<https://www.census.gov/quickfacts/fact/table/US/PST045219>

Villa, V. M., & Aranda, M. P. (2000). The demographic, economic, and health profile of older Latinos: Implications for health and long-term care policy and the Latino family. *Journal of Health and Human Services Administration*, 23(2), 161–180.

Wallace, S. P., & Villa, V. M. (2003). Equitable health systems: Cultural and structural issues for Latino elders. *American Journal of Law and Medicine*, 29(2–3), 246–267.

Willison, C. E., Singer, P. M., Creary, M. S., & Greer, S. L. (2019). Quantifying inequities in US federal response to hurricane disaster in Texas and Florida compared with Puerto Rico. *BMJ Global Health*, 4(1), e001191. <https://doi.org/10.1136/bmjgh-2018-001191>

## Tables

Table 1. Profile of Puerto Rico

Characteristics of Puerto Rico	
Total Population (2019) <sup>1</sup>	3,193,694
Population Change Since 2010 <sup>1</sup>	-14.3%
Economic Indicators	
Median household income (2018 \$) <sup>2</sup>	\$ 20,296
Per capita income (2018 \$) <sup>2</sup>	\$ 12,805
Total Population in Poverty <sup>2</sup>	43.1%
Educational Attainment <sup>2</sup>	
Less than High School	22.5%
High School Graduate (Includes Equivalency)	28.2%
Characteristics of Older Adults	
Population aged 65 and older <sup>1</sup>	21.3%
Economic Indicators	
Population aged 65 and older living in poverty <sup>2</sup>	38.2%
Households with social security income <sup>2</sup>	45.8%
Households with supplemental security income <sup>2</sup>	0.5%
Households with retirement income <sup>2</sup>	17.1%
Health Indicators	
Has 2 or more chronic conditions among Medicare-enrolled persons <sup>3</sup>	71.5%
Hypertension <sup>3</sup>	73.0%
Diabetes <sup>3</sup>	34.9%
Coronary heart disease <sup>3</sup>	14.8%
Heart Attack <sup>3</sup>	11.4%
Stroke <sup>3</sup>	3.5%
Cancer <sup>3</sup>	11.7%
Chronic obstructive pulmonary disease <sup>3</sup>	9.9%
Depression <sup>3</sup>	20.8%
Obese <sup>3</sup>	25.4%
Current Smoker <sup>3</sup>	5.5%
Up to date on a core set of clinical preventive services <sup>3</sup>	18.9%
Health care coverage <sup>3</sup>	99.3%

<sup>1</sup> QuickFacts: Puerto Rico (U.S. Census Bureau, 2020a)

<sup>2</sup> ACS 2018 (1-Year Estimates) (U.S. Census Bureau, 2019)

<sup>3</sup> Behavioral Risk Factor Surveillance Survey 2018 (Centers for Disease Control and Prevention, 2019)

Table 2. Top 20 Municipalities with Highest Rates of COVID-19 as of August 4, 2020.

Municipality	Rural/ Urban	% of Older Adults <sup>1</sup>	COVID-19 Rate per 100,000 <sup>2</sup>
Florida	Urban	19.1	1,501
Jayuya	Rural	17.6	1,283
Culebra	Rural	22.8	1,053
Orocovis	Urban	17.9	945
Naranjito	Urban	20.4	922
Guaynabo	Urban	23.1	900
San Juan	Urban	23.5	881
Barranquitas	Urban	16.8	804
Ciales	Urban	21.3	785
Morovis	Urban	16.9	775
Maricao	Rural	22.1	774
Dorado	Urban	18.1	771
Bayamón	Urban	22.5	751
Canóvanas	Urban	17.7	747
Carolina	Urban	23.1	747
Cataño	Urban	21.1	731
Las Marías	Rural	21.8	716
Fajardo	Urban	22.6	714
Toa Alta	Urban	15.0	709
Vega Baja	Urban	21.1	695

Note: Rural/Urban designations are based on the 2010 U.S. Census.

<sup>1</sup>QuickFacts: Puerto Rico (U.S. Census Bureau, 2020)

<sup>2</sup>Coalición de Sabiduría COVID19 de Puerto Rico (COSACO, 2020)

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