

International Spotlight

Aging and the Left Behind: Puerto Rico and Its Unconventional Rapid Aging

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Abstract

Puerto Rico is aging more rapidly than almost any country, with 2020 estimates placing its population share of adults older than 65 as being the 10th highest in the world. Unlike most locales, Puerto Rico's aging is driven by both (a) the culmination of long-running fertility and mortality trends and (b) high levels of outmigration of working-age adults, which contributes both directly (removal of young people) and indirectly (reduced births) to its pace of population aging. This article offers an overview of the main issues surrounding population aging in Puerto Rico. Policymakers and government leaders must plan for Puerto Rico's unconventional population aging, which will exacerbate traditional concerns about the sustainability of government services and long-term economic prospects. Additional concerns emerge related to reduced social support networks and their impact on caregiving dynamics and implications for health. Puerto Rico's unique history and political relationship with the United States present challenges and benefits for its aging population. Research on aging in Puerto Rico and public health policies must adapt to the needs of the country's aging society.

Keywords: Left-behind, Migration, Population health, Puerto Rico, Rapid aging

Overview

Puerto Rico is aging more rapidly than almost any country. In the last 10 years, Puerto Rico has nearly doubled its percentage of adults older than age 65 from 13% in 2010 to 21% in 2019. The outmigration of more than 700,000 working-age adults (ages 20–64) in the last 15 years is responsible for the accelerated pace of population aging; an

unconventional pattern that has not been documented in any other region of the world. Consequently, left behind older adults in Puerto Rico are facing the reduction of social resources and potential caregivers, disrupted social networks and environments, and increased social isolation: social factors highly associated with overall health and well-being in late life. The consequences of Puerto Rico's unconventional rapid aging are yet to be identified or

addressed. This article aims to provide an overview of the main issues surrounding population aging in Puerto Rico. Drawing heavily on the contributions of aging researchers, both in Puerto Rico and the United States (hereafter U.S.), we discuss the emerging issues recognized in the literature about older adults residing in Puerto Rico, identify gaps in understanding, and suggest future directions of inquiry that could help understand and mitigate the consequences of rapid population aging.

The Population of Puerto Rico

Puerto Rico is an archipelago consisting of three inhabited islands in the Caribbean. The post-Colombian historical processes that have shaped its current population structure encompass two eras spanning 405 years of colonization by Spain (1493–1898) and 124 years under the United States (1898–present). Puerto Rico's status and relationship with the United States remains a contested topic. Between 1900 and 1949, Puerto Rico was governed by U.S.-appointed governors, with locals having little to no power over domestic matters. Since 1952, Puerto Rico has operated under a local constitution under the territorial clause of the U.S. Constitution. While legally considered a territory of the United States, which some equate to a modern colony, it has been shaped by substantially different historical processes than the United States with parallels to the experiences of other Latin American countries.

The first population count for Puerto Rico under U.S. jurisdiction was produced in 1899 by the U.S. Census Bureau, placing the population at 953,243 inhabitants. Until 2000, the population increased every decade, reaching its highest point in 2000 with 3,808,610 inhabitants (U.S. Census Bureau, 2000). In 2010, the population was 3,789,725 inhabitants, a reduction of 2.2% compared to the previous decennial count; the first decennial instance where the population declined (Figure 1, Panel A). Despite this population reduction, Puerto Rico's number of older adults increased. An examination of vital records and migration estimates indicates that the population started to decline in 2004 due to the increased number of persons leaving Puerto Rico (Figeroa Rodriguez et al., 2012). This trend continued until 2020, when the population declined by 439,899 inhabitants, equivalent to an 11.8% reduction compared to the 2010 count (U.S. Census Bureau, 2020).

Since the mid-20th century, Puerto Rico's population composition has undergone drastic transformations. The growth in the percentage of older adults in Puerto Rico has increased rapidly over the last decade (Figure 1, Panel B). In 1950, about 3.9% of the population was older than 65 years. By 2000, 10.8% of the population of Puerto Rico was older than 65 years. This indicator nearly doubled to approximately 21% in 2019, while trends in fertility and mortality remained unchanged (Matos-Moreno et al., 2022). We also observe an increase in the population aged 50 years and older (25% in 2000 vs 41.1% in

2019) and those aged 85 years and older (0.8% in 2000 vs 2.9% in 2019). While the size of older age groups has been increasing, the contrary is observed for the working-age population.

Panel C in Figure 1 shows the old-age support ratios for Puerto Rico from 1950 to 2019. The old-age support ratio is estimated by dividing the number of older adults (65+) per 100 working-age population (15–64 years old). Shifts in this measure indicate population aging (Albert & Freedman, 2010). According to our estimates, the old-age support ratio has increased from 7.3 older adults per 100 working-age adults in 1950 to 16.5 in 2000. By 2019, this indicator has doubled to 33.1 older adults per 100 working-age population. The age structure of Puerto Rico has experienced transformations due to below-replacement fertility and lower mortality rates as expected under the demographic transition model (Figure 2). High outmigration, concentrated among the working-age population, has accelerated these transformations resulting in rapid population aging. Puerto Rico is experiencing an increase in both the number of older adults and in the percentage of the population in this age group.

Aging Through Migration

Migratory patterns between Puerto Rico and the United States have been present over the last century. Puerto Ricans face few barriers to migration due to being considered U.S. citizens by birth since 1917. In the 1950's, Puerto Rico experienced its first outmigration wave. In the following decades, outmigration stalled due to increased job availability resulting from the economic development, which transformed the economy from an agriculturally to an industrially based economy. In the mid-2000s, Puerto Rico observed the onset of closures of the leading manufacturing hubs and loss of jobs associated with these centers, the government's first public employee furlough, the approval of a sales tax, and public services started deteriorating (Santos-Lozada et al., 2020). The migration wave that followed this economic instability, which continues to this day, has resulted in a population decline of 715,355 people highly concentrated among working-age adults. Today, older adults account for a higher number and percentage of the population than at any previous point in time.

Figure 3 shows two superimposed population pyramids for Puerto Rico to highlight how migration has contributed to population aging. The gray bars represent the U.S. Census Bureau's 2015 population estimates. The black lines depict the population assuming no migration occurred between 2000 and 2015. We observe significant "population deficits" in the population aged between 15 and 54 years. These deficits have resulted in a phenomenon termed "aging through compression," a pattern not observed in other countries (Matos-Moreno et al., 2022). Simply put, Puerto Rico is not only aging due to reduced births and increased life expectancy but is mainly aging due to the

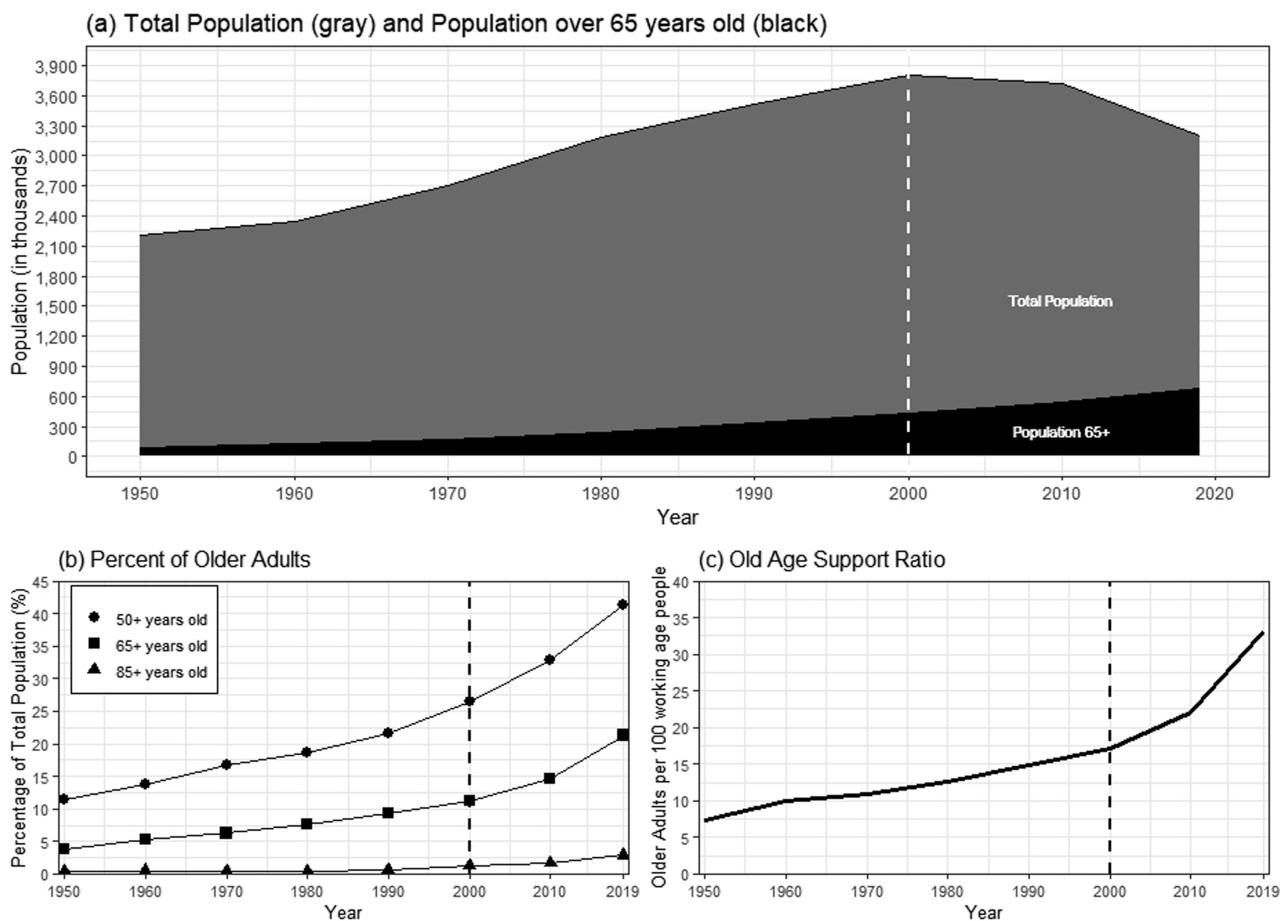


Figure 1. Trends in population measures in Puerto Rico from 1950 to 2019. (Panel A) Total population (in gray) and population 65 years and older (in black). (Panel B) Percentage of adults aged 50 years and older by major age group. (Panel C) Older adult support ratio. Data come from the U.S. Census Bureau decennial counts (1950–2010) and population estimates (2019).

outmigration of working-age adults. The implications of this population deficit for economic sustainability, fiscal plans, support services for older adults, and the health of those left behind have yet to be addressed.

Familial separation is an important driver through which migration affects the health of left-behind family members (Song et al., 2022). Findings in other countries have documented the detrimental associations of familial separation for older adults left-behind, especially in creating increased social isolation and reduced social support (Torres et al., 2019), psychosocial factors that could affect the well-being of older adults in Puerto Rico. Given that family members are the primary caregivers for older Puerto Rican adults, the increase in outmigration will alter caregiving dynamics which has implications for population health and well-being (Quashie et al., 2022). In fact, our estimates using the Puerto Rico Elderly: Health Conditions survey (PREHCO) indicate that nearly half (48%) of older adults in Puerto Rico had at least one adult child residing outside of Puerto Rico in 2007. The magnitude of this estimate is even more shocking when one recognizes that it references a period prior to the ongoing outmigration wave.

Gerontological Research

Research on aging in Puerto Rico is mainly conducted at the University of Puerto Rico-Medical Sciences Campus (UPR-MSC). The School of Public Health serves as the academic home for the Gerontology and Demography graduate programs, where most research is produced. Researchers at the UPR-MSC collaborating with scholars at the University of Wisconsin-Madison conducted the only representative study of older adults in Puerto Rico, The Puerto Rican Elderly: Health Conditions Study. PREHCO is an island-wide study of the social, economic, and health conditions that affect older adults (Dávila et al., 2004). This project collected data from 4,291 older adults 60 years and older in 2002–2003, with a follow-up conducted in 2006–2007. In 2019, researchers received funding to launch two waves of data collection with surviving respondents.

PREHCO measured the prevalence and correlates of health indicators, such as diabetes, heart disease, mental health, dental health, disability, health care services, health status, cognitive functions, and mortality (Barba et al., 2021; Downer et al., 2017). It also incorporated an innovative life course approach comparable to those

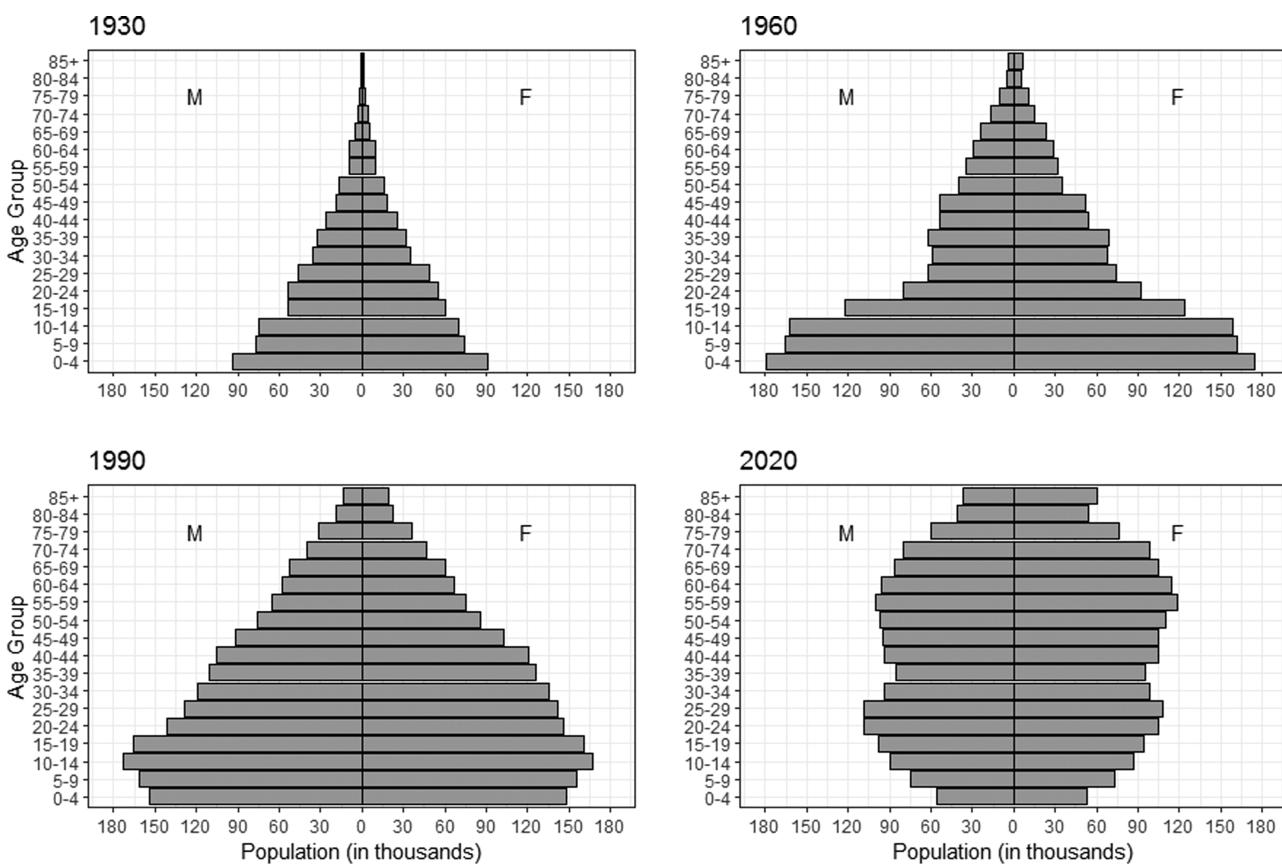


Figure 2. Population pyramids for Puerto Rico. Population counts for 1930, 1960, and 1990 pyramids come from the decennial counts. Counts for the 2020 pyramid come from the Population Estimates Program also produced by the U.S. Census Bureau.

used in other cross-national aging surveys that enabled researchers to assess early life determinants of health, linking measures of early life conditions with older adults' health status and conditions (Monteverde et al., 2009). Without a doubt, PREHCO has served as the primary source of population-wide data on older adults' health and aging in Puerto Rico.

PREHCO is not the only study of aging in Puerto Rico. Among others, the "10/66 dementia research group" survey is a global study examining the development and implementation of policies for improving older adults' health and social welfare in low- and middle-income countries. It contains a population sample of urban-dwelling older adults in Puerto Rico (Prince et al., 2007). Researchers have examined the prevalence of loneliness, disability-free life expectancy, dementia, mortality, and dependency of older adults in various countries. In addition, the Puerto Rico Alzheimer's Disease Initiative (PRADI) is a project aimed at studying the genetic origins of Alzheimer's. Given that the 10/66 study uses population sampling restricted to urban-dwelling older adults and PRADI uses a convenience sample, the results' generalizability to the older adult population in Puerto Rico is limited.

In addition, other individual studies have played a prominent role in understanding the psychological aspects

associated with late life. These studies have examined the associations between familial separation and mental health, social networks and psychological well-being, and the sociodemographic characteristics of centenarians (Rodríguez-Gómez et al., 2009; Toro Adorno et al., 2021).

Table 1 presents the data sources most readily available for the study of older adults in Puerto Rico, with some consideration given to notable U.S. comparators. Only PREHCO was collected from a representative sample of older adults in Puerto Rico. In terms of comparators of Puerto Ricans living in the United States, the two dominant studies are the Boston Puerto Rican Health Study and the Health and Retirement Study. Administrative records and surveillance systems represent an additional source of information also available to study population aging in Puerto Rico.

There is a need for additional population-based data sets of a longitudinal nature focused on aging. Including larger samples will ensure that the population is represented and allow studying differences in aging and older adults' health. Moreover, while most Puerto Rican migrants live in the United States, there is a modest amount of Puerto Ricans living in other countries that, possibly, are excluded from any study sample. Transnational social networks are important determinants of health (Lubbers et al., 2020).

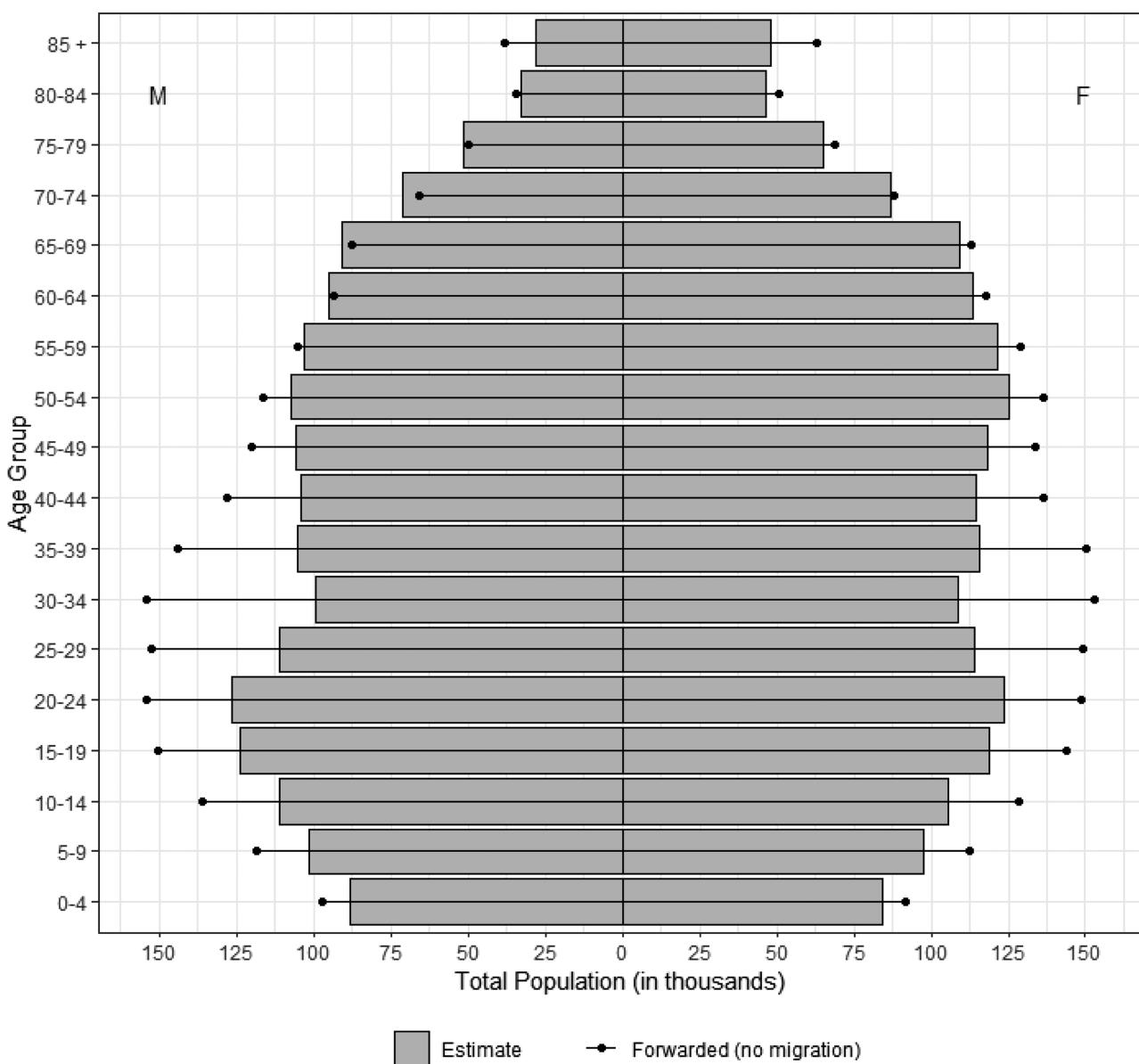


Figure 3. Population pyramid for Puerto Rico for 2015. Forwarded population from 2000 to 2015 (black lines). Estimated population for 2015 (gray bars). The population estimates for 2015 were produced by the U.S. Census Population Estimates Program. Forwarded population is estimated by the authors using data from the Puerto Rico Vital Statistics System.

Future research needs to account for transnational families and how this affects the well-being of older adults in Puerto Rico.

Aging and Health in Puerto Rico

Puerto Rican older adults are a disadvantaged group compared to older adults in the United States in terms of social and physical well-being. Given the poor health and economic profile of the older adult population in Puerto Rico, an expected increase in health care and social services usage associated with rapid population aging could obstruct healthy aging if older adults' needs are not met. For example, the average income for adults older than

65 years of age in Puerto Rico is \$14,077 compared to \$27,398 for older adults in the United States (Vera Rodríguez, 2014). Approximately 39.7% of older adults in Puerto Rico live under the poverty level (U.S. Census Bureau, 2019). Moreover, the primary source of income for older adults is Social Security (80.8%) followed by the Supplemental Nutrition Assistance Plan (40.7%). Table 2 presents an epidemiological snapshot of older adults' health in Puerto Rico. The most prevalent chronic conditions among older adults are hypertension (66.4%), followed by arthritis (42.2%), and diabetes (33.5%). Compared with the overall United States, Puerto Rico has a higher prevalence of hypertension, diabetes, Alzheimer's disease, and activities of daily living (ADL) limitations

Table 1. Available Data Resources for Puerto Rican Aging

Study name	Design	Sample size	Years	Description
Puerto Rico Elderly: Health Conditions (PREHCO)	Longitudinal design with two waves of Puerto Rican older adults aged 60 years and older in Puerto Rico.	Baseline: 4,291 Wave II: 3,891 Wave III: 1,000 expected	Wave I: 2002–2003 Wave II: 2006–2007 Wave III: 2021–present	Studies the issues affecting the elderly population in Puerto Rico: health status, housing arrangements, functional status, transfers, labor history, migration, income, childhood characteristics, health insurance, use of health services, marital history, mistreatment, sexuality, among others.
10/66 dementia research group	Population cohort of older residents aged 65 years and older living in Bayamón, Puerto Rico.	Baseline: 2,009 Wave II: 1,567	Baseline: 2007–2010 Wave II: 2012–2013	Aims to provide detailed evidence-based to inform the development and implementation of policies for improving the health and social welfare of older people in low- and middle-income countries.
The Puerto Rico Alzheimer Disease Initiative (PRADI)	Cross-sectional study of Puerto Rican older adults aged 50 years and older.	N = 674	Baseline: 2016–2017	Studies the genetics of Alzheimer's disease. Includes individuals with cognitive decline, similarly aged family members, and cognitively healthy unrelated individuals.
Administrative records and surveillance				
Decennial population census	Decennial counts	Total population every 10 years	1898–present	Count of the total population by age, sex, ethnic origin, and household composition.
Puerto Rico Community Survey (PRCS)	Population estimates	Sample of the total population every year	2005–present	Includes topics not on the decennial census, such as education, employment, internet access, and transportation.
Behavioral Risk Factor Surveillance System (BRFSS)	Nation's system of health-related telephone surveys that collect data about Puerto Rico's residents aged 18 years and older.	1996 sample: 1,817 2019 sample: 6,032 New sample every year. Adults aged 55 years and older = ±25% of the sample	1996–present	Collects data regarding health-related risk behaviors, chronic health conditions, and use of preventive services.
Resources of older Puerto Ricans residing in the United States				
Boston Puerto Rican Health Study	Longitudinal design with three waves of Puerto Rican adults residing in the Greater Boston Area between 45 and 75 years old.	Baseline: 1,500	Baseline: 2004 Wave II: 2006 Wave III: 2009	Studies the stress, cardiovascular health, overall health outcomes concerning diet, health disparities, and aging of Puerto Ricans in Boston.
Health and Retirement Study	Longitudinal panel study that surveys a representative sample of adults over 50 years of age in the United States.	Baseline: 20,874 Puerto Ricans approx. 596 enrolled in any wave	Baseline: 1992 Waves every 2 years until present	Explores the changes in labor force participation and the health transitions that individuals undergo toward the end of their work lives. It has collected information about income, work, cognitive functioning, and health care expenditures.

among older adults. Furthermore, differences are sustained compared to Hispanic older adults in the United States. Puerto Rico's unconventional rapid aging poses an enormous burden on its already vulnerable aging population.

Where do we stand on the research about older adults' health and well-being in Puerto Rico?

Many studies of aging in Puerto Rico compare island residents to individuals in the United States. Most studies find

Table 2. Prevalence of Chronic Conditions Among Older Adults in Puerto Rico and United States

Chronic condition/risk factor	Puerto Rico		United States	
	Prevalence (%)		Overall prevalence (%)	Prevalence among Hispanic older adults (%)
	2002–2003 ^a	2019 ^b		
Hypertension	56.7	66.4	62.5	64.9
Arthritis	48.0	42.2	48.9	43.9
Diabetes	27.7	33.5	20.8	29.6
Depression	19.7	20.3	15.2	22.1
Heart disease	18.7	11.1	14.4	14.0
Asthma	14.5	9.7	11.6	13.8
Cancer	6.1	10.7	25.5	13.9
Alzheimer's disease	Not available	12.5	10.4	13.0
Any ADL limitation ^d	13.2	14.4	9.2	11.4

Notes:

^aData source: Puerto Rico Elderly: Health Conditions (PREHCO) data are for older adults aged 60 years and older. PREHCO did not collect data related to Alzheimer's disease.

^bData source: hypertension, arthritis, diabetes, depression, heart disease, and cancer come from The Behavioral Risk Factor Surveillance System (BRFSS) 2019 for adults aged 65 years and older. Prevalence of Alzheimer's disease for Puerto Rico comes from Puerto Rico Department of Health (2015).

^cData source: data for overall United States and Hispanic older adults in the United States come from the National Health Interview Survey 2018–2019. Activities of daily living limitations come from the 2019 American Community Survey (ACS) and the 2019 Puerto Rico Community Survey (PRCS).

^dDifficulties with at least one activity of daily living (ADL).

that Puerto Ricans fare worse in terms of their overall health than older adults in the United States. They have a higher prevalence of diabetes, hypertension, worse health services utilization, and reduced public health insurance benefits. This is true even when compared to older Puerto Ricans residing in the United States (García et al., 2018; Rivera-Hernández et al., 2021). Even though the general literature suggests that those living in Puerto Rico have worse health than their U.S.-based counterparts, there are some health conditions wherein the opposite is found. For instance, given the typical health comparisons between those in Puerto Rico and the United States, researchers find that Puerto Ricans living in Puerto Rico were less likely to report poor health status, ADLs, stroke, and heart and lung disease when compared to older adults in the United States (Pérez & Ailshire, 2017).

What explains why those in Puerto Rico report better health than peers in the United States on some conditions but not others? Researchers have attributed the "lower risk of some health conditions" to certain Hispanic cultural traits such as "familismo" (familism) and "simpatía" (sympathy), in which high social support is an expectation and functions as a buffer for the occurrence of health conditions (Chavez-Korell et al., 2014; Rivera, 2007). Despite the prominence placed on family values in explanations of older adult health in Puerto Rico, knowledge of psychosocial determinants of health, family structures, and caregiving among older adults in Puerto Rico remains scarce in the literature.

Demographic Challenge Act (*EI Reto Demográfico*)

What has Puerto Rico's government done to address the affect of outmigration on population aging? The challenges

posed by Puerto Rico's rapid aging prompted the Puerto Rico Legislative Assembly to approve the Demographic Challenge Act of 2010. As a result, a Demographic Challenge Committee was constituted in 2011 with two main goals: (a) to study demographic phenomena occurring in Puerto Rico and the factors influencing these processes and (b) to issue policy recommendations to address the needs of Puerto Rico's aging population. The committee established seven policy elements to reduce the societal, cultural, and economic crises that follow such dramatic demographic shifts. These include: (a) increase the number of births to 60,000 per year, (b) reduce the number of deaths to 20,000 per year, (c) reduce net migration to zero, and (d) increase the availability of public housing and long-term care for the older adult population, among others (Hernández-Correa, 2015). The feasibility of these elements was the primary barrier to the success of the Demographic Challenge Act of 2010. For example, by 2010, the number of births had reduced to 40,000 per year, a trend that continues to this day. Recently, births have been reduced to approximately 20,000 births per year. Another example is related to Puerto Rico's net migration rate, which has been negative since 1930. While the committee was tasked with analyzing demographic trends and issuing policy recommendations, there was no commitment that these would be implemented through legislation or executive action. Eleven years after its approval, little has been achieved in stopping or reversing the trends that led to the approval of this act. The trends observed in the early 2000s have worsened due to economic conditions, the imposition of austerity measures, and most recently, Hurricanes Irma and María, seismic activity, and the coronavirus disease 2019 (COVID-19) pandemic. Aside from the production of reports, no actions

have been taken to enforce the demographic challenge act or enact any proposed policies.

Key Emerging Issues on Aging

In Puerto Rico, population aging will be substantially felt in all social and economic institutions over the coming years. Family composition and dynamics will change, work and retirement will be transformed, built environments will shift purpose, a higher percentage of the population will depend on social security and pensions, and Medicare appropriations will need to support a higher percentage of the population. Many institutions will struggle as the workforce declines and must prepare for Puerto Rico's demographic transformation. How Puerto Rico will address the challenge of rapid aging remains unclear and requires new policy efforts.

One key emerging issue is the reduction in caregiving and social support. Puerto Rico shares some features with other low-fertility societies worldwide, most notably in terms of its revolution in family structure (Verdery et al., 2019). The family system is undergoing a dramatic shift that presages substantial changes in the circumstances of the older adult population, many of whom rely on family-based care. As older adults have fewer available kin, driven both by reduced fertility in prior decades and unprecedented levels of outmigration, we can expect increased isolation among older adults and lower social participation, patterns in congruence with other developed countries in the world. However, the speed at which Puerto Rico is aging does not allow the social institutions to adapt. Because Puerto Rican older adults often report hesitation to use formal sources of support (professional caregivers, among others) and are sometimes unable to afford them, the reduction in family members and the unmet instrumental support needs could deteriorate mental and physical health among this population. With the population aging, there is an expected increase in the rates of cognitive decline and physical functional limitations, exacerbating the challenges older adults could confront in finding adequate caregiving and social support. A population-based study designed to examine caregiving, psychosocial determinants, and health among older adults in Puerto Rico is required to understand the increased demand for social and health services and adapt to the population's needs.

The second key emerging issue is financial insecurity in late life. In recent years, the government has implemented an array of austerity measures to reduce government spending. These measures include reducing government services, laying off public employees, eliminating social welfare programs, and reducing retirement workers' pensions (Cabán, 2018). In a society with 40% of its older adult population under the federal poverty line, the effect of these measures creates barriers and challenges for older adults' financial security. Moreover, with the increase in familial separation and the prevalence of migrant

adult-children, remittances may emerge as essential financial support for older adults in Puerto Rico. Even though researchers have been paying attention to migratory patterns from the island, there is a lack of studies on monetary transfers between migrants and left-behind family members in Puerto Rico. At the same time, increased funds to spend on support and decreased potential providers of support may collide in unfortunate ways, and there is an important role to be played in understanding the dynamics of aggregate labor market supply and demand, particularly in the health care and allied health professions. New data sources designed to capture monetary transfers and financial support are needed.

A third key emerging issue is disparities in access to health care. Older adults in Puerto Rico rely on Medicare, Social Security, and public assistance (Fericelli, 2013). About 92% of older adults in Puerto Rico have health insurance, 63.5% through public health care systems (Medicaid, Medicare, and Veterans Affairs). Although most older adults are insured, Puerto Ricans have unequal health care benefits compared to those residing in the United States even though Puerto Ricans' monetary contributions are the same (Rivera-Hernández et al., 2021). For example, Puerto Ricans received lower payments and more constrained low-income assistance programs than U.S. beneficiaries in any state (Rivera-Hernández et al., 2016). In terms of quality of care, Puerto Rican enrollees have the worst quality of care compared with the five states with the highest number of Hispanic Medicare Advantage enrollees. These structural inequalities are partially due to the lack of representation and power in the United States Congress to shape these funding disparities. All this, coupled with the increased outmigration of health care professionals, has worsened health care access for older adults staying in Puerto Rico and highlighted the role of the current political status in shaping health disparities. More research is needed to understand and overcome the public policy challenges that accentuate disparities in health care.

Another issue Puerto Rico may face related to aging is the possibility of return migration. The ongoing migration of working-age adults is accelerating population aging, but their speculative return will not ameliorate it. More likely, if these migrants were to return (which is far from certain), they would be most likely to do so after living and raising families in the United States for most of their economically productive years. Because the Puerto Rico migration stream can no longer be characterized as circular labor migration, we expect that any future increases in return migrants would be driven by retirees (Cobb-Clark & Stillman, 2013; Vázquez Calzada, 1963). Coming back to Puerto Rico when they are older adults, almost certainly without their now-grown children whose whole lives were spent in the United States would only increase the pace of population aging on the island, potentially exacerbating the pressures we have documented here.

Finally, the austerity measures and government reforms, including pension reductions that affect the already eroded economy, do not provide fertile soil for self-realization, growing, thriving, and establishing roots in Puerto Rico. By pointing out the role migration has in accelerating population aging in Puerto Rico, we are not advocating for the restriction of migration as a solution. On the contrary, the Government of Puerto Rico needs to develop programs that incentivize working-age adults to stay or return and contribute to Puerto Rico's family structure, health care system, and economy. Otherwise, there will be systematic aging of the potential labor force, and the government will need to establish policies to thrive with this "new" population.

Conclusion

Population aging in Puerto Rico is accelerating at record levels. The increased outmigration of inhabitants in productive and reproductive ages has transformed the population in ways that the government could not foresee. While the government approved the "Demographic Challenge Act," little has been accomplished in this area. The population of Puerto Rico continues to decline and rapidly age. The social and economic disparities faced by the growing number of older adults continue to test the ability of the public sector to provide comprehensive social programs and meet the demands of an aging population within the context of economic depression and financial austerity. Puerto Rico faces significant challenges in improving income security, providing health care services, and assuring the well-being of its aging population.

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Conflict of Interest

None declared.

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References

- Albert, S. M., & Freedman, V. A. (2010). *Public health and aging: Maximizing function and well-being* (2nd ed.). Springer Publishing Company.
- Barba, C., García, A., Clay, O. J., Wadley, V. G., Andel, R., Dávila, A. L., & Crowe, M. (2021). Quality of education and late-life cognitive function in a population-based sample from Puerto Rico. *Innovation in Aging*, 5(2), igab016. doi:[10.1093/geroni/igab016](https://doi.org/10.1093/geroni/igab016)
- Cabán, P. (2018). PROMESA, Puerto Rico and the American Empire. *Latino Studies*, 16, 161–184. doi:[10.1057/s41276-018-0125-z](https://doi.org/10.1057/s41276-018-0125-z)
- Chavez-Korell, S., Benson-Flórez, G., Rendón, A. D., & Farías, R. (2014). Examining the relationships between physical functioning, ethnic identity, acculturation, familismo, and depressive symptoms for Latino older adults. *The Counseling Psychologist*, 42(2), 255–277. doi:[10.1177/0011000013477906](https://doi.org/10.1177/0011000013477906)
- Cobb-Clark, D., & Stillman, S. (2013). Return migration and the age profile of retirement among immigrants. *IZA Journal of Migration*, 2, 20. doi:[10.1186/2193-9039-2-20](https://doi.org/10.1186/2193-9039-2-20)
- Dávila, AL., García, A., Larriuz, M., Reyes, L., Palloni, P., & McEniry, M. (2004). *PREHCO Project General Report*. University of Puerto Rico and University of Wisconsin.
- Departamento de Salud de Puerto Rico [Puerto Rico Department of Health]. (2015). *Prevalencia de la Enfermedad de Alzheimer's y Condiciones Relacionadas*. San Juan, Puerto Rico.
- Downer, B., Crowe, M., & Markides, K. S. (2017). Influence of type II diabetes and high depressive symptoms on the likelihood for developing activities of daily living (ADL) disability and mortality in older Puerto Ricans. *Journal of Aging and Health*, 29(6), 1079–1095. doi:[10.1177/0898264317708882](https://doi.org/10.1177/0898264317708882)
- Fericelli, P. J. (2013). Family assistance for older adults in Puerto Rico. *Advances in Social Work*, 14(1), 276–288. doi:[10.18060/3809](https://doi.org/10.18060/3809)
- Figueroa-Rodríguez, R., Rivera Negrón, R., & Rodríguez Figueroa, J. (2012). *Puerto Rico 2000-2010: Más allá del censo/Beyond the census*. Createspace Independent Pub.
- García, C., García, M. A., & Ailshire, J. (2018). Sociocultural variability in the Latino population: Age patterns and differences in morbidity among older US adults. *Demographic Research*, 38(52), 1605–1618. doi:[10.4054/DemRes.2018.38.52](https://doi.org/10.4054/DemRes.2018.38.52)
- Hernández-Correa, J. C. (2015). Reflexión sobre el plan de reto demográfico y su impacto en la política pública de Puerto Rico. *CIDE Digital*, 6(1), 39–48. <https://demografia.rcm.upr.edu/wp-content/uploads/sites/35/2020/04/CIDEvol6num1-abril-2015-03-Julio-Cesar.pdf>
- Lubbers, M. J., Verdery, A. M., & Molina, J. L. (2020). Social networks and transnational social fields: A review of quantitative and mixed-methods approaches. *International Migration Review*, 54(1), 177–204. doi:[10.1177/0197918318812343](https://doi.org/10.1177/0197918318812343)
- Matos-Moreno, A., Santos-Lozada, A. R., Mehta, N., Mendes de Leon, C. F., Lê-Scherban, F., & De Lima Friche, A. A. (2022). Migration is the driving force of rapid aging in Puerto Rico: A research brief. *Population Research and Policy Review*, 41, 801–810. doi:[10.1007/s11113-021-09683-2](https://doi.org/10.1007/s11113-021-09683-2)
- Monteverde, M., Noronha, K., & Palloni, A. (2009). Effect of early conditions on disability among elderly in Latin America and the Caribbean. *Population Studies*, 63(1), 21–35. doi:[10.1080/00324720802621583](https://doi.org/10.1080/00324720802621583)

- National Center for Health Statistics. (2019). National Health Interview Survey. Public-use data file and documentation. <https://www.cdc.gov/nchs/nhis/data-questionnaires-documentation.htm>
- 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. doi:[10.1177/0898264317714144](https://doi.org/10.1177/0898264317714144)
- Prince, M., Ferri, C. P., Acosta, D., Albanese, E., Arizaga, R., Dewey, M., Gavrilova, S. I., Guerra, M., Huang, Y., Jacob, K. S., Krishnamoorthy, E. S., McKeigue, P., Rodriguez, J. L., Salas, A., Sosa, A. L., Sousa, R. M., Stewart, R., & Uwakwe, R. (2007). The protocols for the 10/66 dementia research group population-based research programme. *BMC Public Health*, 7, 165. doi:[10.1186/1471-2458-7-165](https://doi.org/10.1186/1471-2458-7-165)
- Quashie, N. T., Andrade, F. C. D., Meltzer, G., & García, C. (2022). Living arrangements and intergenerational support in Puerto Rico: Are fathers disadvantaged? *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*. Advance online publication. doi:[10.1093/geronb/gbac044](https://doi.org/10.1093/geronb/gbac044)
- Rivera, F. I. (2007). Contextualizing the experience of young Latino adults: Acculturation, social support and depression. *Journal of Immigrant Minority Health*, 9(3), 237–244. doi:[10.1007/s10903-006-9034-6](https://doi.org/10.1007/s10903-006-9034-6)
- Rivera-Hernández, M., Leyva, B., Keohane, L. M., & Trivedi, A. N. (2016). Quality of care for white and hispanic medicare advantage enrollees in the United States and Puerto Rico. *JAMA Internal Medicine*, 176(6), 787–794. doi:[10.1001/jamainternmed.2016.0267](https://doi.org/10.1001/jamainternmed.2016.0267)
- Rivera-Hernández, M., Matos-Moreno, A., Ferdows, N. B., & Kumar, A. (2021). Posthospital nursing home utilization and quality indicators among medicare beneficiaries in Puerto Rico: Comparison with the United States. *Journal of the American Medical Directors Association*, 22(3), 712–716.e4. doi:[10.1016/j.jamda.2020.11.005](https://doi.org/10.1016/j.jamda.2020.11.005)
- Rodríguez-Gómez, J. R., Martínez-Taboas, A., & Cruz, A. (2009). Psychosocial characteristics of an initial sample of Puerto Rican centenarians. *Boletín Asociación Médica Puerto Rico*, 101(2), 5–11.
- Santos-Lozada, A. R., Kaneshiro, M., McCarter, C., & Marazzi-Santiago, M. (2020). Puerto Rico exodus: Long-term economic headwinds prove stronger than Hurricane Maria. *Population and Environment*, 42(1), 43–56. doi:[10.1007/s11111-020-00355-5](https://doi.org/10.1007/s11111-020-00355-5)
- Song, Q., Wang, H., & Burr, J. A. (2022). Depressive symptoms among rural “left-behind” older adults: A test of the high outmigration penalty hypothesis. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 77(3), 592–603. doi:[10.1093/geronb/gbab040](https://doi.org/10.1093/geronb/gbab040)
- Toro Adorno, Y., Rodríguez Gómez, J. R., & López Córdova, N. M. (2021). Bienestar de Adultos Mayores Cuyas Familias Han Emigrado a Estados Unidos y Algunas de sus Fortalezas Emocionales para Mantener ese Cambio. *Scientific International Journal*, 18(1), 37–49.
- Torres, J. M., Rudolph, K. E., Sofrygin, O., Wong, R., Walter, L. C., & Glymour, M. M. (2019). Having an adult child in the United States, physical functioning, and unmet needs for care among older Mexican adults. *Epidemiology*, 30(4), 553–560. doi:[10.1097/ede.0000000000001016](https://doi.org/10.1097/ede.0000000000001016)
- U.S. Census Bureau. (2000). *Population count, 2000 Puerto Rico decennial population count*. <https://data.census.gov/cedsci/table?q=Population%20Total&g=0400000US72&cy=2000&ctid=DECENNIALDPCD110H2000.DP1>
- U.S. Census Bureau. (2019). *Population estimates, 2019 Puerto Rico community survey 5-year estimates*. https://data.census.gov/cedsci/table?q=total%20population&g=0400000US72&ctid=A_CSDP5Y2019.DP05
- U.S. Census Bureau. (2020). *Population count, 2020 Puerto Rico decennial population count*. https://data.census.gov/cedsci/table?q=total%20population&g=0400000US72&ctid=ACSD_P5Y2020.DP05
- Vázquez Calzada, J. L. (1963). La emigración puertorriqueña: ¿Solución o problema? *Revista de Ciencias Sociales*, 7(4), 323–332.
- Vera Rodríguez, H. (2014). Análisis de la Situación de los Adultos Mayores en Puerto Rico. *Pontificia Universidad Católica de Puerto Rico*.
- Verdery, A. M., Margolis, R., Zhou, Z., Chai, X., & Rittirong, J. (2019). Kinlessness around the world. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 74(8), 1394–1405. doi:[10.1093/geronb/gby138](https://doi.org/10.1093/geronb/gby138)