



Violent Deaths Reporting System Puerto Rico

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Violent Deaths - Puerto Rico 2021

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Introduction

The Puerto Rico Violent Death Reporting System (PRVDRS) is an epidemiological surveillance system designed to obtain a complete census of violent deaths in Puerto Rico. The PRVDRS, affiliated to the Puerto Rico Institute of Statistics, began its participation in the National Violent Death Reporting System (NVDRS) in September 2016 through a collaborative agreement funded by the Centers for Disease Control and Prevention (CDC) of the Department of Health and Human Services. By 2017, 40 states, the District of Columbia (D.C.) and Puerto Rico participated in the NVDRS. Since 2018, all 50 states have participated, in addition to D.C. and Puerto Rico.

The PRVDRS collects, consolidates, analyzes, and publishes information on all violent deaths in Puerto Rico. Violent deaths occur by suicide or homicide, as well as deaths from unintentional firearm injuries, deaths due to legal intervention (excluding legal executions), and deaths with undetermined intent.

The documentation of violent deaths is carried out through a collaborative agreement with the Institute of Forensic Sciences, the Puerto Rico Police Bureau, and the Demographic Registry (Vital Statistics) of the Puerto Rico Department of Health.

To learn more about data sources, definitions of violent deaths, circumstances, firearms, data quality and integrity, and mortality rates, please refer to the first edition of the Annual Report of Violent Deaths in Puerto Rico - 2017 available at: <https://estadisticas.pr/en/prvdrs>

Puerto Rico Population – 2021

In 2021, the median age of the population of residents in Puerto Rico was 44 years old. In the male population, the median age was 42 years and 46 years in the case of women. Table 1 shows the distribution of the population by sex and age groups, while Figure 1 illustrates the proportion of the population by age and sex. The proportion of children under 10 years of age is lower than the proportion of the adult population and those over 50 years of age, which reflects the aging of Puerto Rico's population. There is no official classification of race in Puerto Rico, however, in the 2020 Census, 60.0% of Puerto Rico residents identified themselves as white. Census results indicate that 98.7% of the population in Puerto Rico is Hispanic/Latino and 95.4% Puerto Rican.

Figure 2 shows Puerto Rico in the Caribbean Region. The map in Figure 3 shows Puerto Rico's 78 municipalities including Vieques and Culebra.

Table 1. Puerto Rico Population by Age and Sex, 2021

Age Cohorts	Both Sexes	Male	Female
0 – 4	105,149	54,009	51,140
5 – 9	146,563	74,467	72,096
10 - 14	177,290	89,538	87,752
15 - 19	195,142	99,517	95,625
20 - 24	219,309	111,406	107,903
25 - 29	224,270	112,865	111,405
30 - 34	207,233	101,626	105,607
35 - 39	183,124	86,570	96,554
40 - 44	203,394	95,827	107,567
45 - 49	203,275	96,029	107,246
50 - 54	212,647	99,903	112,744
55 - 59	224,622	102,748	121,874
60 - 64	217,650	99,237	118,413
65 - 69	200,461	90,240	110,221
70 -74	184,113	81,642	102,471
75 - 79	148,643	64,968	83,675
80 - 84	101,767	43,220	58,547
85 +	108,041	40,433	67,608
Total	3,262,693	1,544,245	1,718,448
Median age (years)	44	42	46

Source: U.S. Census Bureau, Populations Division, 2023

Figure 1. Puerto Rico Population Pyramid, 2021

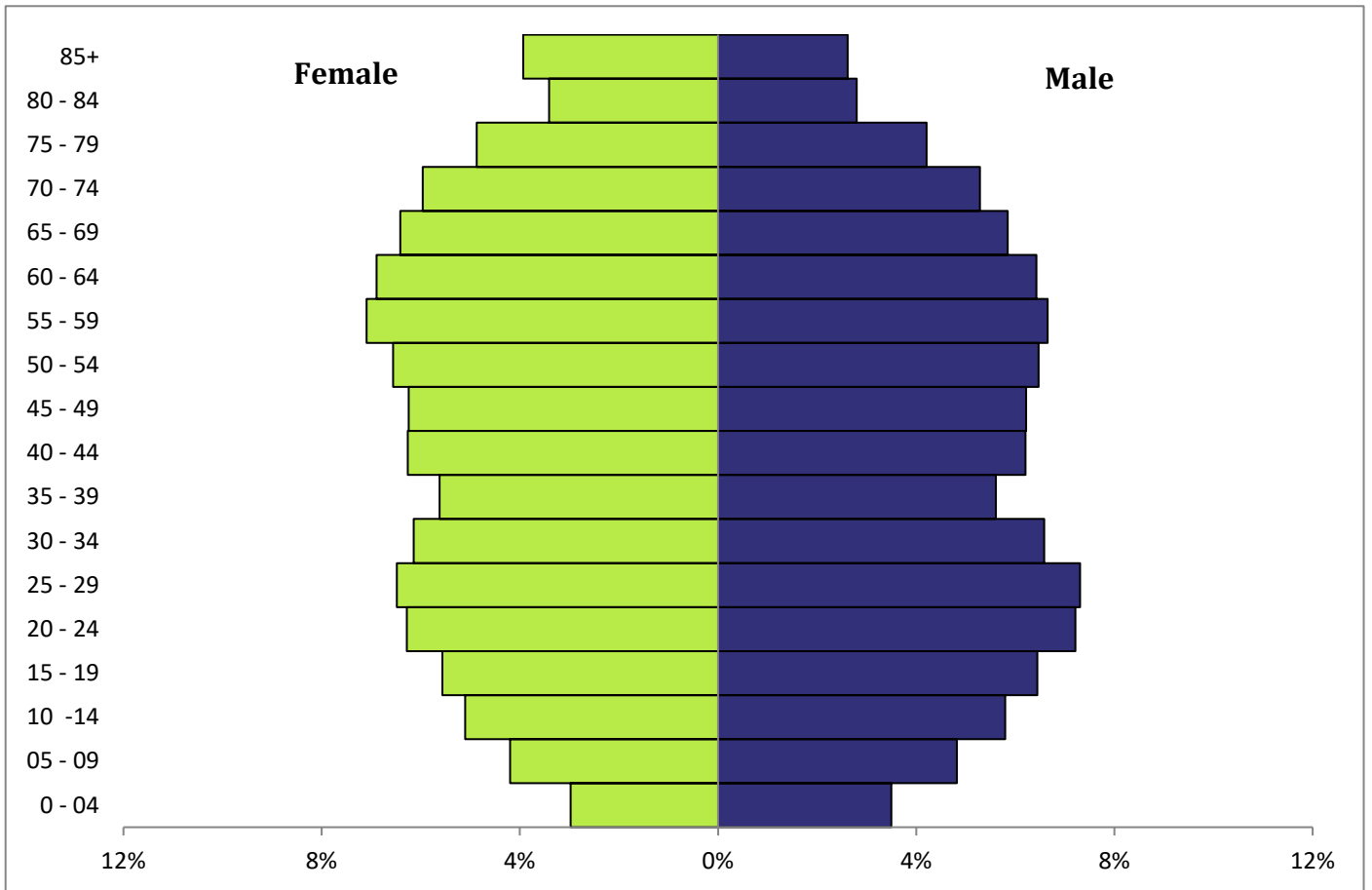


Figure 2. Caribbean Region and Puerto Rico



Source: Google Earth

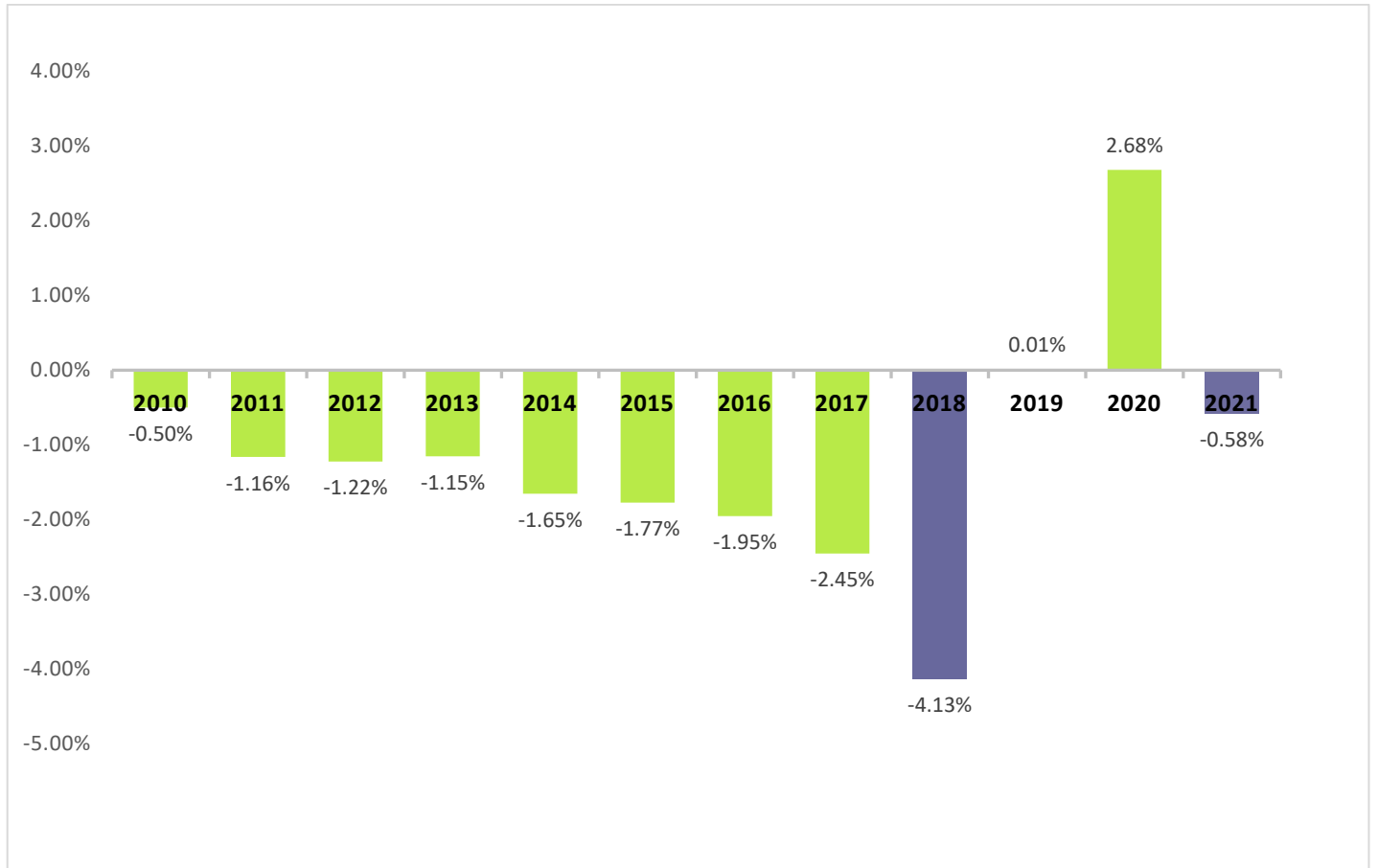
Figure 3. Map of Puerto Rico's 78 Municipalities



Changes in Puerto Rico's Population after Hurricane María

Beginning in 2005, Puerto Rico experienced a gradual decline in population. The estimated population for Puerto Rico as of July 1, 2018 was 3,193,344 which represents a 14.2% decrease from the 2010 Census population of 3,725,789. Hurricanes Irma and María fostered one of the largest emigrations of Puerto Rican residents to the U.S. mainland. According to a report released on September 26, 2019 by the U.S. Census Bureau, an estimated 142,000 people (4.4% of the population) emigrated from Puerto Rico in the wake of Hurricane María, (Glassman, 2019). Figure 4 shows the annual relative change in population from 2010 to 2021. The large decline in 2018 is directly related to the impact of Hurricanes Irma and María. According to U.S. Census estimates, the population as of July 1, 2021 in Puerto Rico is 3,262,693 inhabitants, registering an increase of 0.58% with respect to the population in 2020 (US Census Bureau, 2022).

Figure 4. Population Growth Rate with Respect to Previous Year: Puerto Rico, 2010 - 2021



VIOLENT DEATHS IN PUERTO RICO 2021

OVERVIEW



Violent Deaths - 2021

During 2021, 816 incidents of violent deaths were reported, resulting in 880 victims, mostly from single or multiple homicides (639 victims, 72.6%) and suicides (215, 24.4%). Notably, of the total number of homicides and suicides reported in 2021, four victims (0.5%) were recorded in two homicide-suicide incidents. Homicide-suicide incidents are those where the aggressor, after killing the victim, commits suicide. In addition, two violent deaths attributed to legal intervention incidents (0.2%) and three violent deaths due to unintentional self-inflicted firearms (0.3%) were documented. Finally, 21 violent deaths with undetermined intent were documented (2.4%). Table 2 shows the distribution of all violent deaths that occurred in 2021 by incident type and sex and Figure 5 illustrates the relative distribution of these violent deaths in males and females, respectively. Approximately 9 out of 10 victims of violent deaths (92.0%) were male.

The crude rate of violent deaths for Puerto Rico in 2021 is 27.0 per 100,000 inhabitants, 52.5 in men and 4.0 in women. The estimated lifetime risk of a violent death (cumulative to age 74) is 1 in every 49 inhabitants, 1 in every 26 males and 1 in every 317 females. The primary mechanism of all violent deaths was the use of firearms. Approximately, seven out of ten fatal incidents (n=626, 71.1%) involved a firearm. Of these deaths, 75.4% occurred in males (n=600) and 37.7% in females (n=26). Most violent deaths involving firearms were homicides (n=585, 93.5%) compared to suicides (n=35, 5.6%). Firearms were used in the two homicide-suicide incidents (n=2, 0.3%). Two violent deaths with firearms by legal intervention (0.3%), and three unintentional self-inflicted with firearms (0.5%) were documented.

Given that 97.0% of all violent deaths in Puerto Rico in 2021 were homicides (n=639) and suicides (n=215), this report focuses on these two types of violent deaths.

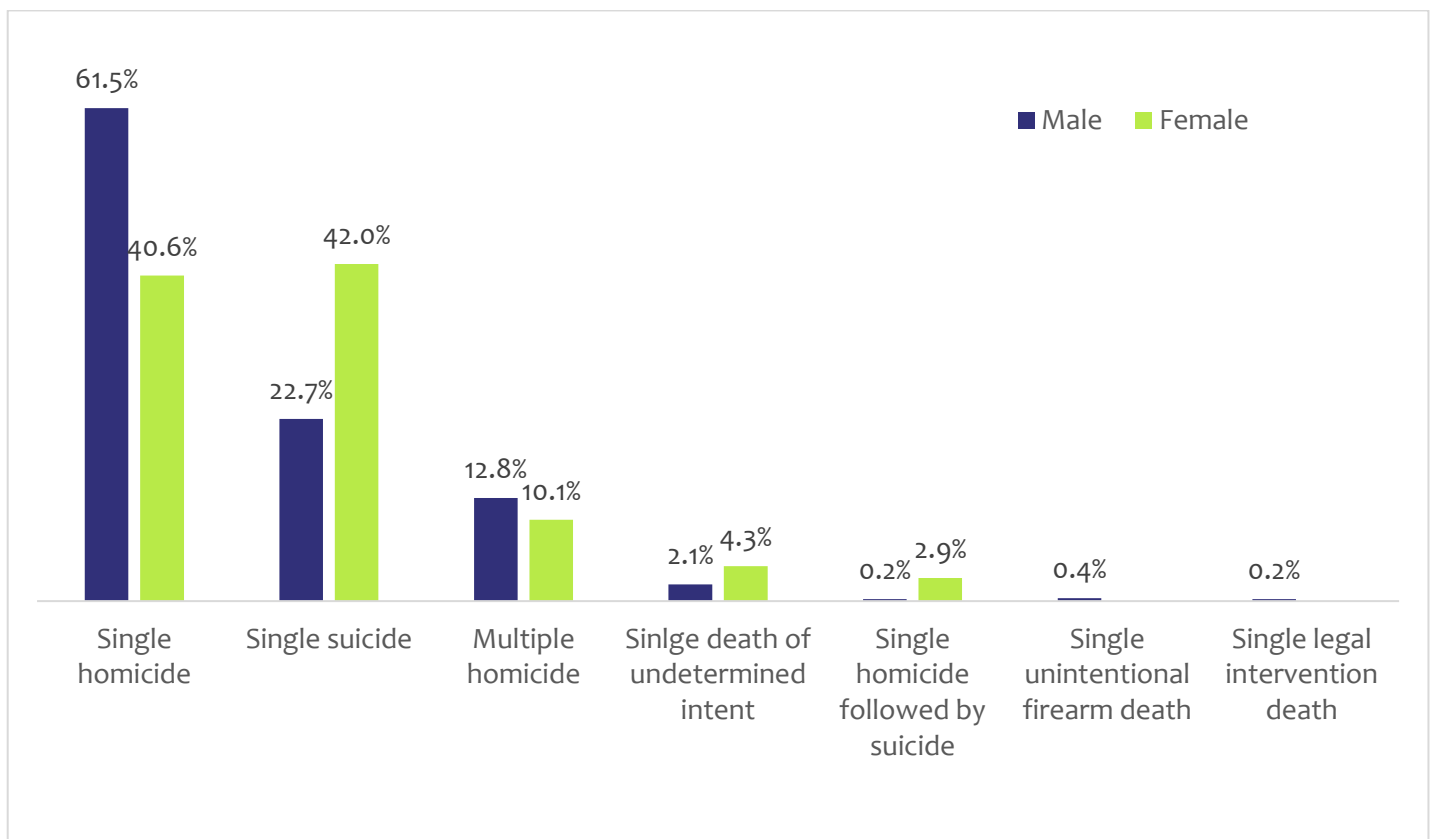
Table 2. Victims of Violent Deaths by Type of Incident and Sex in Puerto Rico, 2021

Type of violent death incident	Victim's sex		
	Men	Women	Total
Single homicide	498	28	526
Multiple homicide	104	7	111
Mutual homicide/shootout	0	0	0
Single homicide followed by suicide	~	~	~
Multiple homicide followed by suicide	0	0	0
Singular suicide	184	29	213
Single legal intervention	~	0	~
Multiple legal intervention deaths	0	0	0
Unintentional firearm death (self-inflicted)	~	0	~
Single death of undetermined intent	17	~	21*
Total	810	69	880

* One case with undetermined sex.

~ Number is not presented when fewer than six cases are reported to ensure the confidentiality of the information.

Figure 5. Percent Distribution of Violent Death Incidents by Sex in Puerto Rico, 2021

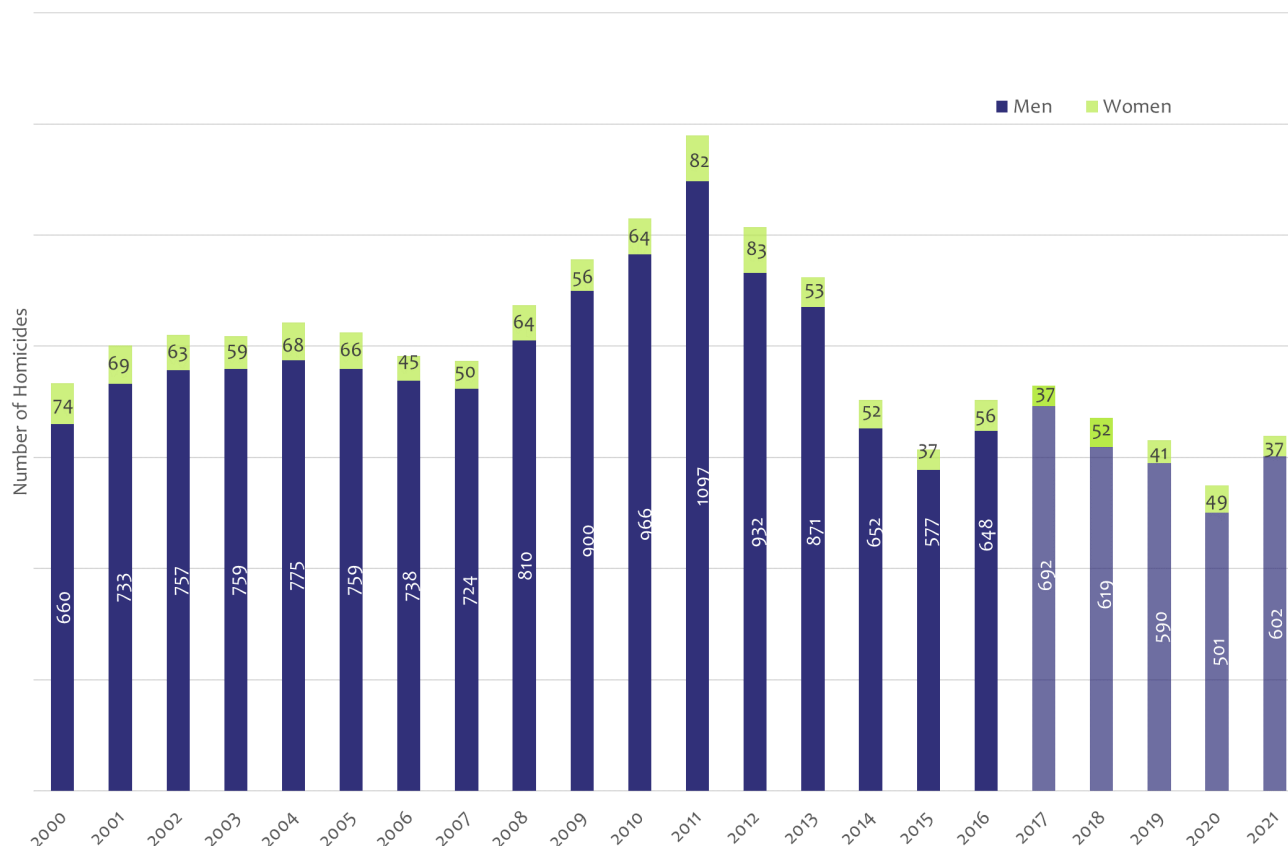


VIOLENTS DEATHS IN PUERTO RICO 2021
HOMICIDES

Homicides

Of the 880 violent deaths registered in 2021, 639 were homicides (72.6%). Homicides are more frequent in men (n=602, 94.2%) than in women (n=37, 5.8%). This gender profile has been maintained for decades. According to historical data from the Institute of Forensic Sciences, and as presented in Figure 6, between the years 2000 to 2016 and adding the PRVDRS data from 2017 to 2021, a total of 17,624 homicides have been recorded: 16,362 in males (92.8%) and 1,257 in females (7.2%).

Figure 6. Number of Homicides by Sex: Puerto Rico, 2000-2021*

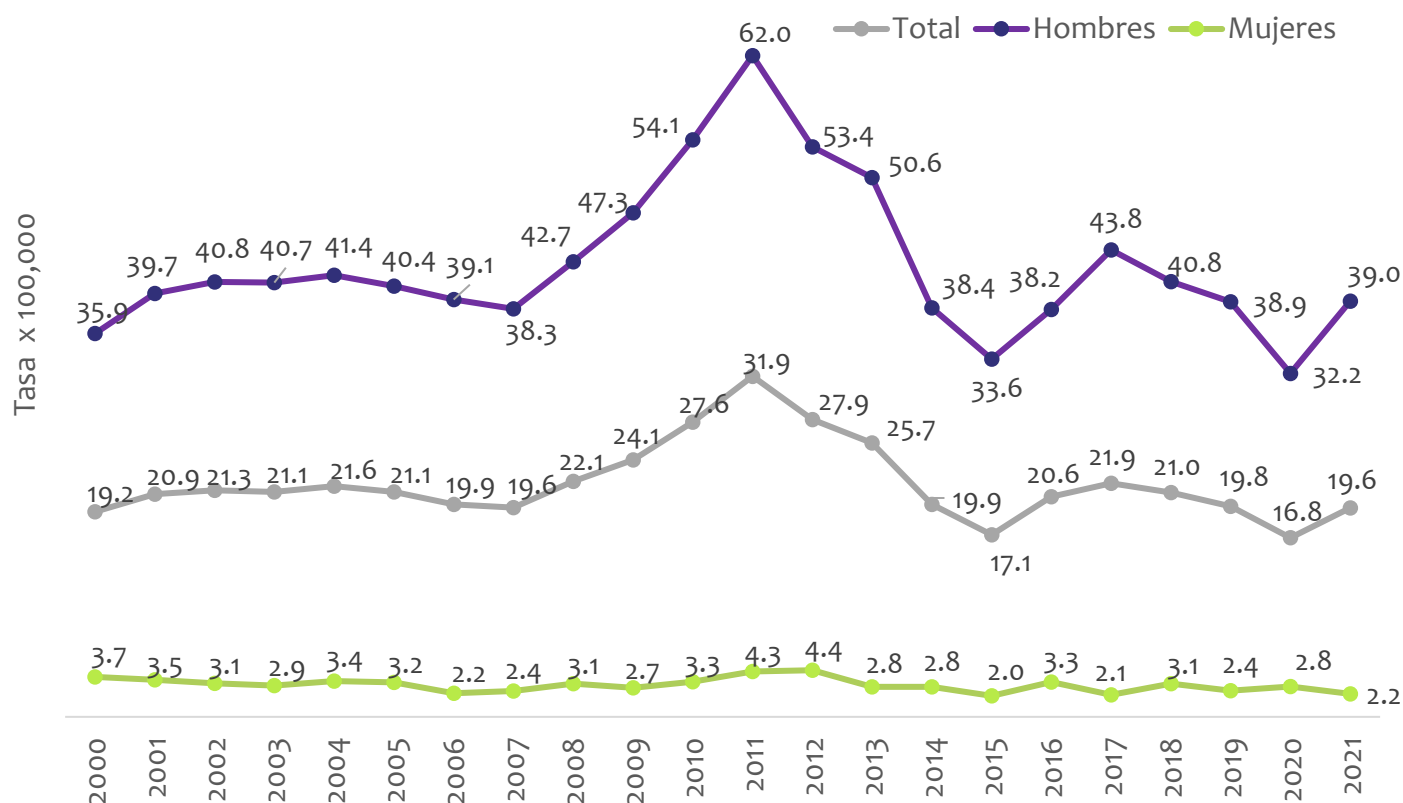


* 1 homicide in 2011 and 2020, 3 homicides in 2014 have no sex classification.

Figure 7 shows the trend of annual homicide rates for the period from 2000 to 2021. During this period, the highest homicide rates were recorded in 2011 with 31.9 homicides per 100,000 inhabitants: 62.0 per 100,000 males and 4.3 per 100,000 females. The crude female homicide rates during the years 2000 to 2021 have fluctuated between the lowest rate recorded in 2015 (2.0 per 100,000 females) and the highest in 2012 (4.4 per 100,000 females). During 2016 and 2017, an increase in the crude homicide rates in Puerto Rico was observed; however, by 2020 when restrictions were imposed during the COVID-19 pandemic, the homicide rate decreased to 16.8 per 100,000 population (32.2 in males and

2.8 in females). In 2021, homicide rates are similar to those observed in 2019. According to the data, the risk of dying from homicide in 2021 in men was approximately 18 times higher than the risk in women (RR=17.7).

Figure 7. Homicide Crude Rates by Sex: Puerto Rico, 2000-2021



Demographic Profile of Homicides

Age and sex

Table 3 shows the number and homicide rates for Puerto Rico in 2021, by sex and age groups and includes the calculation of the cumulative rate and the approximation of the cumulative risk up to 74 years of life (lifetime risk). This statistic does not consider the risk for other causes of death and its interpretation is easy and comparable between populations, even with different age structures. The highest homicide rates were recorded in 2011, where the cumulative risk was 1 in 42 inhabitants, 1 in 22 males and 1 in 315 females. In 2021, the cumulative risk is 1 in 65 persons: 1 in 34 males and 1 in 562 females. To compare Puerto Rico with other U.S. populations and other countries, Table 3 includes age-adjusted rates using the U.S. standard population (2000) and the world standard population (2000).

Age-specific rates are important for identifying age groups at higher risk of dying from homicide. Figure 8 shows the specific rates by age group and sex. The contrast in homicide rates by sex in the 15-39 age groups is striking (framed in Figure 8). In these age groups 73.1% of all homicides occur in males and 59.5% in females. Homicide rates in men between 20 and 39 years of age reflect rates greater than 80 x 100,000 men. At the end of Table 3, the higher risk of dying from homicide in males relative to the risk in females between 15 and 39 years of age is shown.

Table 3. Number and Rates of Homicides by Age and Sex: Puerto Rico, 2021

Age Group	Number of cases			Rates per 100,000*		
	Sex		Total	Sex		Total
	Men	Women		Men	Women	
0-4	~	~	~	~	~	~
5-9	~	~	~	~	-	~
10-14	~	0	~	~	0	~
15-19	41	~	42	41.2	~	21.5
20-24	111	7	118	99.6	6.5	53.8
25-29	110	8	118	97.5	7.2	52.6
30-34	89	~	91	87.6	~	43.9
35-39	89	~	93	102.8	~	50.8
40-44	62	~	66	64.7	~	32.4
45-49	31	~	33	32.3	~	16.2
50-54	26	~	28	26.0	~	13.2
55-59	15	~	17	14.6	~	7.6
60-64	6	0	6	6.0	-	2.8
65-69	7	0	7	7.8	-	3.5
70-74	~	0	~	~	-	~
75-79	~	~	~	~	~	~
80-84	0	0	0	-	-	-
85+	~	~	~	~	~	~
Unknown	3	0	3			
Total	602	37	639	39.0	2.2	19.6
Age-adjusted rate (US 2000)				41.9	2.5	21.7
Age-adjusted rate (World, 2000)				43.2	2.7	22.6
Cumulative rate to 74 years of age (%)				2.98	0.18	1.54
Cumulative risk (1 in...)				34	562	65
Relative Risk Men: Women by age-groups:						
RR		15-19	20-24	25-29	30-34	35-39
		41.2	15.4	13.6	46.2	24.8

~Number and rates are not presented when fewer than six cases are reported to ensure the confidentiality

of the information.

*Rates calculated with fewer than 20 observations are unreliable and should be interpreted with caution.

**One case with age and sex unknown. In addition, there were six transgender victims reported.

Table 4 shows the age-adjusted homicide rates for men and women in Puerto Rico and compares them with White, African American, Hispanic, and Native American populations in the U.S. (National Center for Injury Prevention and Control, 2022). The risk of dying from homicide for men in Puerto Rico was the second highest of all populations compared. Men in Puerto Rico had a risk 9.2 times higher than that of white men in the US. This risk was lower than that of the population of African American men, whose risk of dying from homicide was the highest, 12.8 times higher than that of white men in the United States. The risk of dying from homicide in women in Puerto Rico was 2.8 times higher than that of white women in the United States. However, this risk was similar than that of Native American (2.8) and lower than that of African American (4.9) women.

According to statistics provided by the United Nations Office on Drugs and Crime, the average homicide rate worldwide in 2021 was 5.8 per 100,000 inhabitants, while the average in Latin America and the Caribbean was 19.9 per 100,000 inhabitants. Jamaica, Saint Lucia and Honduras had the highest homicide rates of 52.1, 39.0 and 38.3 per 100,000 inhabitants, respectively, while Puerto Rico with a rate of 19.6 is ranked twelfth along with Guatemala out of 35 countries in the region with available data. (UNDOC 2023).

Figure 8. Homicide Rates by Age-group and Sex: Puerto Rico, 2021

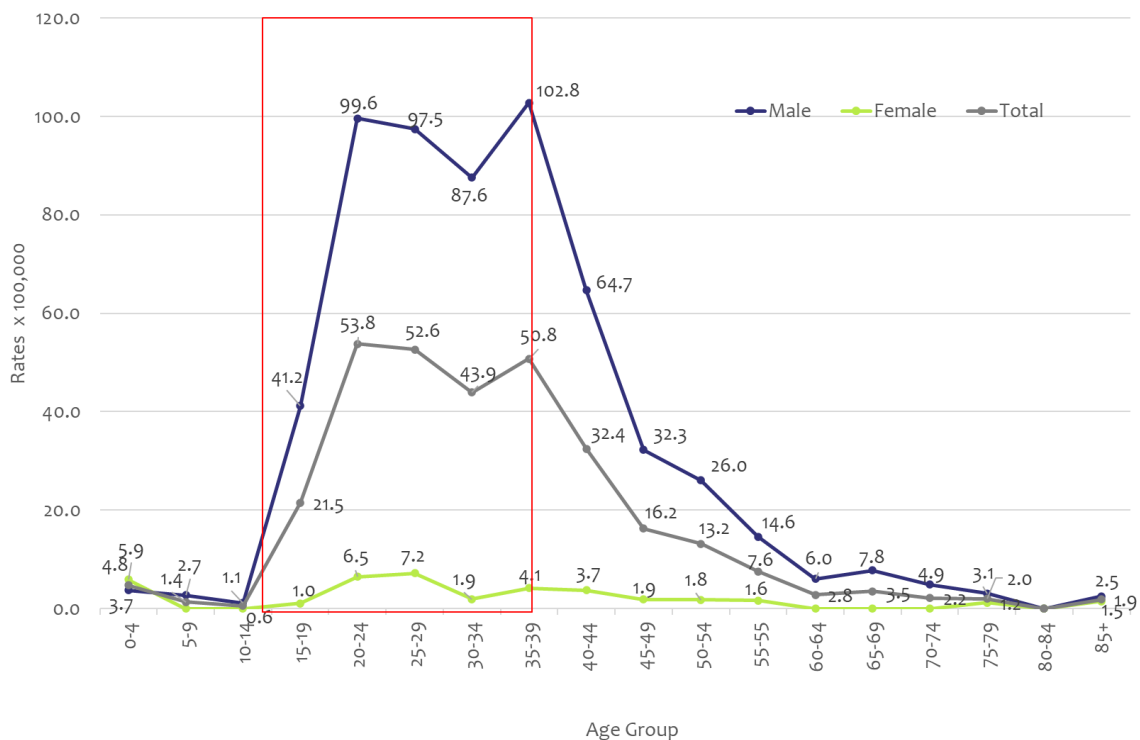


Table 4. Age-adjusted Homicide Rates (US 2000): Puerto Rico and US, 2021

Homicides					
Men					
Race Ethnicity	No. of Deaths	Population	Crude Rate	Age-adjusted rate	RR
White, Non-Hispanic	4,340	97,704,907	4.44	4.56	1.0
Hispanic	3,694	31,716,199	11.65	11.05	2.4
African American, Non-Hispanic	12,277	20,121,104	61.02	58.45	12.8
American Indian, Non-Hispanic	241	1,209,987	19.92	20.39	4.5
Puerto Rico, Hispanic all races	602	1,544,245	38.97	41.88	9.2
Women					
Race Ethnicity	No. of Deaths	Population	Crude Rate	Age-adjusted rate	RR
White, Non-Hispanic	1,875	99,128,524	1.89	1.94	1.0
Hispanic	759	30,930,845	2.45	2.46	1.3
African American, Non-Hispanic	2,036	21,737,432	9.37	9.45	4.9
American Indian, Non-Hispanic	66	1,241,929	5.31	5.39	2.8
Puerto Rico, Hispanic all races	37	1,718,448	2.16	2.54	1.3

Education

Table 5 presents the highest educational level obtained by homicide victims over 24 years of age only, who represent 73.2% of all homicides. Most homicide victims did not complete high school or manage to graduate from high school or obtain a high school equivalency diploma (GED). These basic levels of education constituted 81.2% of all homicide victims. Figure 9 shows the percentage distribution of education of these victims by sex. 82.4% of males and 61.5% of females did not complete more than a high school education. A notable difference is observed in the population of women with university and postgraduate studies who were victims of homicide (30.8%), compared to male victims of homicide (3.8%).

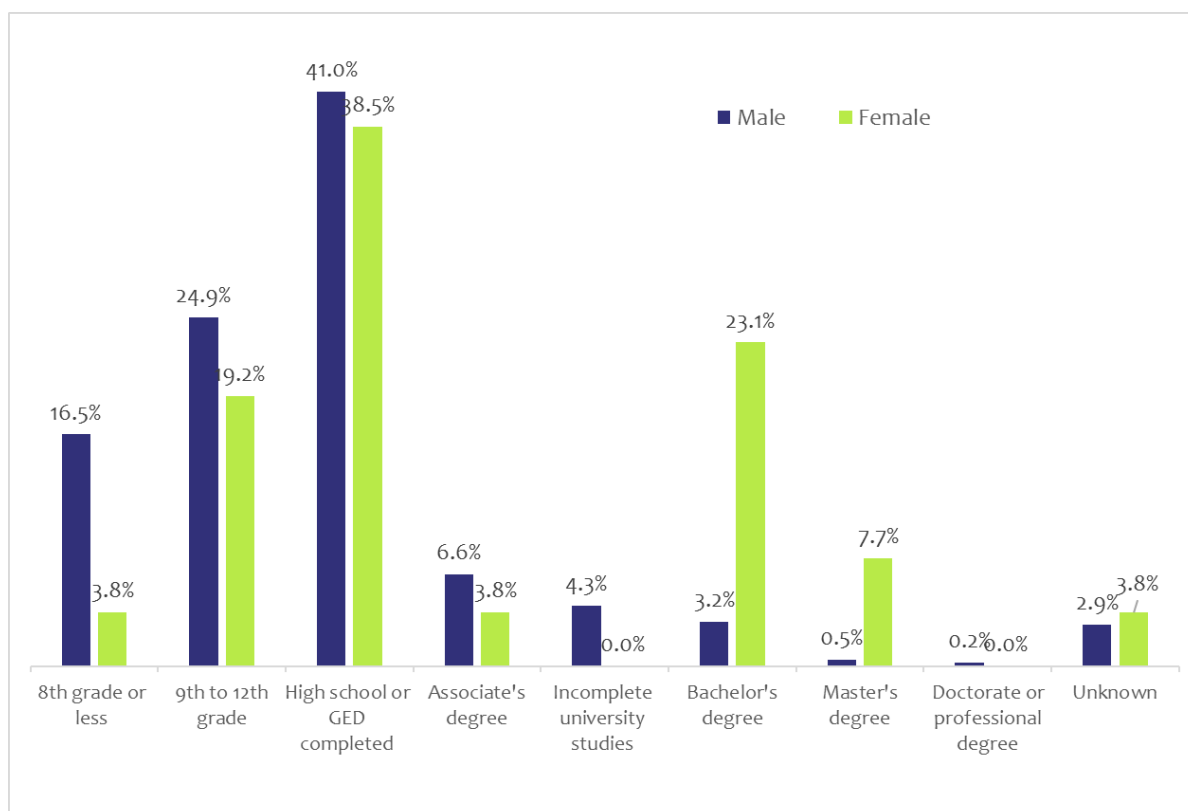
Current Occupation

In 42.0% of male and 40.5% of female homicide victims, current occupation information was unknown. The proportion of employed victims in men (55.1%) was similar to that of women (54.1%). 11.1% of the men and 5.4% of the women had never worked and 18.9% of the women identified themselves as homemakers.

Table 5. Highest Educational Level Attained by Homicide Victims over 24 Years of Age: Puerto Rico, 2021

Highest educational level attained	Sex of the victim		
	Men	Women	Total
8th grade or less	73	1	74
9th to 12th grade, no diploma	110	5	115
High School graduate or GED completed	181	10	191
College credits, but no degree	19	0	19
Associate's degree	29	1	30
Bachelor's degree	14	6	20
Master's degree	2	2	4
Doctor's degree	1	0	1
Unknown	13	1	14
Total	442	26	468

Figure 9. Highest Educational Level Attained by Homicide Victims Over 24 Years of Age: Puerto Rico, 2021



Mechanism

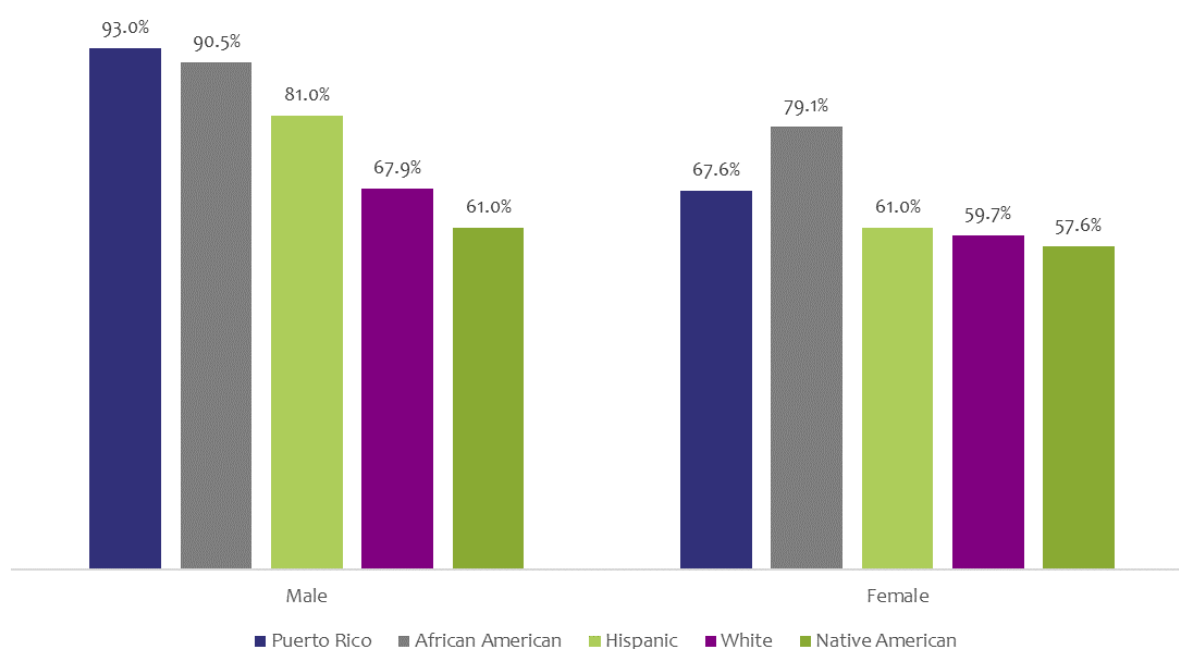
Historically, the use of firearms has been the primary mechanism of homicides in Puerto Rico (Zavala, et al; 2012). Data from the Institute of Forensic Sciences from 2000 to 2016 and PRVDRS data from 2017 onwards reflect that the use of firearms to inflict fatal injuries increased from 83.8% in men and 54.1% in women in 2000, to 93.0% in men and 67.6% in women in 2021. Table 6 shows all mechanisms used in homicides by sex for 2021.

Comparing 2021 homicides with firearms in Puerto Rico and the U.S. populations described above, shows that Puerto Rico had the highest proportion in males (93.0%) and the second highest in females (67.6%). Figure 10 shows the proportion of firearm homicides for the four racial groups in the U.S. compared to Puerto Rico (National Center for Injury Prevention and Control, 2023).

**Table 6. Primary Weapon Type or Mechanism Used to Inflict the Fatal Injury:
Puerto Rico, 2021**

Mechanism	Sex of victim		
	Men	Women	Total
Firearm	560 (93.0%)	25 (67.6%)	585 (91.5%)
Sharp instrument	16 (2.7%)	3 (8.1%)	19 (3.0%)
Blunt instrument	8 (1.3%)	1 (2.7%)	9 (1.4%)
Personal weapons (hands, fists, etc.)	7 (1.2%)	2 (5.4%)	9 (1.4%)
Hanging, strangulation, suffocation	2 (0.3%)	4 (10.8%)	6 (0.9%)
Fire or burns	4 (0.7%)	0 (0%)	4 (0.6%)
Other (motor vehicle, shaken baby syndrome)	3 (0.5%)	0 (0%)	3 (0.5%)
Unknown	2 (0.3%)	0 (0%)	2 (0.3%)
Total	602 (100%)	37 (100%)	639 (100%)

Figure 10. Proportion of Homicides by Firearms: Puerto Rico and U.S Populations, 2021



Similar data at the international level indicate that in 2021, globally, 47.0% of homicides involved the use of firearms. In the Latin American and Caribbean regions, the average is 75.0%. Puerto Rico leads the countries in this region with the highest proportion of firearm homicides (91.5%), followed by the Bahamas (87.4%) and Saint Kits and Nevis (85.7%). On the other hand, Guatemala (17.2%), Dominica (10.0%), and Bolivia (8.9%) had the lowest levels of firearm use in homicides. Data on homicides by firearms were not published for Grenada, Haiti, Trinidad and Tobago, the United States, and Venezuela (UNODC, 2023).

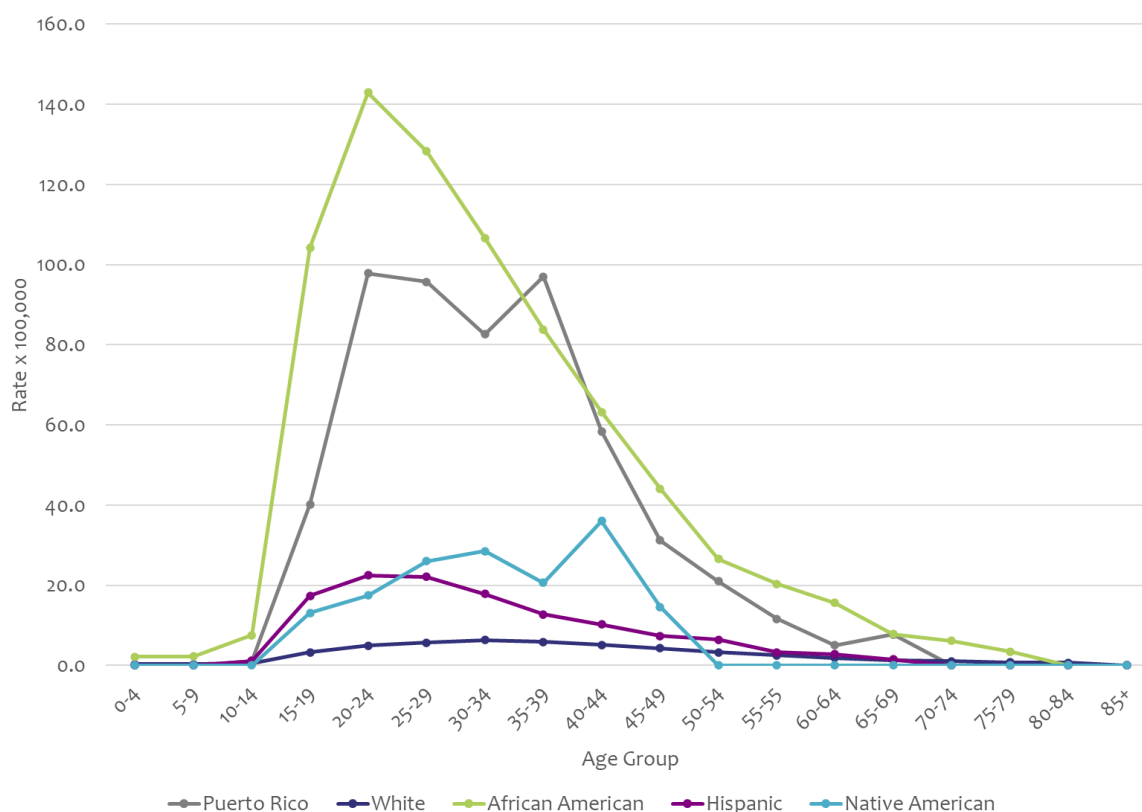
Because of the high proportion of firearm homicides, firearm homicide rates were calculated and compared to the four populations in the US described above. Table 7 shows the age- and sex-adjusted firearm homicide rates (National Center for Injury Prevention and Control, 2022). The risk of being a victim of firearm homicide for Puerto Rican men is approximately 12 times the risk for white men in the United States. This risk is lower than that of African American men with a risk 16.5 times higher than that of white men in the US. The firearm homicide rate for Puerto Rican women is similar to or lower than that of U.S. female populations except that the risk for African American women is 6.3 times the risk of being killed by firearms compared to U.S. white women. Puerto Rican women have 1.3 times the risk of dying from firearms compared to the white female population.

Figure 11 shows the age group-specific rates of male firearm homicides for Puerto Rico and the four U.S. populations described above. The male population in Puerto Rico between the ages of 15 to 44 years has a higher risk of homicide death than any other population in the United States except the African American population. For ages 20 to 34, homicide rates were approximately 80.0 per 100,000 males in Puerto Rico. This elevated risk of homicide in young men is the same pattern observed primarily in Latin America and the Caribbean (IHME, 2018).

Table 7. Age-adjusted Homicide Rates (US 2000): Puerto Rico and US Populations, 2021

Homicides					
Men					
Race Ethnicity	No. of Deaths	Population	Crude Rate	Age-Adjusted Rate	RR
White, Non-Hispanic	2,945	97,704,907	3.01	3.19	1.0
Hispanic	2,992	31,716,199	9.43	8.75	2.7
African American Non-Hispanic	11,110	20,121,104	55.22	52.73	16.5
American Indian, Non-Hispanic	147	1,209,987	12.15	12.48	3.9
Puerto Rico, Hispanic, all races	560	1,544,245	36.26	38.95	12.2
Women					
Race Ethnicity	No. of Deaths	Population	Crude Rate	Age-adjusted Rate	RR
White, Non-Hispanic	1,119	99,128,524	1.13	1.18	1.0
Hispanic	463	30,930,068	1.65	1.65	1.4
African American Non-Hispanic	1,611	21,737,432	7.41	7.46	6.3
American Indian, Non-Hispanic	38	1,241,929	3.06	3.11	2.6
Puerto Rico, Hispanic all races	25	1,718,448	1.46	1.59	1.3

Figure 11. Age-specific Firearm Homicide Rates in Men: Puerto Rico and U.S. Populations, 2021



Circumstances

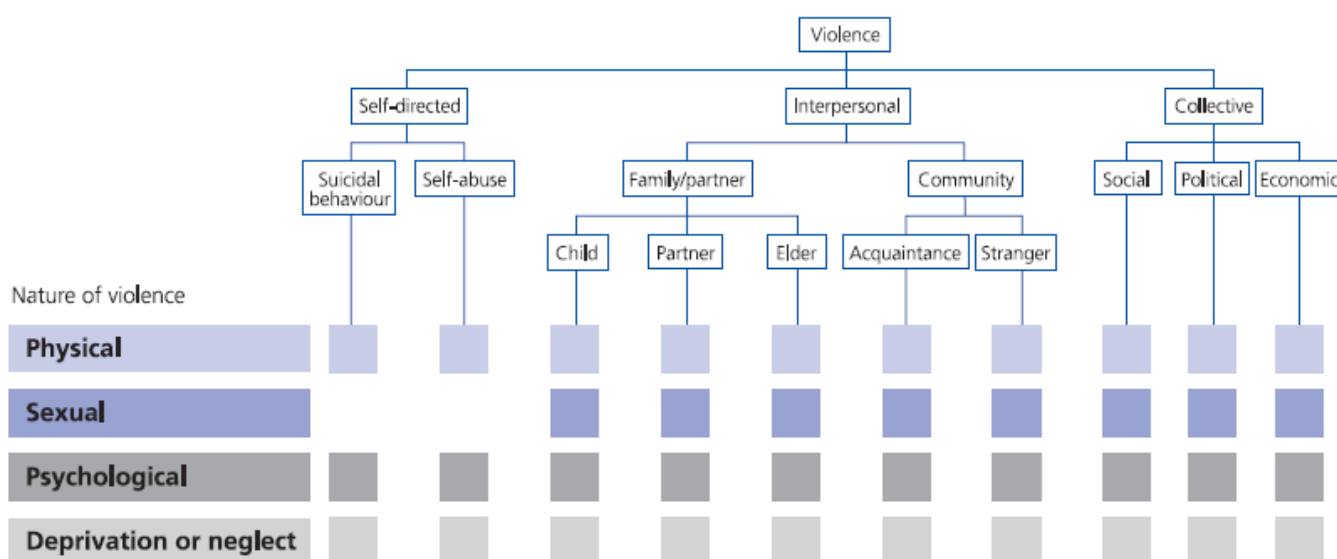
As a result of the criminal and medicolegal investigation of homicide incidents, multiple circumstances related to the crime were identified. Information on the circumstances in which homicides occur includes the interpersonal relationships between victims and suspects, the circumstances of the crime, and circumstances related to the mental health of the victims, among others.

It is important to maintain a differentiation of homicides that occur in the community to more adequately distinguish the context between community violence and collective violence. Figure 12 illustrates the classification of violence in its different forms adopted by the World Health Organization (WHO) and used worldwide. This classification links violence to the intention that precipitates it and distinguishes it into three categories: self-inflicted violence (suicides), interpersonal violence and collective violence. Interpersonal violence includes violence in a family or intimate partner setting and community violence is defined as "violence that occurs between

unrelated people who may or may not know each other and usually occurs outside the home" (Krug, E., Dahlberg, L., & Mercy, J., 2002). Finally, collective violence is defined by the possible motives or reasons for the use of violence including social, political and economic reasons.

Unlike community violence, collective violence can be perpetrated by the State or by organized groups of individuals, including criminal groups, as is the case in Puerto Rico with homicides perpetrated by individuals belonging to groups involved in the illegal drug trade. The context of these homicides is organized crime and it is important to differentiate them from fatal incidents that occur in the community between individuals who are not associated with criminal groups and that occur in other circumstances such as street fights or confrontations between individuals in public or private places such as, for example, an argument in a bar that gets out of control and precipitates a homicide with a firearm.

Figure 12. Typology of Violence – World Health Organization



Interpersonal Violence

Interpersonal violence occurs in two circumstances: family violence and community violence. Family violence (violence between family members) includes child or elder abuse and intimate partner violence (Krug, E., Dahlberg, L., & Mercy, J., 2002).

Family Violence (n=31)

In 2021, 31 fatal victims of family violence were reported. Most of these cases were related to violence in an intimate partner or ex-partner setting (20 cases, 64.5%) and the rest were related to violence between family members (11 cases, 35.5%).

Intimate Partner Violence (n=20)

The PRVDRS uses the World Health Organization's definition of intimate partner violence. This definition is widely used internationally to refer to violence perpetrated by spouses, partners, or friends involved in a current or past close personal or sexual relationship. Intimate partner violence includes not only violence against women, but also violence by women against men and between same-sex partners (Krug, Dahlberg & Mercy, 2002). The United Nations defines femicide/feminicide as the gender-related killing of women that can take many forms including intimate partner homicide (UN, 2012), recognizing that femicides/feminicides are an extreme manifestation of violence against women perpetrated or condoned by public and private actors (Grzyb et al., 2018).

Most of the victims of intimate partner violence were female (n= 18, 90.0%) fatally assaulted by their male current partner or spouse (n=11, 61.1%) or ex-partner or ex-spouse (n=7, 38.9%) or. In addition, two of the female victims of intimate partner violence were incidents of homicide-suicide (11.1%). These femicides/feminicides occurred primarily during an argument (44.4%) or due to jealousy over a current or former intimate partner relationship (16.7%). The two male victims were victims of their current female intimate partner.

In 11 of the 18 femicides/feminicides a firearm was used (61.1%), 4 femicides/feminicides were due to asphyxiation (22.2%). Two femicides/feminicides were with a sharp instrument and one by poisoning. A sharp object was used in the two male victims of intimate partner violence.

Within the context of intimate partner violence, 9 deaths occurred of a third person who was directly linked to a past intimate relationship in which there was a history of violence (e.g., the current partner of the suspect's ex-partner, the ex-partner of the suspect's current partner, friend or acquaintance of the victim). In these cases, all the victims were men and the use of a firearm predominated (77.8%). Another 28 homicide victims were third parties without any intimate partner relationship, collateral victims of a fatal incident involving an intimate partner or former intimate partner. All these victims were men and the use of a firearm predominated (96.4%).

Community Violence (209)

Fatal incidents of community violence occur primarily among men (n=202, 96.7%), aged 15 to 39 (64.4%), and with an education level of high school graduate or less (77.7%). In the case of female victims of community violence (n=7, 3.3%), 42.9% were between 15 and 39 years of age and 57.1% of the victims had a high school education level or less. The use of a firearm was the primary mechanism of death in community violence incidents (n=176, 84.2%). A firearm was used in 85.1% of homicides in men and 57.1% in women.

Multiple circumstances have been documented in 209 of the 639 homicides in a community violence setting, representing 32.7% of all homicides (excluding two legal intervention deaths, three unintentional firearm deaths, and 21 deaths of unknown intent). The most common documented circumstances were arguments (n=50, 23.9%), theft (n=19, 9.1%), and fights between two people (n=15, 7.2%). Additionally, 14.8% (31 victims) of homicides occurred in drive-by shootings. In 15 fatal incidents of community violence, multiple homicides were recorded (7.1%), all victims were men. Five homicides were considered self-defense (2.4%) and in ten homicides the victims were collateral victims (4.8%).

Collective Violence

In Puerto Rico, 358 of the 639 homicides (56.0%) registered in 2021 occurred in an environment of collective violence, related to criminal groups involved in the trafficking of illicit drugs. All 358 homicides classified as collective violence were related to organized crime. In 186 cases there was evidence of drug trafficking (52.0%). In these incidents there were 90 victims in multiple homicides (25.1%), of which 23 (25.6%) were innocent victims. Additionally, 84 victims involved in organized crime groups or drug trafficking were killed in drive-by shootings (23.5%).

The victims of collective violence are mostly men (97.2%), between 15 and 39 years of age (78.4%) and with an education level of high school graduate or less (87.6%). Firearms were used in practically all homicides related to organized crime and/or drug trafficking (99.4%). The rest of the homicides in a context of collective violence were related to robbery, arguments or physical fights.

Table 8 summarizes the contrasting demographic characteristics and circumstances of victims of community violence and collective violence. In both classifications of violence, most victims are young men between 15-39 years of age. However, a greater proportion of victims of collective violence had

no more than a high school graduate education (87.4%) compared to victims of community violence (77.0%). 1.1% of victims of collective violence had a high school or postgraduate degree compared to 6.2% of victims of community violence. The proportion of victims of fatal firearms injuries in both types of violence is extremely high (84.2% community violence, 99.4% collective violence). In incidents of collective violence, multiple homicides are more than triple the number of incidents of community violence (25.1% and 7.2% respectively). Finally, it is important to note that drive-by shootings are not exclusive to homicides in circumstances of collective violence (23.5%). Some 14.8% of homicides in circumstances of community violence occurred in drive-by shootings.

Table 8. Demographic Profile and Circumstances of Community and Collective Violence - 2021

Victim's sociodemographic profile and incident circumstances	Type of Violence	
	Community Violence n=209	Collective Violence n=358
Demographics		
<i>Sex*</i>		
Men	202 (96.7%)	348 (97.2%)
Women	7 (3.3%)	10 (2.9%)
<i>Victims in 15-39 age-group</i>		
Men	130 (64.4%)	273 (78.4%)
Women	3 (42.9%)	9 (90.0%)
<i>Educational level</i>		
High School or less	161 (77.0%)	313 (87.4%)
Male victim	157 (77.7%)	305 (87.6%)
Female victim	4 (57.1%)	8 (80.0%)
Associate degree	15 (7.2%)	17 (4.7%)
Male victim	15 (7.4%)	17 (4.9%)
Female victim	0	0
Bachelor's/Post-graduate	13 (6.2%)	4 (1.1%)
Male victim	11 (5.4%)	3 (0.9%)
Female victim	2 (28.6%)	1 (10%)
Unknown	8 (3.8%)	10 (2.8%)
<i>Mechanism of death</i>		
Firearms	176 (84.2%)	356 (99.4%)
Male victim	172 (85.1%)	346 (99.4%)
Female victim	4 (57.1%)	10 (100%)
<i>Incident Circumstances</i>		
Multiple homicide	30 (14.7%)	59 (21.4%)
Fight between two people	13 (6.4%)	2 (0.7%)
Argument	41 (20.1%)	17 (6.2%)
Innocent victim	12 (5.9%)	23 (8.3%)
Vehicle shootout	43 (21.1%)	68 (24.6%)
Drug trafficking	0	216 (78.3%)
Associate to criminal organization	0	257 (93.1%)
Robbery	22 (10.9%)	7 (2.5%)

According to a Drug Enforcement Administration (DEA) report, Puerto Rico is the jurisdiction with the fourth highest volume of cocaine seizures in 2020. Puerto Rico and the Virgin Islands have been designated as High Intensity Drug Trafficking Areas (HIDTA) for being the main maritime transshipment points for cocaine in the Caribbean (DEA 2020). The DEA has established a "strong connection" between violent crime, illicit drug trafficking, gang activity, and possession of illicit

weapons (DEA, 2017).

Firearms and Ammunition

Access to firearms is a determining factor in the homicides that occur in Puerto Rico. In 83.9% of the victims of community violence and 99.4% of the victims of collective violence died from firearm injuries. Restrictions to legally access a firearm in Puerto Rico continue to be stricter than in many U.S. jurisdictions (Puerto Rico Firearms Statutes and Codes, ATF). However, in neighboring states such as Florida, the purchase of firearms is less restricted, so the accessibility of these weapons in Florida extends to Puerto Rico (Zavala et al., 2012). The 2021 report of the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF, 2022) Firearms Tracing System provides detailed information on 847 firearms selected for tracing in Puerto Rico. The majority of these weapons were pistols or revolvers (88.2%) and more than half of these weapons were 9mm (38.3%), .40 (28.5%), and .45 (6.0%).

The ATF report described that the largest number of firearms submitted for tracing were mostly guns confiscated (n=308, 36.4%), under investigation (n=84, 9.9%) or illegal possession (n=275, 32.5%). One firearm traced was involved in a homicide. The latter data reflects the fact that in the vast majority of homicide scenes firearms are not usually recovered. However, numerous casings of different calibers are recovered at these scenes, which are sent to the Institute of Forensic Sciences for analysis through the National Integrated Ballistics Information Network (NIBIN) and may eventually be associated with other homicides or different types of crime. Finally, ATF was able to identify the state of origin of the firearm in 628 of the 847 firearms analyzed (74.1%). The primary origin of the 628 firearms traced by ATF were the states of Florida (49.7%), Texas (14.3%), Puerto Rico (14.0%) (ATF, 2022).

Data on the number of firearms in legal or illegal possession in Puerto Rico is difficult to obtain. According to a Small Arms Survey report, in 2017 it was estimated that 422,00 firearms were in legal (registered by the Police) and illegal possession in Puerto Rico; that is, approximately 12 out of every 100 people owned a firearm (Small Arms Survey, 2018). This number contrasts with the large number of ammunition available annually in Puerto Rico. According to Puerto Rico Foreign Trade statistics, in 2021, 18,901,207 cartridges with projectiles for shotguns, rifles or pistols were imported (PR Planning Board, 2021), an increase of 34.7% of the amount of ammunition imported in 2020 (14,037,006).

Mental Health Circumstances

Most homicide incidents had no available or documented mental health history information. Table 9 shows the available mental health history documented in homicide victims. The percentage of each circumstance is in relation to the total number of homicides. The most documented circumstance was a non-alcohol substance abuse problem (29.3%), this being more common in men than in women. In addition, 7.5% of victims were documented as having a current mental health problem, and 6.3% of victims had a problem of alcohol dependence or abuse.

Table 9. Mental Health Circumstances in Victims of Homicide: Puerto Rico, 2021

Mental health circumstances in homicides (n=639)	Victim's sex		
	Men n=602	Women n=37	Total n=639
Victim had a non-alcohol related substance abuse problem	181 30.1%	6 16.2%	187 29.3%
Victim had been identified as currently having a mental health problem	44 7.3%	4 10.8%	48 7.5%
Victim had alcohol dependence or alcohol abuse problem	39 6.5%	1 2.7%	40 6.3%
History of ever being treated for a mental health or substance abuse problem	26 4.3%	2 5.4%	28 4.4%
Currently in treatment for mental health problem or substance abuse	19 3.2%	0 0.0%	19 3.0%
Victim was perceived by self or others to be depressed at time of the injury	10 1.7%	0 0.0%	10 1.6%

VIOLENT DEATHS IN PUERTO RICO 2021
SUICIDES

Suicides

PRVDRS data provide information on the circumstances of deaths which, in the case of suicides, includes data on the individual's mental health and other factors that could precipitate a fatal self-injury. Figure 13 shows historical data from the Institute of Forensic Sciences from 2000 to 2016 and PRVDRS data from 2017 to 2021. In this 22-year period, 6,390 suicides were reported. In Puerto Rico, the frequency of suicides is much lower than that of homicides, however, as with homicides, suicides are more frequent in males (5,466, 85.5%) than in females (924, 14.5%).

Figure 14 shows crude suicide rates by sex for the period 2000 to 2021. In this period, the highest rates for males and females were recorded in different years. In 2009, the crude suicide rate was 16.9 per 100,000 males (1 of 77 males) and 1.6 for females (1 of 777 females). In 2011, the highest female suicide rate was observed, 3.2 per 100,000 females (1 of 399 females) compared to 14.9 for males (1 of 88 males). In 2021, suicide rates generally remained the same as the previous year (6.4 per 100,000 people in 2020 and 6.6 per 100,000 in 2021). The crude suicide rate was 6.6 per 100,000 inhabitants, 12.0 in men (1 of 124 men) and 1.7 in women (1 of 774 women). The risk of suicide in men was seven times greater than the risk of suicide in women.

Figure 13. Number of Suicides by Sex: Puerto Rico, 2000-2021

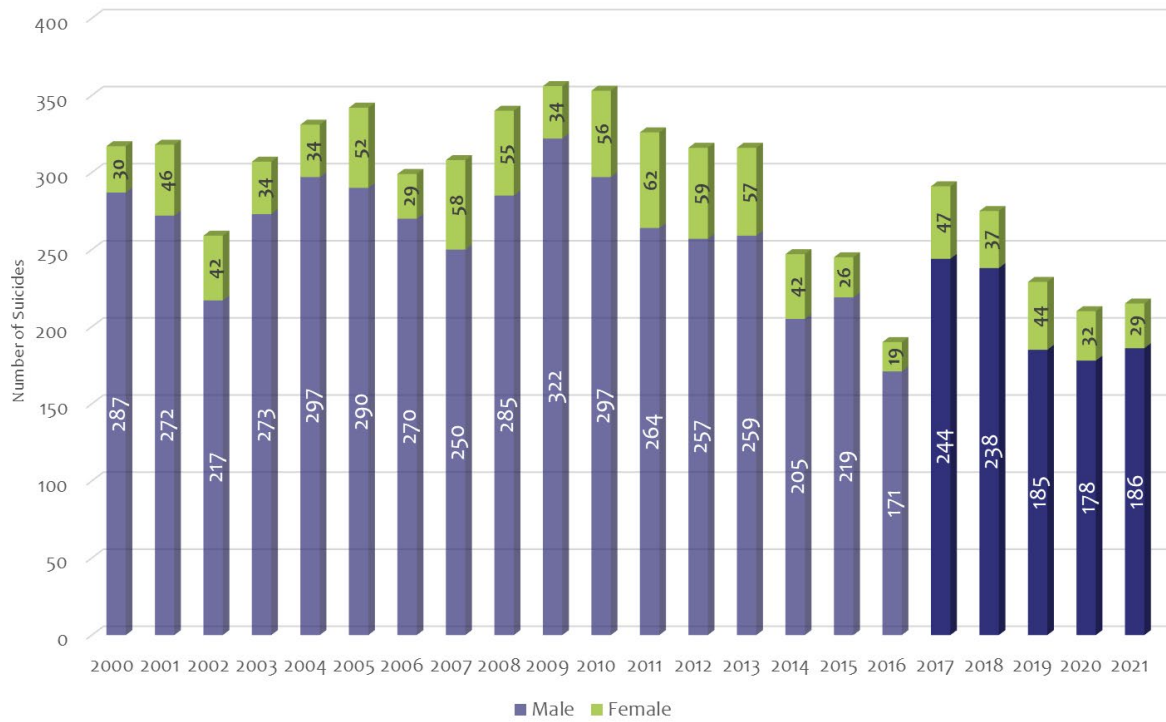
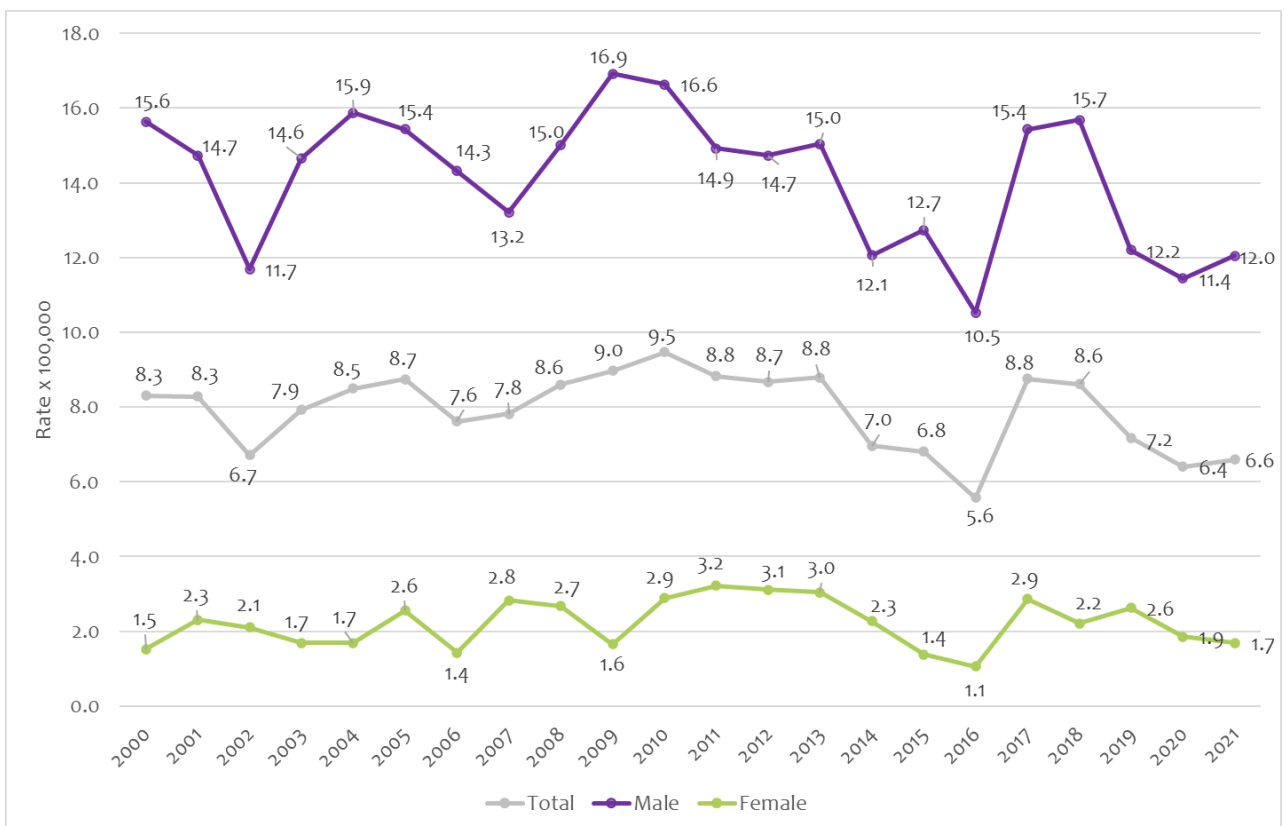


Figure 14. Annual Crude Suicide Rates by Sex: Puerto Rico, 2000-2021



Demographic Profile of Suicides

Age and sex

To minimize variability in age-specific rate calculations, Table 10 shows the number and rates of suicides specific to sex and age groups in 10-year intervals. However, age-specific rates based on fewer than 20 cases, especially in females, are unstable and should be interpreted with caution. For comparison with other populations, Table 10 includes age-adjusted rates using the US Standard Population (2000) and the World Standard Population (2000).

Table 10. Number and Age-sex Specific Rates for Suicides: Puerto Rico, 2021

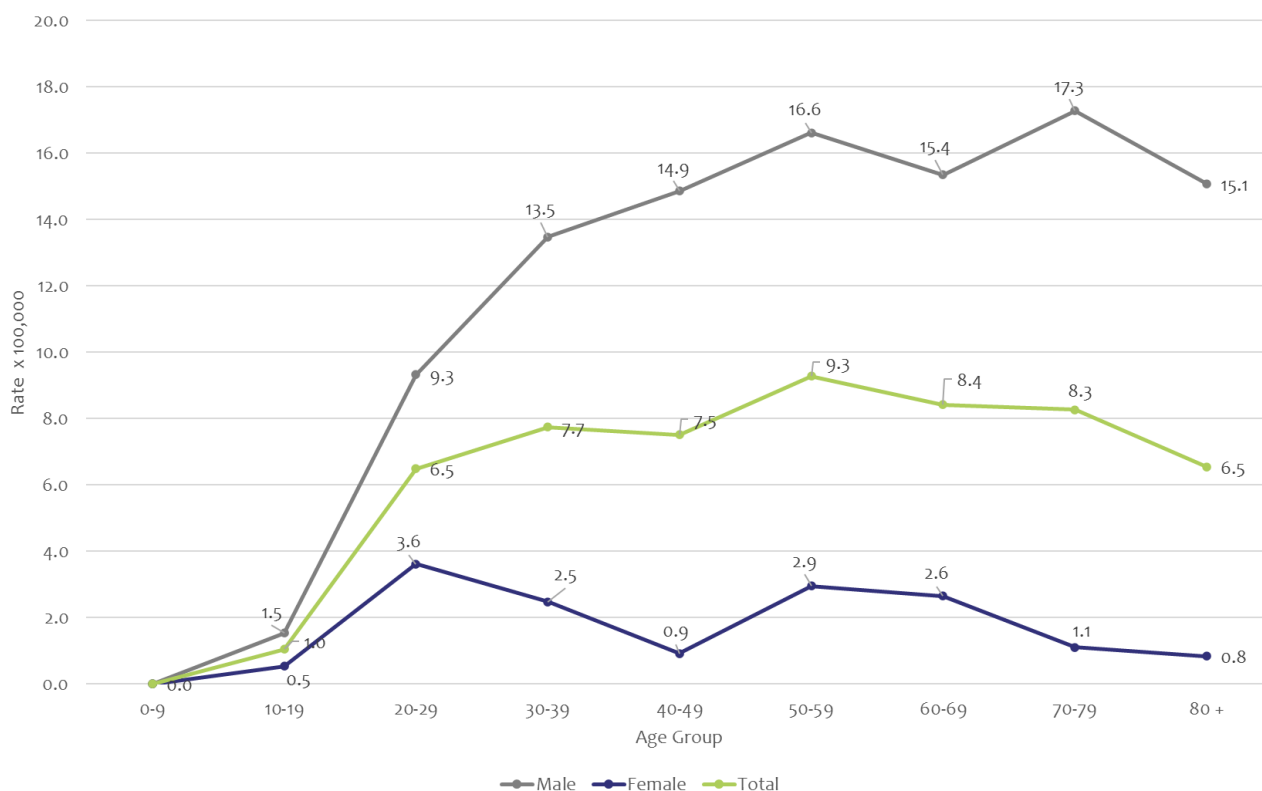
Age group	Number of cases			Rate x 100, 000		
	Men	Women	Total	Men	Women	Total
0-9	0	0	0	0.0	0.0	0.0
10-19	6	~	7	3.2	~	1.9
20-29	26	6	32	11.6	2.7	7.2
30-39	28	7	35	14.9	3.5	9.0
40-49	33	~	36	17.2	~	8.9
50-59	30	6	36	14.8	2.6	8.2
60-69	23	~	27	12.1	~	6.5
70-79	25	~	27	17.1	~	8.1
80 +	14	0	14	16.7	0.0	6.7
Unknown	1	0	1			
Total	186	29	215	12.0	1.7	6.6
Age-adjusted rate (U.S. 2000)				11.0	1.6	6.1
Age-adjusted rate (World 2000)				9.9	1.6	5.6
Cumulative rate (%)				0.81	0.13	0.45
Cumulative risk (1 in x persons)				124	774	222
Relative Risk Men : Women by age-groups:						
10-19	20-29	30-39	40-49	50-59	60-69	70-79
6.4	4.3	4.3	12.3	5.7	7.1	15.5

~Number or rates are not presented when fewer than six cases are reported to ensure confidentiality of information.

* Rates calculated with fewer than 20 observations are unstable and should be interpreted with caution.

Overall, 67.9% of all suicides occurred between 15 and 59 years of age. There were no suicides reported in children under 15 years of age. Suicides occurred in 66.1% of men and 79.3% of women in the population under 60 years of age. Figure 15 shows the specific suicide rates by age group and sex in 2021. Males aged 40-49 and 70-79 have the highest suicide rates (17.2 and 17.1 per 100,000 males, respectively). The highest rates in women were observed in the 30-39 age group (3.5 per 100,000 women). Comparison of suicide risk by age group is limited by the instability of rates based on fewer than 20 cases in certain age groups in women, however, the ages at which suicide risk is highest in men compared to women are in the age groups of 40-49 and 70-79 years (12.3 and 15.5 respectively).

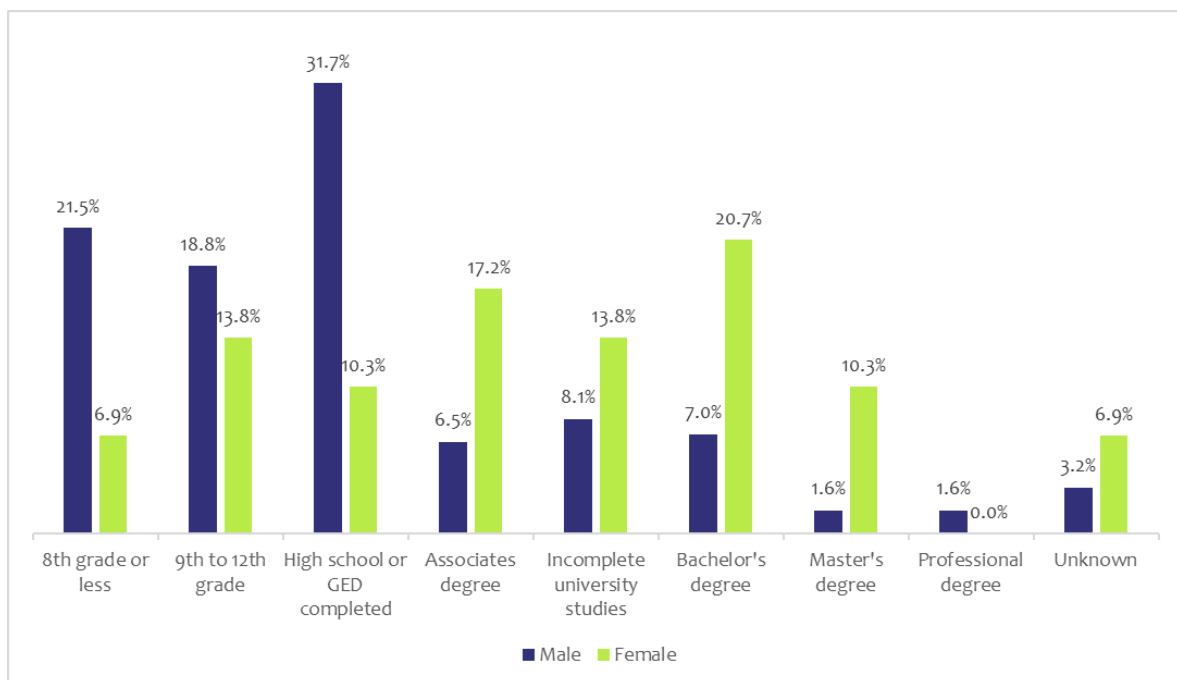
Figure 15. Suicide Death Rates by Age and Sex: Puerto Rico, 2021



Education

Figure 16 shows the percentage distribution of the highest level of education obtained by suicide victims by sex. Similar to homicide victims, the majority of suicide victims (67.2%) did not obtain more than a high school education. Some 40.1% did not complete high school and 27.1% managed to graduate from high school or obtain a GED. 58.3% of female suicide victims had an associate's degree, college education started or completed or post-graduate education compared to 25.6% of males.

Figure 16. Highest Educational Level Attained by Suicide Victims: Puerto Rico, 2021



Mechanism

Compared to homicides, the use of firearms is not the most frequent mechanism used in suicides. Table 11 shows the mechanisms used in suicides in Puerto Rico by sex. The main mechanism is asphyxiation (64.5% in men and 55.2% in women). The second most frequent mechanism in men is firearms (18.3%) and in women poisoning (27.6%). The use of firearms in women is less frequent (3.4%). Leap into the void is the third most frequent mechanism in men (8.1%), and in women (10.3%).

Table 11. Mechanism Used to Inflict Fatal Injury in Suicides: Puerto Rico, 2021

Mechanism	Sex of the victim		Total
	Men	Women	
Hanging, strangulation, suffocation	120 (64.5%)	16 (55.2%)	136 (63.3%)
Firearm	34 (18.3%)	1 (3.4%)	35 (16.3%)
Poisoning	13 (7.0%)	8 (27.6%)	21 (9.8%)
Fall	15 (8.1%)	3 (10.3%)	18 (8.4%)
Drowning	2 (1.1%)	0 -	2 (0.9%)
Fire or burns	1 (0.5%)	1 (3.4%)	2 (0.9%)
Other (e.g. motor vehicle, submersion, etc.)	1 (0.5%)	0 -	1 (0.5%)
Total	186 (100%)	29 (100%)	215 (100%)

Circumstances

Documentation of the circumstances of suicide focuses on the history of mental health problems, legal problems, financial problems, family problems, and problems at work. Table 12 shows the most frequent documented circumstances of suicide by sex. More women (41.1%) than men (19.9%) had a history of suicide attempts. The history of thoughts or plans to attempt suicide in men (26.3%) was more frequent than in women (17.2%).

In the cases of suicide that occurred in 2021, the victim expressing thoughts and/or plans to end their life to another person was evident in men only (n=27). Of these male suicides, 59.3% victims shared their suicide intentions in the last month with a family member or their intimate partner (29.6%). In 17.2% of male and 13.8% of female suicide victims, it was noted that health problem(s) appeared to have contributed to the death. It was less common for a victim to leave a suicide note (men 6.7%, women 13.8%). Problems with a current or former intimate partner appear to have contributed to suicide at a

higher proportion of female (17.2%) than male (10.8%) suicide victims.

Table 12. Suicide Circumstances: Puerto Rico, 2021

Suicide Circumstances	Sex of the victim		Total (n=215)
	Men (n=186)	Women (n=29)	
The victim had a history of suicide attempts before the fatal incident	37 (19.9%)	12 (41.4%)	49 (22.8%)
The victim had a history of suicidal thoughts, plans or attempts	49 (26.3%)	5 (17.2%)	54 (25.1%)
The victim disclosed thoughts and/or plans of suicide to another person in the last month	27 (12.4%)	0	27 (12.6%)
To current or former partner	8 (29.6%)	0	8 (29.6%)
To another family member	16 (59.3%)	0	16 (59.3%)
To a friend	2 (7.4%)	0	2 (7.4%)
To another person	1 (3.7%)	0	1 (3.7%)
Victim's health problem(s) appear to have contributed to death	32 (17.2%)	4 (13.8%)	36 (16.7%)
The victim left a suicide note	31 (16.7%)	4 (13.8%)	35 (16.3%)
Financial problems appear to have contributed to death	4 (2.2%)	0	4 (1.9%)
The death of a family member or friend due to a cause other than suicide appears to have contributed to the death	7 (3.8%)	0	7 (3.3%)
Work problems(s) appear to have contributed to the death	9 (4.8%)	2 (6.69%)	11 (5.1%)
Problems with intimate partner or ex-partner that may have contributed to the suicide	20 (10.8%)	5 (17.2%)	25 (11.6%)

There can be multiple mental health circumstances in suicide victims. Table 13 shows the frequency of mental health-related circumstances documented in suicides that occurred in 2021. The most frequently reported circumstance was that the victim had been identified as having a current mental health problem

(44.6% in males and 65.5% in females). The second most frequent circumstance was that the victim was perceived by self or others as depressed (30.6% in males and 37.9% in females). A history of ever being treated for a mental health or substance abuse problem was more common in women (55.2%) than in men (26.3%).

Table 13. Mental Health Circumstances in Suicides: Puerto Rico, 2021

Mental Health Circumstances in Suicides (n=215)	Sex of the victim		Total n=215
	Men n= 186	Women n= 29	
Victim had been identified as currently having a mental health problem	83 44.6%	19 65.5%	102 47.4%
Victim was perceived by self or others to be depressed at the time of the injury	57 30.6%	11 37.9%	68 31.6%
History of ever being treated for a mental health or substance abuse problem	49 26.3%	16 55.2%	65 30.2%
Victim was in treatment for a mental health problem or substance abuse problem	32 17.2%	11 37.9%	43 20.0%
Victim had alcohol dependence or alcohol problem	25 13.4%	1 3.4%	26 12.1%
Victim had a non-alcohol related substance abuse problem	32 17.2%	3 10.3%	35 16.3%

Mental Health Diagnosis and Suicides Related to Disasters

In 63.7% of all suicide victims (n=137) there was documentation of one to three mental health diagnoses at the time of the fatal event, reported in 58.6% of men (n=109) and 96.6% in the case of women (n=28). Of these victims, 74.5% had a single diagnosis, 23.4% had two diagnoses, and 2.2% had three diagnoses. The most frequent diagnosis was depression or dysthymia (73.5% in men and 68.4% in women), and to a lesser degree anxiety (21.1% in men and 17.4% in women), bipolar disorder (14.5% in men and 21.1% in women) and schizophrenia (13.2% in men, 21.1% in women). Finally, five disaster-related suicides were documented, all associated with the COVID-19 pandemic. Three victims were affected by depression due to the pandemic and two victims due to the effect of the pandemic on their jobs.

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