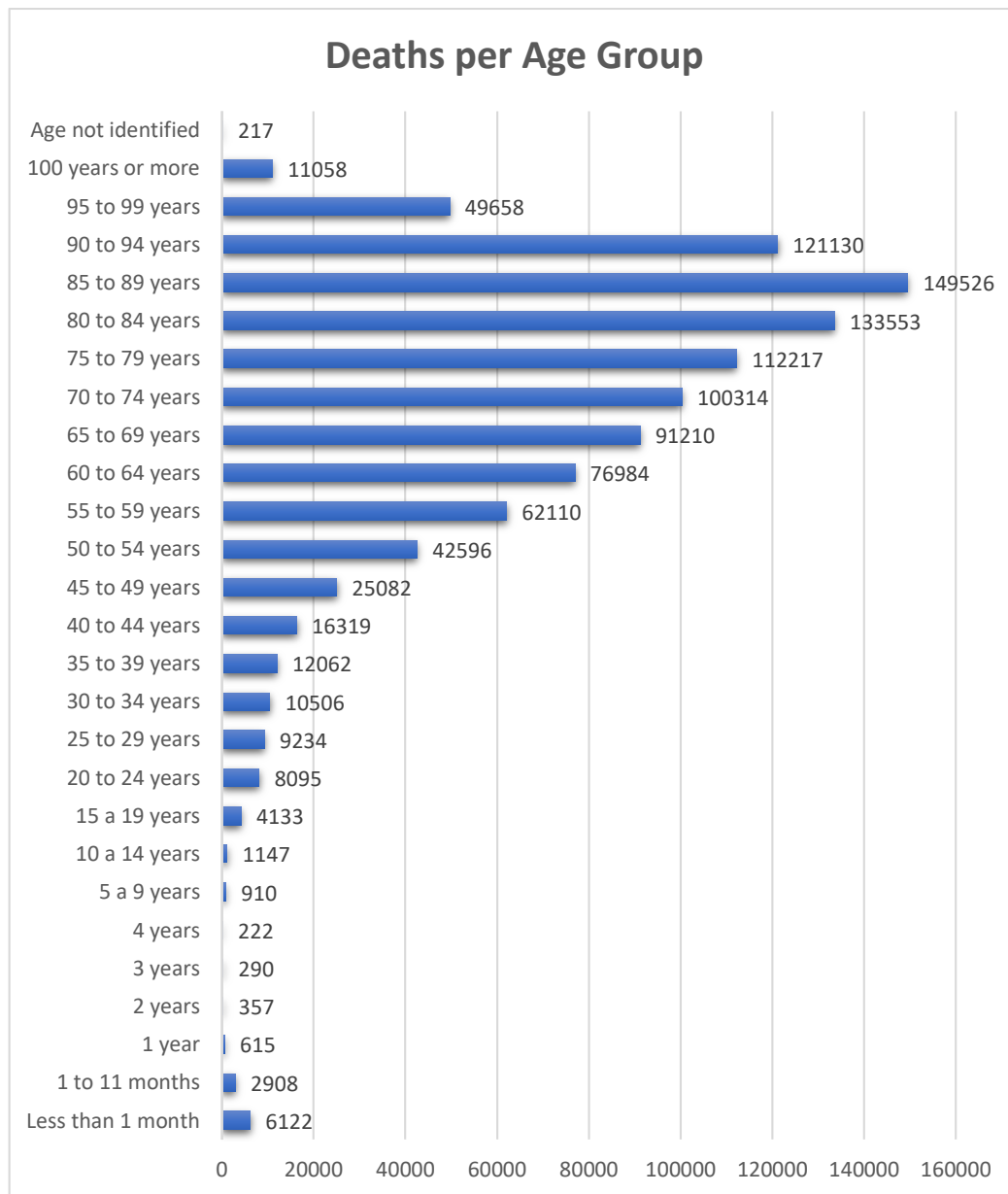# Mortality in the USA

Introduction

The following report provides a detailed demographic analysis of mortality data for the year 2015 in the United States. Such knowledge of mortality trends by different demographic groups is of interest to policymakers, healthcare workers, and people working with public health issues. The work seeks to bring out any associated patterns and insights in aspects of age, sex, marital status, race, and where the death occurred.

The dataset used for this analysis contains a wealth of information - individual characteristics (e.g., race and marital status) and external factors (e.g., place of death and manner of disposition). I used SQL-based queries to investigate how mortality varies across these dimensions to bring into sharp relief possible disparities as well as trends which would be useful for decision-making.

I will start to answer a couple of questions regarding demographic analysis of the mortality in the USA:

1. What is the distribution of deaths by age group and gender?
2. How does mortality vary across racial groups?
3. Does marital status impact mortality by age group or gender?

What is the distribution of deaths by age group and gender?

Deaths per Age Group

Age Group	Deaths
Age not identified	217
100 years or more	11058
95 to 99 years	49658
90 to 94 years	121130
85 to 89 years	149526
80 to 84 years	133553
75 to 79 years	112217
70 to 74 years	100314
65 to 69 years	91210
60 to 64 years	76984
55 to 59 years	62110
50 to 54 years	42596
45 to 49 years	25082
40 to 44 years	16319
35 to 39 years	12062
30 to 34 years	10506
25 to 29 years	9234
20 to 24 years	8095
15 a 19 years	4133
10 a 14 years	1147
5 a 9 years	910
4 years	222
3 years	290
2 years	357
1 year	615
1 to 11 months	2908
Less than 1 month	6122

In this graphic it's possible to notice that the majority of death occur in the older age groups, particularly from age 65 and above.

The highest number of deaths, with 149526 recorded, belongs to the age group 85 to 89 years old, followed closely by those aged 80 to 84 years, with 133553 deaths. With this we can conclude that the older population is the most affected when it comes to mortality.

In younger age groups the number of deaths is significantly lower. It's possible to see that 50 to 54 years group reports 42596 deaths and the numbers gradually decrease as

we move down to younger ages. The 1 to 4 years group records 1484 while those ages 5 to 9 years see just 910.

It's worth to notice that there are 6122 deaths in category "Less than 1 month" which stands out compare to other early life stages.

It's stand out that individuals are still living longer lives, beyond a 100 years. There are 11058 deaths for individuals with 100 years or more, reflecting longevity in the population.

There is a small portion of the population where age is not identified, accounting for 217 deaths.

Insights:

- This data suggests that healthcare service for elderly need to be a priority, since we notice substantial proportion of deaths in people aged 65 and above.
- The fact that a lot of people live past 90 and even 100 years old points towards increasing life expectancy in the population. This can implicate pension systems, elder care, among others.
- While the overall number in early childhood is low, the 6122 deaths in those "Less than 1 month" points to concerns related to neonatal health.
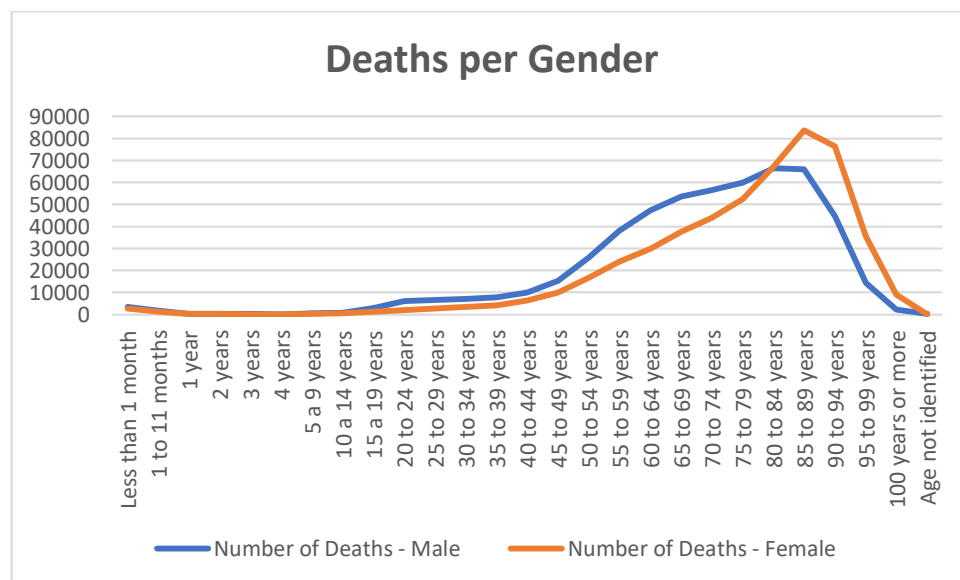
This graphic titled "Deaths per Gender" illustrates the number of deaths of males and females across various ages groups.

From infancy through childhood the number of deaths of both male and female are low and relatively similarly. It's not possible to notice a significant difference between the genders.

On the contrary, from 20 to 60 years, male death starts to increase more rapidly than female deaths and it's possible to visualize a clear gap between the genders.

In older ages, between 60 and 80 years the male death starts do decrease but continue to outnumber female deaths.

After the age of 80 years, female deaths begin to surpass male deaths. The highest number of female deaths occurs between 85 to 89 years.

In the age groups beyond 90 years, both gender dead's starts to decline, but female deaths remain higher.

Insights:

- The graphic highlights that males tend to have a higher death rate during their middle-aged years.
- The increase in the female deaths in the older age groups, may point to the fact that women generally live longer that men.
- Understanding these patterns can be really useful in addressing gender specific health issues at different life stages.

Does marital status impact mortality by age group or sex?
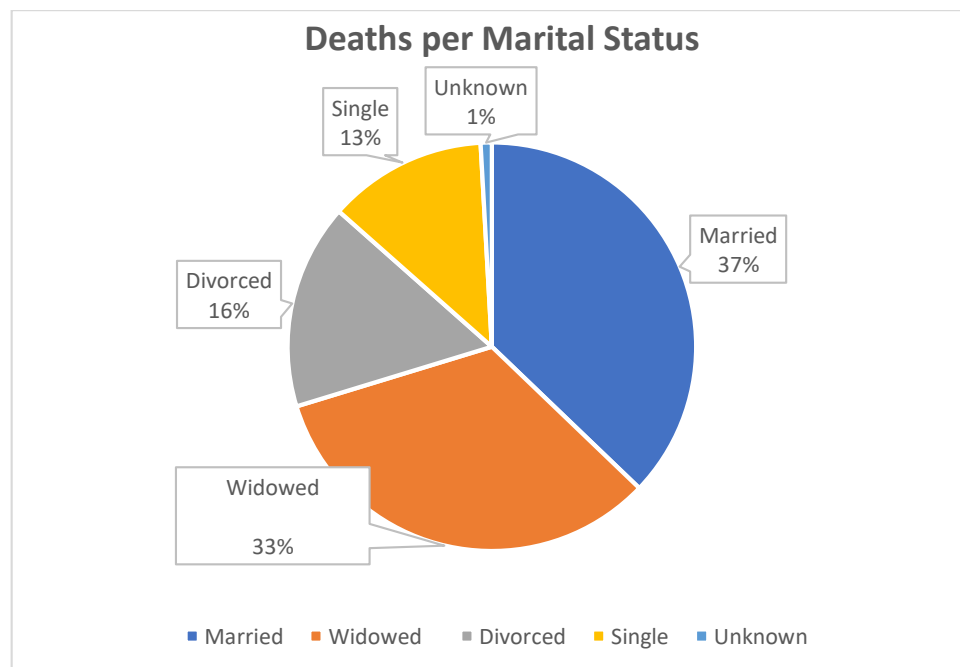
The largest portions of deaths, as we can see in the pie chart, is in the Married individuals, making up 37% of the total.

The second largest group belongs to the Widowed. This reflects that a lot of people lose their partners before passing away.

Insights:

- In the graphic we can notice that, unsurprising, the widowed individuals are the second largest proportion of deaths, given the fact that older people are more likely to lose their spouse as they age.
- As we saw in the previous graphic "Deaths per Gender", women tend to live longer than men, and can be often, widowed in older age, contributing this way to the percentage.
- The divorced individuals represent 16% of the deaths. This suggest that divorce is a significant factor in the overall population. Stress, financial instability and health issues after the divorce can be the causes of that percentage.

Gender	Marital Status	Age Group	Number of Deaths
Male	Single	Under 1 Year	4983
Male	Single	1 to 4 Years	853
Male	Single	5 to 14 Years	1222
Male	Single	15 to 24 Years	8649
Male	Single	25 to 34 Years	10085
Male	Single	35 to 44 Years	7956
Male	Married	45 to 54 Years	15470
Male	Married	55 to 64 Years	37706
Male	Married	65 to 74 Years	62944
Male	Married	75 to 84 Years	77171
Female	Widowed	>= 85 Years	161220
Male	Unknown	Age not stated	161

This table shows, for each age group, which are the gender and marital status that have more deaths.

As we can see, male individuals are dominant in almost all age groups. Female individuals only appear in the oldest age group ">= 85 years" with the highest number of deaths 161220. This indicates that women live longer but also accumulate more deaths at older ages.

With this table we also can corroborate the first graphic where we showed that mortality increases as the age increases. The "Under 1 Year" age group, have the lowest number of deaths, 853 and the ">= 85 Years", is the age group were occurred most deaths.

Males were most representative in the younger age groups, such as Under 1 Year, 5 to 14 Years, and 25 to 34 Years, where single men dominate. This might suggest that singleness prevails among the young or that deaths in these categories relate to people who had not yet married.
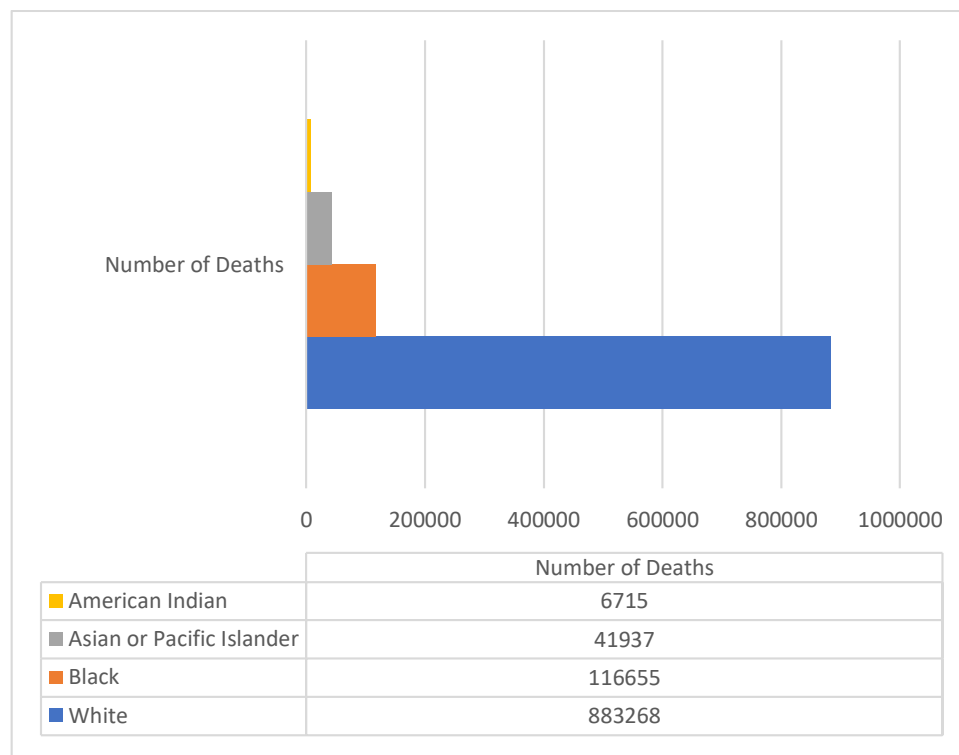
In married men, there is higher mortality in older age groups, 45 to 54 Years and 65 to 74 Years. This reflects typical life patterns since these are the ages at which most people are likely to be married.

Widowed females dominate the oldest age group (>= 85 Years) since, in addition to tending to live longer than men, they also have their highest probability of widowhood at the older ages.

Insights:

- The shift from single to married can be seen in the increasing figures of mortality as age moves from 25 to 54 years.
- A jump in death counts among older age groups, in particular 65 to 74 Years and >=85 Years, is more in line with the natural course of mortality relating to old age upsurge in chronic ailments and other infirmities.
- Mortality patterns are apparent in gender differences, especially at advanced ages. Women make up a significant proportion of deaths, possibly reflecting longer life expectancy.

How does mortality vary across racial groups?

	Number of Deaths
■ American Indian	6715
■ Asian or Pacific Islander	41937
■ Black	116655
■ White	883268

The bar chart shows that White individuals represents, for a large margin, the group race with the most deaths, 883268, followed by the Black individuals with 116655.

With relatively smaller number of deaths than the two first race groups, the Asian or Pacific Islander accounts 41937 deaths. The American Indian is the race group with the fewest deaths reported in this graphic, accounting 6715 deaths.

Insights:

- The White population depicts a very high number of deaths. This could be reflective of either a larger population base or an aging demographic where higher mortality rates exist among older individuals.
- The death count for Asian or Pacific Islanders and American Indians is much lower because of their size of the population, maybe other factors, such as accessibility to healthcare, or geographical distribution.
- The chart implies that the size and structure of the population of an area have a significant effect on the total number of deaths.
- The observed mortality patterns may be influenced by healthcare and socio-economic factors, especially for some minority groups, for example, Black or American Indian populations, that have historically experienced more health challenges.
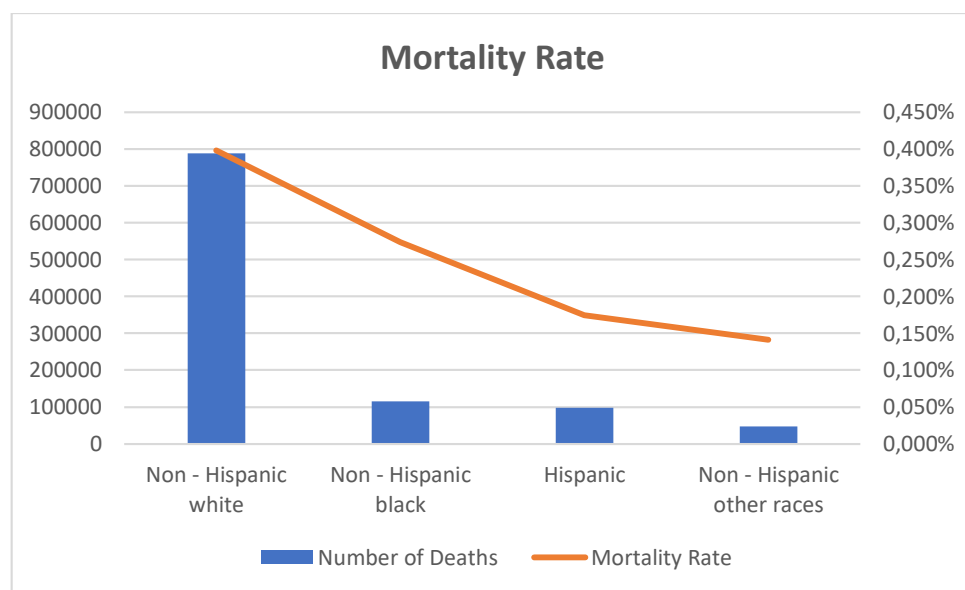
Mortality Rate

To better analyze the data that I had, I did a fast research that gave me the number of people for each race/ethnicity. With this additional data I was able to analyze, besides the number of deaths per race, the mortality rate for each one.

In the graphic the bars represent the number of deaths for race groups and for a specific comparison between the people of the ethnicity Hispanic and the other people. The line represents how the mortality rate [(number of deaths/number of people) * 100] varies from group to group.

As we saw in the previous graphic the White individuals have the majority of deaths, and when we have a look to the mortality rate this race group also have the highest percentage number 0,398%.

However, when we talk about the mortality rate, the difference between the Black individuals and the White individuals is less than the difference when we talked about the

number of deaths. With 0,274% the Black individuals have the second highest mortality rate.

With a number of deaths of 98406 and a 0,174% of mortality rate, the Hispanic ethnicity represents a significant part of the deaths in the year of 2015 in USA.

Insights:

- The lower difference, between the White and the Black individuals, when we talk about mortality rate, suggests that even the first group still have the higher morality rate because of the large number of people, the Black population had more troubles with healthcare, socioeconomic status and others.
- The orange line representing the mortality rate shows a general decreasing trend from the Non-Hispanic White to the Non-Hispanic Other Races categories. This suggests that as we move from the majority population to minority populations, there is a corresponding decrease in the mortality rate.